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UNRAVELING THE USE OF COGNITIVE AND METACOGNITIVE LEARNING STRATEGIES AMONG MOROCCAN EFL FIRST-SEMESTER UNIVERSITY LEARNERS

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Abstract:
This study, drawing on the theory of metacognition as a lively research area in the field of educational psychology, is intended to explore the cognitive and metacognitive learning strategies (CMLSs) tapped by the English department first-semester university students in their learning practices. It is an attempt to evaluate the extent to which EFL learners resort to these 'high-level' heuristics for executing a diversity of learning-related tasks. To achieve this stated objective, this exploratory study targeted 63 Moroccan English department students. The data were gathered through the use of a 'self-report questionnaire' that addressed the learners' recourse to (meta) cognitive learning strategies (CMLSs) along the continuum of their academic studies at the first-semester level. The outcomes reached manifestly exhibit that heavy reliance on cognitive strategies (CSs) and reduced dependency on metacognitive strategies (MSs) prototypically characterized the learners' adopted processing modes in tackling differing learning tasks relatable to studying English as a foreign language (EFL). Hence, some actionable recommendations as well as a few limitations encountered in conducting this study are explicitly put forward.

Keywords: cognitive learning strategies, learning performance, metacognition, metacognitive learning strategies

1. Introduction

Situated within the overall landscape of the underlying metacognitive theory, this study is a manifestation of the overriding role performed by metacognition in directing the learners' strategic behavior. In fact, the vast cognitive literature (e.g., Brown, 1981; Flavell, 1971; Garner, 1987; Stewart & Tei, 1983; Veenman, *et al.*, 2006) considers metacognition as

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'cognition about cognition' or 'thinking about thinking'. It is a sophisticated type of self-regulation that shapes human thinking and optimizes cognitive performance. According to Flavell (1971), metacognition is viewed as the act of monitoring and regulating one's cognitive processes. This shows that metacognition, as a prototypical form of critical reasoning and analytical thinking, refers to the learners' astute awareness of the cognitive operations and mental mechanisms involved in the execution of a wide plethora of learning-based tasks. It constitutes a firm base of declarative, procedural, and conditional knowledge of differing strategies and thinking patterns that facilitate and enhance a host of learning endeavors (Msaddek, 2015). Obviously, it is via the engagement in metacognitive thinking and the reliance on self-control procedures, which necessitate a set of 'higher-order' processing modes, that task performance can be competently carried out by the learners.

It is apparent that performing any cognitive task related to English as a foreign language (e.g., reading, listening, speaking, writing, bilingual translation, vocabulary learning, grammar learning) involves mental abilities, heuristic processes, and processing modalities for achieving greater understanding. They are deemed as facilitative factors in the operation of learning as a cognitively and strategically demanding endeavour within the arena of higher education. In effect, cognition, metacognition, and self-regulation, as pivotal constituents undergirding the accomplishment of any assigned learning task relative to English as a foreign language (EFL) at the university level, direct both the way different types of knowledge and ideas are understood and the mode through which many learning strategies (LSs) are implemented by the language learners.

Much scholarly research underscores the importance of LSs in enhancing second language learning (e.g., Cohen, 1998; O'Malley, *et al.*, 1985; Oktoma, *et al.*, 2020; Oxford, 1990; Ranjan, *et al.*, 2019; Schuster, *et al.*, 2023; Stebner, *et al.*, 2022). Actually, strategies related to learning serve as *"a resource that learners can turn to in solving language learning tasks"* (Takač, 2008, pp.50-51). They play an essential role in enabling learners to undertake many study tasks, which are at times demanding, in an effective, successful fashion (Msaddek, 2015). More crucially, strategies provide learners with the potential to obtain the required knowledge and comprehend the meaning. This greater significance of LSs is basically underscored by Cohen (1998) who contends that they are mainly used by learners with the explicit goal of improving their knowledge and understanding of a target language (TL) (p.68). Therefore, coping with either a simple or complex learning task does entail the efficient implementation of LSs which have a facilitating function in building the intended understanding.

It is posited that learning strategies (LSs) are of substantial significance to effective learning performance and academic achievement. In fact, the strategies involved in language learning were foregrounded by many academic researchers (e.g., Oxford, 1990; Rubin, 1981). Further, a myriad of seminal research studies on LSs (e.g., Ping & Luan, 2017; Ranjan, *et al.*, 2019; Simsek & Balaban, 2010; Waldvogel, 2013) have been conducted. Yet, the procedure of drawing a parallel between cognitive learning strategies (CLSs) and metacognitive learning strategies (MLSs) at the level of deployment and application

among EFL learners has been an under-researched area, namely in Moroccan tertiary education. Hence, taking account of the major taxonomies of LSs devised by many leading, established researchers (e.g., O'Malley & Chamot, 1990; Oxford, 1990) in the broad sphere of second language learning, and considering the scanty attention given to cognitive and metacognitive learning strategy use among university-level learners within the Moroccan context, the current study explores whether Moroccan English department university learners resort to these typologies of LSs (i.e., cognitive, metacognitive) along the course of their academic studies, namely at the first-semester level.

2. Literature Review

2.1. Language Learning Strategies (LLSs): A Brief Overview

Strategies are conceptualized as potentially conscious, controllable steps in executing a host of cognitive tasks (Pressley, Forrest-Pressley, Elliott-Faust, & Miller, 1985). In principle, the utilization of strategies is a high requirement in performing not only simple tasks which require a small amount of efforts but also highly complex tasks that entail intense concentration and focused attention on the part of university-level learners (Msaddek, 2015). Under this account, Ellis (1994) postulates that strategies lose their unique significance if they are not consciously and deliberately used by learners. This stated premise underscores the key role of consciousness and intentionality, as two vital facets undergirding the nature of strategy use, in ensuring an efficiency-oriented type of learning performance amongst EFL learners.

