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# Metacognitive Learning Strategies for University Students: The Higher School for Education and Training (E.S.E.F.K) Students as a case study

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## **Abstract**

*Metacognitive learning strategies come to foster active forms of learning using various modalities that the learners employ in order to optimize one's brain potency and capability of function. A plethora of research has been conducted regarding metacognitive learning strategies in various disciplines. Research on comparing the utility of use of learning strategies in two different modules for the same category of students in higher education as well as investigating the factors that