It is true to posit that language learning strategies (LLSs) are effective steps that facilitate the process of coping with academic learning tasks. For Rubin (1987), learning strategies (LSs) are viewed as *"any sets of operations, steps, plans, routines used by the learner to facilitate the obtaining, storage, retrieval and use of information"* (p. 19). This demonstrates that strategies play a paramount role in assisting learners to have a full grasp of the content and to ensure the successful performance of learning-oriented tasks (e.g., reading, writing, listening, speaking, vocabulary learning, grammar learning) at hand. Indeed, without the use of LSs, the learners' accomplishment in any assigned task can be characterized by inefficiency and inadequacy.

The use of LLSs is deemed the master key to assuring an efficiency-driven learning performance. They occupy a decisive role in facilitating the process of foreign language learning insofar as they can be transferred by learners across a myriad of learning tasks (e.g., reading, listening, speaking, writing, vocabulary tasks) in a specific language rather than across languages (i.e., Arabic, English, French, Spanish, German, Russian, Amazigh). This was buttressed by prior scholarly research revealing that metacognitive skills and strategies are transferred to many learning scenarios and domains (Stebner, 2022). Further, many researchers (e.g., Ping & Luan, 2017; Ranjan, *et al.*, 2019; Waldvogel, 2013; Wenden, 1998) put forth that language proficiency is a determinant factor for effective learning strategy use. Given this fact, it is deduced that learners can only transfer learning strategies from one language to other languages (i.e., Arabic, English, French,

Spanish, German, Russian, Amazigh) if they exhibit competent mastery of the languages concerned or if they receive explicit/ direct learning strategy instruction in those languages to ensure strategy transferability. This shows that the proactive process of transferring the LSs from one language to another entails bilingual, or even multilingual, proficiency.

All in all, it is plain that the strategies involved in foreign language learning, as key predictors of academic success, are differently classified and widely dealt with by many prominent, established researchers (e.g., Naiman *et al.*, 1978; O'Malley & Chamot, 1990; O'Malley, *et al.*, 1985; Oxford, 1990; Rubin, 1981) whose intrinsic interest falls within the critical study of language learning and strategy use. This will be set forth in the ensuing section.

2.2. Classification of Language Learning Strategies (LLSs)

Many academic researchers (e.g., O'Malley & Chamot, 1990; Oxford, 1990; Rubin, 1981) developed various taxonomies for LLSs. The latter, being presented under diverse categories and representing the learners' internal thoughts and techniques, have been described as 'elusive' (Wenden & Rubin, 1987) and 'fluid' (Gu, 2012). In effect, a wide variety of classifications have been set forth with a view to clarifying the authentic nature and the higher importance of LSs in the process of executing particular language-based learning tasks.

For instance, Rubin (1981) puts forth two prime groupings of strategies. He tends to differentiate between strategies that have a direct effect on learning (e.g., clarification, memorization, monitoring, reasoning, and practice) and strategies which indirectly facilitate the process of learning (e.g., creating practice opportunities and communication techniques) (See Appendix, Table 1). Clearly, Rubin's (1981) classification of LSs can be seen as typical for it reflects the major steps and procedural techniques that contribute to the processes of understanding information and learning the language in a successful manner.

In the same spirit, Oxford (1990) states that LSs can be distinguished in terms of direct and indirect strategies (See Appendix, Table 2). The first grouping encompasses memory, cognitive, and compensation strategies. As for the second grouping, indirect strategies, include metacognitive, affective, and social strategies. These strategies, both direct and indirect, have a contributing role in the information analysis process. Similarly, O'Malley and Chamot (1990) came up with their own classification of LSs. They categorize them into cognitive, metacognitive, and social/affective strategies (See Appendix, Table 3). Actually, many different 'taxonomies' of LSs exist, but it is widely recognized that Oxford's (1990) and O'Malley and Chamot's (1990) strategy classifications can be considered as the most significant and comprehensive ones since they encompass almost all the strategies involved in the learning process. Hence, in the present research study, the focus is placed on two major typologies of LSs (i.e., cognitive, metacognitive).

As mentioned above, LSs were classified in differing ways by many academic language theorists and researchers (e.g., O'Malley & Chamot, 1990; Oxford, 1990; Rubin, 1981). However, in spite of the marked divergence in the categorization of LSs, researchers seem, in a way, to converge on certain aspects and typical features that really characterize the nature of strategies on a highly large scale. Granted this particular fact, and building on the classification of LSs presented in the larger, more comprehensive literature review put forth in my unpublished doctoral dissertation (Defended in 2015), it can be stated that LSs are divided into cognitive and metacognitive strategies.

Actually, cognitive learning strategies (CLSs) are classified into rehearsing, organizing, and elaborating, whereas metacognitive learning strategies (MLSs) are clustered into planning, monitoring, and evaluating (Msaddek, 2015). Thus, the current study is primarily concerned with cognitive and metacognitive learning strategies (CMLSs) as they constitute the essential variables facilitating the language learning process more substantially.

2.2.1. Cognitive Learning Strategies (CLSs)

Cognitive learning strategies (CLSs) are direct strategies whose main function is the manipulation or transformation of the target language (TL) by the learner (Oxford, 1990, p.43). Indeed, the multifaceted process of grasping information in an efficiency-driven fashion is firmly founded upon the meticulous use of CLSs which act as efficient enablers leading to positive learning outcomes. In this vein, Rubin (1981) declares that CLSs are conceptualized as specific procedures and sound steps which directly facilitate the learning process. They are deemed the most crucial strategies that are made use of by learners in the process of approaching and analyzing multiple learning tasks (Msaddek, 2015). In this sense, it is assumed that rehearsing, organizing, and elaborating, which are cognitively based and which will be reviewed herein, can directly contribute to the accomplishment of any given academic undertaking.

2.2.1.1. Rehearsing

Rehearsing is mainly used by learners for repeating and remembering ideas and views which are stated in a given learning task. As noted by Schwartz (1984), *"rehearsal can mean nothing more than repeating the information to oneself"* (p.78). In fact, rehearsal strategies, when utilized for either simple or complex tasks relevant to learning, enable the learners to memorize important terminologies and key statements for the sake of achieving comprehension. In this context, as some researchers argue, rehearsing *"can be a useful strategy, particularly if it is used as an opportunity to engage in more elaborate processing of the material"* (Craik & Waltkins, 1973). This reveals that, as a purely cognitive strategy, rehearsing provides learners with the basic ability to recognize the meaning of ideas and keep in mind the knowledge that is presented in a particular learning or studying task.

Vanderstoep and Pintrich (2003) argue that rehearsal strategies can, by themselves, be categorized into shallow and deep strategies. The first category involves simple repetition whereas the second category is related to association learning (e.g.,

mnemonics) (Vanderstoep & Pintrich, 2003). In other terms, rehearsal strategies assist learners both in remembering the sought information and associating particular ideas and concepts with other ones in order to effectively and easily reach an adequate understanding. Thus, in attempting to approach an assigned learning task and meet its requirements, learners can make use of a wide range of rehearsal strategies such as highlighting, underlining, and note-taking in order to remember the most crucial stated points, facts, and information that contribute to the attainment of content comprehension.

2.2.1.2. Organizing

Organizing, on the other hand, refers to *"reducing the load on working memory and helping to build meaning for the new information students are trying to learn"* (Basden, Basden, Devecchio & Anders, 1991). Basically, as its name suggests, this cognitive strategy is primarily utilized by the learners with the key objective of selecting and organizing the information that is under critical analysis. This stated premise is stressed by Lyke and Kelaher Young (2006) who maintain that the strategy of organizing *"requires students to link concepts and ideas in a particular order"* (p.478). This actual way of organizing ideas can facilitate the process of comprehension for second/foreign language learners. In fact, in so doing, they can conduct any learning task in a highly efficient manner.

As a matter of fact, organizational strategies encompass a broad array of procedures which can be applied to any cognitive learning task (e.g., reading, speaking, writing). These procedural steps are manifestly reflected in *"outlining, diagramming, classifying, categorizing, noting similarities and differences, identifying hierarchical relationships, and separating main ideas from details"* (Weinstein & Hume, 1998, p.37). They can be essentially considered as contributing constituents in facilitating the learning process in various ways. Though their use requires a great deal of cognitive effort and mental capabilities from learners, these organizing procedures enable them to attain the intended meaning included in the learning material. Thus, meaningfully organizing the basic ideas, which at times constitute the core content, is a promising way to cope with the target task with a certain degree of efficiency.

2.2.1.3. Elaborating

Elaborating is viewed as another fundamental cognitive learning strategy to which learners have recourse to reach an effective understanding. Obviously, its implementation in learning situations can be deemed to be the final step in which learners can make complete sense of the content. As claimed by Lyke and Kelaher Young (2006), elaboration strategies *"tend to be generative in nature and require the student to create more sophisticated and elaborate schema than what is presented"* (p.478) In more explicit terms, making use of these strategies, learners, namely mature and independent ones, can further expand and elaborate upon the overall meaning included in the task by relating it to their previously acquired knowledge. Hence, elaboration strategies are of critical significance for efficiently tackling different kinds of learning tasks.

The utmost importance attributed to elaboration strategies resides mainly in enabling learners to develop a greater, broader understanding of a studying task (Msaddek, 2015). This process can only come into effect if learners employ a group of strategies that contribute to the construction of a more elaborate, deeper meaning. These strategies include *"using new words in a sentence, paraphrasing information, summarizing, matching, applying analogies, generating metaphors, making comparisons, writing questions, and forming mental images"* (Simsek & Balaban, 2010, p.37). Clearly, not only do these strategies allow learners to compare, contrast, and question the most crucial ideas and stated views, but they also assist them in linking what they already know to what they attempt to learn from any academic assignment. Therefore, the presented strategies pertaining to elaboration are inextricably intertwined with the achievement of a thorough understanding of the content in that they help learners integrate their prior knowledge with what is included in the investigated task.

2.2.2. Metacognitive Learning Strategies (MLSs)

Metacognitive learning strategies (MLSs) are defined as self-regulatory moves that facilitate the way of coping with given tasks and buttress the process of absorbing the intended meaning. They are deemed to be the necessary actions taken by learners to coordinate their own learning process (Oxford, 1990). Thus, the reliance on the MLSs in dealing with diverse tasks of learning implies a methodical sense of reasoning as well as critical thinking on the part of EFL learners. These strategies, in addition to contributing to the regulation of the learning process, constitute a pivotal basis upon which learners depend for reasonably taking charge of their learning practices and effectively analyzing and processing information. Accordingly, planning, monitoring, and evaluating, which are addressed in the following sub-sections, remain the foundational strategies that are entirely metacognitive in essence.

2.2.2.1. Planning

Being conceptualized as an efficient metacognitive strategy resorted to by the learners to organize the way of conducting a study task, planning constitutes the baseline upon which the process of learning is firmly founded. This strategy enables the learners to exert self-control in processing information and performing a given learning task (Schmitt & Newby, 1986). Requiring an immeasurable level of self-regulation which is an essential requirement for executing a diversity of learning tasks, planning is purely *"goal-related"* (Schmitt & Newby, 1986) since it helps learners achieve their intended objectives relative to any academic endeavor. It is at this stage that learners decide to take the appropriate path through which they can diligently approach the learning task (Msaddek, 2021).

Clearly, planning is a potent footstep in the process of learning since it allows learners to handle a range of learning tasks in a seemingly effectual, organized way. This evinces that planning, as a meta-strategic, self-directed move adopted at the outset, requires the learners to exhibit an astute awareness of both their cognitive abilities and the nature of the assigned task (Msaddek, 2023). It holds robust potential in furnishing

the learners with the capability to chart out a purposeful pathway toward attaining the desired goals set within the academic disciplines pertaining to the field of tertiary education.

2.2.2.2. Monitoring

According to Nietfeld, Cao, and Osborne (2005), the actual process of monitoring assists students in tracking their ongoing cognitive processes and using regulatory strategies with a view to competently coping with some learning-related situations. It is a fundamentally essential technique tapped by the learners for both inspecting their progress monitoring and applying their problem-solving skills in a well-reasoned fashion. This explicitly postulated view undergirds the overriding importance of the monitoring strategy, as a metacognitive, self-regulatory footstep, in coping with a multiplicity of learning tasks. Further, it is axiomatic that the intrinsic engagement in the meticulous act of monitoring during the execution of learning tasks equips the learners with the robust potential to ensure that the process of grasping the content is efficiently conducted.

Schmitt and Newby (1986) outstandingly declare that monitoring is a major constituent of metacognition. This showcases that the procedural step of monitoring one's learning progress and strategic behavior is informed and directed through metacognitive thinking, self-regulation, and self-control which constitute the overarching principles underpinning the metacognitive theory. By immersing themselves in critical self-reflection and cultivating a sense of reasoning, learners can tackle the learning task with optimal accuracy and maximal efficiency. However, monitoring, as a form of high-order thinking mechanism facilitating the act of grasping the content in its entirety, is regularly resorted to by experienced, skilled learners (Brezin, 1980). This unveils that cognitive involvement in monitoring requires such qualities as skillfulness, resourcefulness, autonomy, reflection, and self-efficacy beliefs which are frequently exhibited by mature, accomplished learners.

2.2.2.3. Evaluating

Schraw and Moshman (1995) maintain that evaluating is viewed as the procedure of *"appraising the products and regulatory processes of one's learning"* (p.355). It is a metacognitive strategic move enabling the learners to assess the amount of understanding gained and to determine the degree of success attained after executing a given learning task (e.g., reading, listening, writing, speaking, etc…). This evinces that evaluating, as a 'high-order', executive control process taken for gauging one's mastery of language input and output, involves such 'high-level' fundamentals as self-regulated behavior, metacognitive thinking, and sense of reasoning which are part of the key to reflecting efficient, successful learning performance.

Hence, the evaluation act can be conceived of as the most paramount strategy via which EFL learners critically reflect upon and metacognitively rethink their assimilation and understanding of the content embedded in different learning tasks (Msaddek, 2015).

It requires meticulous recourse to the 'higher-order' reasoning and rational reflection from the learners in the pursuit of achieving efficiency at the level of learning performance. In effect, given its purely metacognitive nature, evaluating is integral to the accomplishment of a varied host of learning tasks. It assists the learners in measuring the extent to which their overall mastery of the content of the material under focus is achieved.

Overall, CLSs, as direct strategies, are divided into rehearsing, organizing, and elaborating. As regards MLSs, the indirect ones, are split into three fundamental strategic moves, namely planning, monitoring, and evaluating. This taxonomy of learning strategies (LSs) (i.e., cognitive, metacognitive) was adopted and elaborated upon in the larger, more systemic literature review put forth in my unpublished doctoral dissertation (Defended in 2015). The above-stated CLSs and MLSs can outstandingly exert an immense influence on both the proactive way of comprehending diverse types of information and the dynamic act of undertaking multitudinous learning practices among foreign language learners. Thus, the present study intends to uncover the extent to which EFL university-level learners deploy these typologies of LSs in performing a massive array of tasks and assignments.

3. The Current Study

This exploratory study is geared toward displaying the extent to which Moroccan English department university students implement cognitive and metacognitive learning strategies (CMLSs) along the course of their academic studies at the first-semester stage. Thus, two research questions undergirding the current study have been crafted:

1) To what extent do Moroccan EFL university learners make use of cognitive strategies (CSs) in their learning endeavors?
2) To what extent do Moroccan EFL university learners' resort to metacognitive strategies (MSs) in tackling differing learning tasks?

4. Method

4.1. Participants

This study targeted a group of Moroccan English language department students at the Faculty of Letters and Human Sciences in Rabat. The participants belonging to this group (N=63) were conducting their English Studies at the first-semester level during the Autumn Semester (2012-2013). The underlying impetus behind addressing the English department learners is that they exhibit a substantial measure of self-motivated, autonomous learning in their academic endeavors. Indeed, they were learners of differing abilities and they had an approximately similar educational background since the large majority of them were exposed to the process of learning English as a foreign language (EFL) at the junior high school level.

4.2. Procedure

The present exploratory study, which is of qualitative and quantitative nature, is an attempt to unravel whether Moroccan English department learners have recourse to cognitive (i.e., rehearsing, organizing, elaborating) and metacognitive strategies (i.e., planning, monitoring, evaluating) in methodically coping with the assigned language learning tasks. To address this identifiable goal, a 'self-report questionnaire' was administered to the targeted group with a view to measuring the extent to which the learners call upon the cognitive and metacognitive learning strategies (CMLSs) whilst executing some given 'high-order' tasks (e.g., reading, listening, speaking, writing, grammar learning, vocabulary learning)

Hence, the reported strategic learning behaviors reflected by the targeted EFL group were elicited through the implementation of the 'self-report questionnaire' and were numerically presented. Clearly, the frequencies related to the use of CLSs (i.e., rehearsing, organizing, elaborating) as well as MLSs (i.e., planning, monitoring, evaluating) were plausibly foregrounded in the form of illustrative figures.

5. Results

5.1. EFL Learners' Use of Cognitive Strategies (CSs) in English Language Learning

As evinced by the attained results, it is clear that the EFL learners' dependency on cognitive learning strategies (CLSs) during the actual process of tackling a corpus of EFL-based tasks is prototypically characterized by stark adequacy. This is illustratively presented in the ensuing figure.

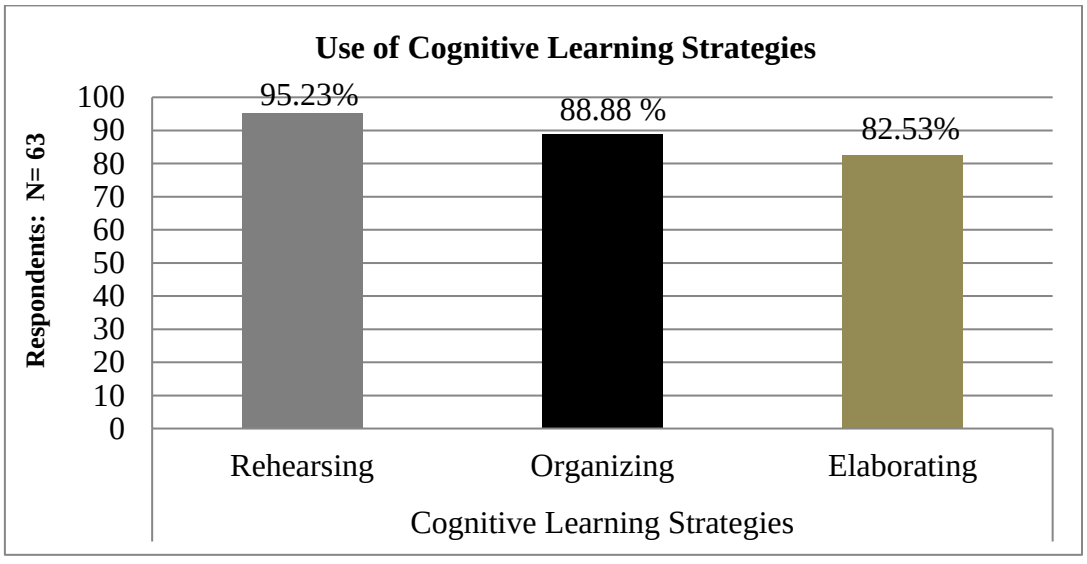

Figure 1: EFL Learners' Dependency on Cognitive Learning Strategies (CLSs)

The data gained through the administered 'self-report questionnaire' evinced that the EFL first-semester learners adequately tapped the cognitive learning strategies (CLSs) in performing a diversity of learning tasks. More explicitly, 95.23% of the participants

affirmed that they had recourse to rehearsing to reinforce their mastery of the assigned learning-related tasks. This means that the learners immerse themselves in a certain kind of 'self-talk' or 'internal dialogue' with a view to remembering the intended information. As for organizing, as another cognitive learning strategy enacted by learners during the learning task execution, was utilized by 88.88% of the EFL participants. The targeted learners adopted this strategic move whilst being involved in composing an academic piece of writing (i.e., paragraph writing, summary writing, synopsis writing), reading and analyzing a typically written discourse (i.e., note taking, underlining, selecting the main ideas), and structuring ideas in speaking performance (i.e., prioritizing ideas, using transitions, providing examples).

With regard to elaborating, which constitutes the robust technique geared toward expanding one's understanding and mastery of the learning tasks carried out in English as a foreign language (EFL), it was evoked by 82.53% of the participating EFL learners. Clearly, the elaborating strategies declared to be used by the participants were manifested in many strategic behaviors. The latter, reflecting the cognitive dimensions of learning, were foregrounded in paraphrasing and summarizing information, inferring the implicit meaning, formulating mental images, translating words/ sentences from English (L3) into other languages (i.e., Arabic, French, Spanish, German, Russian, Amazigh), depending on background knowledge (content, cultural, and formal schemata) for making efficient sense of the differing ideas and claims, and putting forth compelling arguments/ evidence in support of the stated perspectives.

5.2. EFL Learners' Use of Metacognitive Strategies (MSs) in English Language Learning

As it is tacitly indicated below (see Figure 2), limited reliance on metacognitive learning strategies (MLSs) was plainly observable among the targeted EFL group. This is reflected in the following figure.

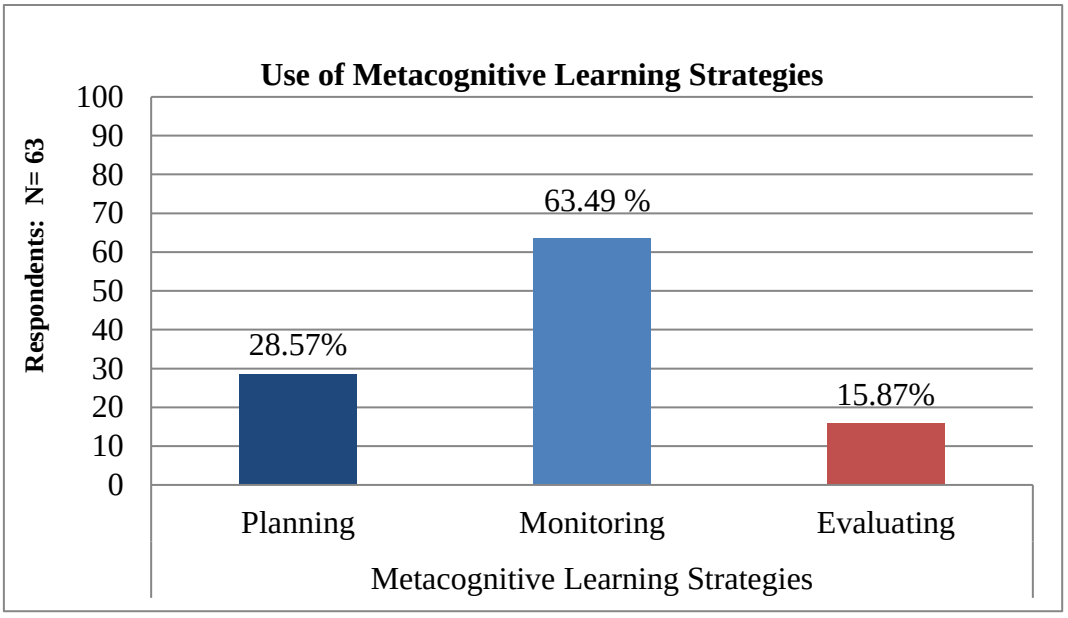

Figure 2: EFL Learners' Dependency on Metacognitive Learning Strategies (MLSs)

The findings showcase that the targeted EFL learners' recourse to metacognitive learning strategies (MLSs) is characterized by starkly apparent inadequacy. That is, planning, monitoring, and evaluating, which are sturdily premised on concerted self-regulation and cognitive control, were, to some extent, underutilized by the participating learners. Most participants in this study, 63.49%, confirmed that they depended upon monitoring while endeavoring to cope with differing learning tasks, especially in processing complex textual content, writing descriptive, narrative, or argumentative paragraphs, reading short stories, checking the meaning of words through dictionary use or context dependence, completing grammar-based tasks, and listening to lectures. With respect to planning, it was made use of by 28.57% of the learners addressed in this study. They stated that they set goals not only prior to analyzing the written discourse, but also before composing a well-thought-out paragraph by brainstorming and listing ideas. Further, they maintained that they relied on strategy selection, prior knowledge activation, and time allocation for conducting the assigned tasks under study in a planned manner. As regards evaluating, it was implemented only by 15.87% of the participants in recalling the textual content, receiving peer-correction and teacher correction, practising vocabulary items and their accurate pronunciation, and seeking constructive feedback on assignments related to grammar, speaking performance, and paragraph writing.

6. Discussion

The current study revealed the extent to which Moroccan EFL university learners tap the cognitive and metacognitive strategies in dealing with a diversified range of language learning tasks. The attained results exhibited that the targeted EFL learners made use of more cognitive than metacognitive learning heuristics in facilitating the way of executing the study tasks and the assignments administered to them along the course of their academic studies. This shows that most EFL university-level learners, despite the reflection of an optimal level of learner autonomy and self-efficacy beliefs, are not keenly cognizant of the expanded scope, nature, and depth of the metacognitive learning strategies (MLSs) that are deemed to be the facilitating agents not only for assuring an efficiency-oriented learning performance but also for optimally perfecting their English language learning.

The majority of the EFL learners targeted in this study reflected heavy reliance on CLSs (i.e., rehearsing, organizing, and elaborating) in their learning performance. To start with, it is clear that any learning act entails rehearsing as a strategic process facilitating the assimilation of ideas and conceptions. Given this, rehearsal strategies, as maintained by Asch (2002), have been identified as crucial processes in transferring new information from temporary to permanent storage. This tacitly reveals the underlying premise that the more concepts, ideas, and statements are rehearsed while dealing with a learning task, the more efficiently they are frequently recalled and retained. In effect, rehearsal strategies play a significant role in promoting the learners' understanding of the

presented information in the sense that they assist them both to store and retrieve a wide range of relevant concepts, ideologies, and views.

Further, it can be stated that organizing, as a cognitive learning strategy utilized in approaching many academic learning tasks of diverse types, helps learners readily and efficiently understand the target meaning of the content. This is in accord with Schunk's (1996) explicit view that organizational strategic steps immensely help to make the information more meaningful and easier to incorporate into memory. This kind of strategies, in effect, allows for a thoroughly rigorous processing of the assigned learning task. Yet, the cognitive strategy of organizing can only be reinforced via the strategic move of elaborating which occupies an indispensable part in the learning process. In this respect, Weinstein and Hume (1998) admit that elaborating is mainly used by learners for *"mastering complex learning tasks"* (p.28) which require cognitive efforts, processing abilities, and critical reasoning.

In regard to MLSs (i.e., planning, monitoring, and evaluating), they fundamentally constitute a pivotal part in enabling learners to gauge their cognitive progression during the process of analyzing and synthesizing information. Indeed, the implementation of this typology of LSs ensures both improved learning outcomes and effective sense-making procedures amongst foreign language learners within the university context. Under this account, O'Malley (1987) posits that the overriding function of MSs is basically planning, monitoring, and evaluating a multiplicity of learning tasks. In specific terms, it is manifest that planning for executing a particular learning task requires that learners, as potential 'agents' in the proactively dynamic operation of learning, direct, regulate, and control the use of strategies in order to reach the sought meaning perfectly (Msaddek, 2015). By being engaged in metacognitive planning moves, learners can pave the way for the adoption of both strategic monitoring behaviors and meta-strategic evaluating acts which are viably paramount in importance within the arena studying English as a foreign language (EFL) in tertiary education.

In addition, it is plausible that monitoring was heavily relied on and exerted by most of the participants. This evidences that the learners' extensive use of the monitoring process is correlated with the attainment of an effective understanding of the content included in a particular assigned task. It is true that undertaking any learning task (i.e., reading, listening, speaking, writing, vocabulary learning, grammar exercises) can only be successful if progress monitoring is accurately conducted by EFL learners who resort to this procedural step in apparently varying ways in order to ensure a thorough grasp of the embedded content. However, though the use of monitoring, as argued by Brezin (1980), is invariably reflected by skilled learners, it can be further reinforced through the delivery of explicit strategy training which plays a pivotal, unparalleled role in enabling learners to adeptly take control over the sense-making acts and optimally proceed in differing learning situations. This notion is tacitly highlighted by many educational researchers (e.g., Ahour & Mohseni, 2014; Mohammadi, *et al.*, 2015; Oktoma, *et al.*, 2020) who espouse the essentiality of strategy instruction in the educational field.

Regarding the final metacognitive learning strategy, evaluating, it was not enacted by all the participating EFL learners. This can be attributable to their lack of awareness of this strategic step which ensures revamped forms of learning behaviors. When learners assess their developmental progress as to task performance, it is likely that they will achieve a complete understanding of the target content, and thus attain a fair degree of proficiency pertaining to English language learning. Actually, it is through the immersion in self-evaluation on a massive scale that learners can be acutely cognizant of their inadequacies and shortcomings at the level of meta-strategic learning, and thus rectifying them in a myriad of subsequent learning tasks. This showcases that the engagement in self-evaluating whilst coping with a learning task entails the dependence on metacognitive knowledge (declarative, procedural, and conditional knowledge) on the part of the university learners who are supposed to assume full control over their strategic moves and reflect upon their adopted approach to carrying out the subsequent learning-based tasks.

Hence, it is manifest that the overarching importance of learning strategies (LSs), which necessitate an appreciable measure of self-regulation in various ways and to substantial degrees, should be put a bright spotlight on by educators and academics for extending the learners' potential in successfully charting their learning pathways. This stated postulate is buttressed by Oxford (1990) and Rigney (1978) who argue that learning strategies (LSs) encompass a wide range of behaviours that can contribute to the development of language competence in many ways. In other words, the strategies pertaining to the learning process, namely cognitive and metacognitive ones, occupy an outstandingly substantive part in making learners potentially competent, self-regulated, and self-directed in their learning behaviors. Yet, the results manifest that the targeted learners tended to utilize more cognitive than metacognitive strategies in differing learning tasks. This finding aligns with prior research outcomes (e.g., Amiridoomari, 2023; Oktoma, *et al.*, 2020; Sadati & Simin, 2017; Schuster, *et al.*, 2023) revealing the stark inadequacy of metacognitive learning strategy use among learners.

By utilizing a diverse corpus of (meta) cognitive learning strategies (CMLSs) in approaching a multitude of learning tasks, EFL university students, as potentially mature, autonomous learners, can refine their way of analyzing and understanding the presented information, ideas, and viewpoints. This articulated premise is in utter concert with the perception held by other prominent researchers (e.g., Hurd, 2008; Liang, 2009; O'Malley & Chamot, 1990; Oxford, 1990) who valorize the potential significance of strategy use in language learning. In fact, the use of LSs enables learners to have an overall knowledge of how to optimally self-regulate, direct, and conduct the process of coping with a vast plethora of learning-oriented tasks (e.g., reading, listening, speaking, writing, grammar, vocabulary) in English (L3). This shows that the successful undertaking of academic tasks requiring the exertion of cognitive efforts and the immersion in metacognitive thinking is firmly grounded in the concerted application of self-regulatory LSs. The latter are the prerequisite, meta-strategic steps that are meant to be taken by learners to revamp their learning experience, attain a fuller comprehension

of the ideational content, and ensure quality learning of English as a foreign language (EFL).

7. Conclusion

The conducted study set out to uncover the extent to which cognitive and metacognitive learning strategies (CMLSs) are utilized by the Moroccan English department learners in their academic studies at the first-semester level. The reached outcomes corroborate the explicit view that the participants tended to deploy more cognitive than metacognitive LSs in their way of approaching a myriad of learning tasks. This attained finding calls for the need to underscore the intrinsic usefulness of cognitive and metacognitive learning strategy instruction (CMLSI) in Moroccan tertiary education with a view to strengthening the EFL learners' self-regulated learning behaviors, self-efficacy beliefs, and meta-strategic thinking patterns.

Apparently, cognitive and metacognitive learning heuristics are viewed as mental processes which entail the implementation of a certain degree of critical thinking and analytical reasoning skills. This evinces that there is a firm correlation between metacognition and learning strategy use in the sense that metacognitive thinking richly informs and optimizes the strategically viable approaches and the rationally meta-strategic moves depended upon by the EFL learners in any 'high-level' learning endeavor in tertiary education. In essence, the competent accomplishment of the learning-oriented tasks can only be effected if university learners engage in metacognitive processing modes, activate their working-memory mechanisms, immerse themselves in reasonable thinking, and rationalize their self-regulatory strategic moves. Only via the dependence on such 'high-order' steps, which can be realized through an explicitness-based CMLSI, is it highly likely that university students' learning outcomes will immeasurably improve and fitly comply with the set academic requirements and standards.

The implied perspective taken in light of the systematic undertaking of this exploratory research study is that, given the pivotal role occupied by LSs in facilitating the process of learning, explicit/ direct instruction in (meta) cognitive learning strategies (rehearsing, organizing, elaborating, planning, monitoring, and evaluating) should be offered to first-semester EFL university learners in English (L3) for consolidating their self-regulatory strategy repertoire and revamping their self-efficacy beliefs. This features that the utmost significance of the explicitness-oriented cognitive and metacognitive learning strategy training is to be heightened by academics and practitioners with the intent of enabling the learners to optimize their diverse learning outcomes and elevate their academic performance on an apparently large scale. In fact, a high premium should be placed on the learnability of metacognitive learning strategies (MLSs) among university-level EFL learners with a view to assisting them in tracing a fitting pathway toward approaching any learning task diligently, and thus achieving a successful form of academic progress.

It is particularly noteworthy that training in learning strategies (LSs) should be eminently directed toward enabling EFL learners to nurture self-regulation, self-control, and metacognitive strategic behavior in their learning pathways. This can predict some forms of marked efficiency and substantive competence at the level of English language learning amongst university-level learners. Therefore, the delivery of explicit CMLSI to the English department first-semester learners, who are supposed to exhibit a substantial amount of self-efficacy and autonomy in self-directed, 'high-order' learning, remains a core requirement for enhancing English language mastery among students in the dynamically evolving field of tertiary education.

Even though the findings of this small-scale study are insightfully rich, some limitations should be foregrounded. One limitation is associated with the generalizability of the reached results. This reveals that, for the sake of further corroboration, it is required that a larger sampling be relied upon by prospective researchers via addressing Moroccan EFL students who belong to other higher education institutions. Further, the data elicited through the use of the 'self-report questionnaire' could be imbued with a measurable degree of robustness if other data collection instruments (i.e., interviews, think-aloud protocols) were operationalized. Hence, it is recommended that future research studies falling within the vast landscape of metacognitive theory resort to a multiplicity of data elicitation tools with a view to robustly endorsing the attained research outcomes.

Note: The small-scale literature review on cognitive and metacognitive learning strategies provided in this manuscript is part of the larger, more exhaustive one put forth in my unpublished doctoral dissertation that was defended in 2015.

Conflict of Interest Statement

The author declares no conflicts of interest.

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Appendix: Some Samples of Learning Strategies

Table 1: Learning Strategy Classification (Rubin, 1981)

Learning Strategies	**Description**
Direct Strategies	
Clarification/verification	Asking for the meaning of words and repeating words to confirm understanding.
Monitoring	Correcting errors in language tasks.
Memorization	Taking notes of new lexical items repeatedly.
Guessing/inductive reasoning	Guessing words' meaning.
Deductive reasoning	Comparing the words of the native language to the TL.
Practice	Repeating sentences.
Indirect Strategies	
Creating opportunities for practice	Initiating conversations with other learners.
Production tricks	Using interactive communication. Contextualizing the target meaning.

Table 2: Diagram of the Strategy System (Oxford, 1990, p. 17)

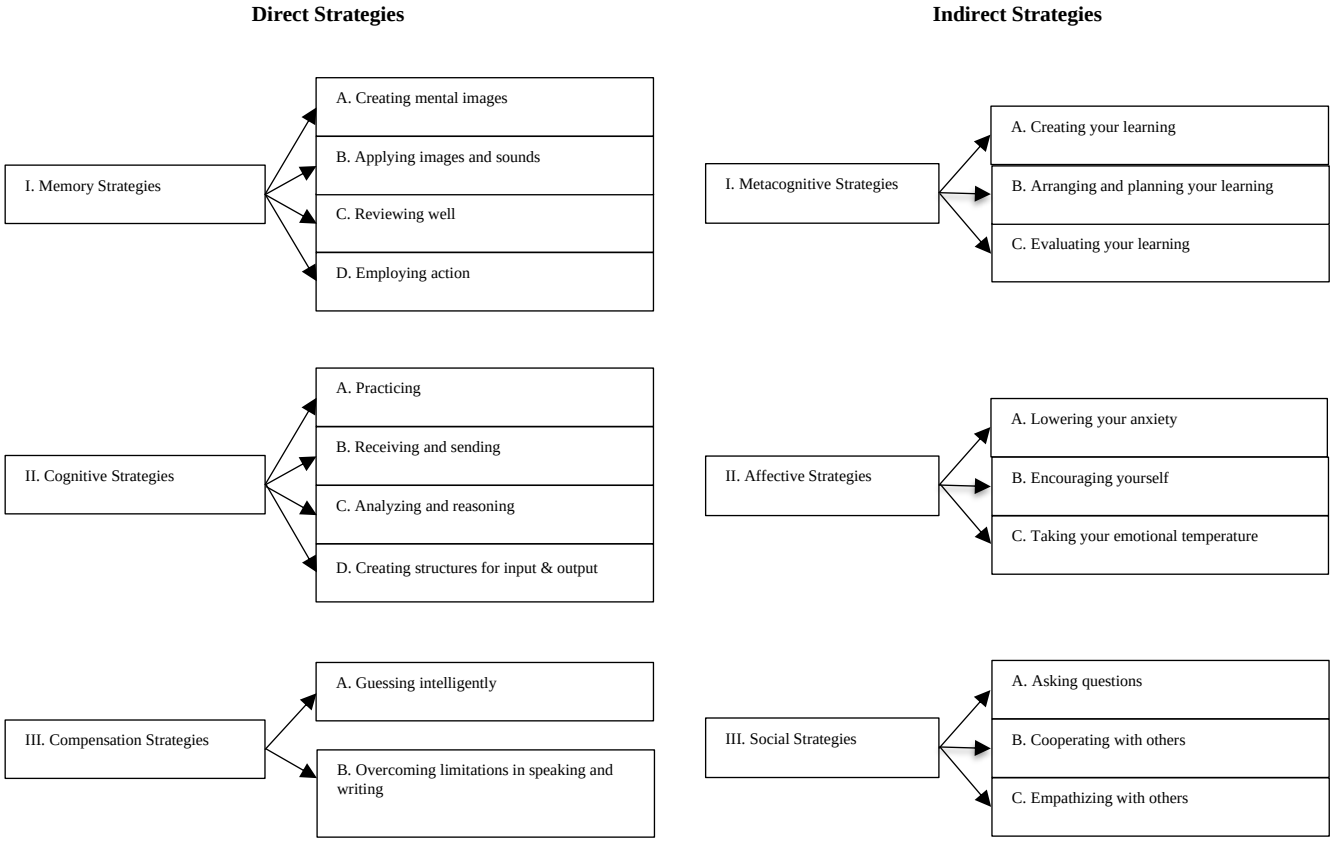

Table 3: Classification of Learning Strategies (O'Malley & Chamot, 1990, p. 46)

Generic Strategy Classification	**Definitions**
Metacognitive Strategies	
Selective attention	Focusing on special aspects of learning tasks, as in planning to listen for keywords or phrases.
Planning	Planning for the organization of either written or spoken discourse.
Monitoring	Reviewing attention to a task, comprehension of information That be remembered, or production while it is occurring.
Evaluation	Checking comprehension after completion of a receptive language activity, or evaluating language production after it has taken place.
Cognitive Strategies	
Rehearsal	Repeating the names of objects or items to be remembered.
Organization	Grouping and classifying words, terminology, or concepts according to their semantic or syntactic attributes.
Inferencing	Using the information in the text to guess the meaning of a few linguistic items, predict outcomes, or complete missing parts.
Summarizing	Intermittently synthesizing what one has heard to ensure the information has been retained.
Deducing	Applying rules to the understanding of language.
Imagery	Using visual images (either generated or actual) to understand and remember new verbal information.
Transfer	Using known linguistic information to facilitate a new language task.
Elaboration	Linking ideas contained in new information, or integrating ideas with new information.
Social/affective Strategies	
Cooperation	Working with peers to solve a problem, pool information, check notes, or get feedback on a learning activity.
Questioning for clarification	Eliciting from a teacher or peer additional explanation, rephrasing, or examples.
Self-talk	Using mental redirection of thinking to assure oneself that a learning activity will be successful or to reduce anxiety about a task.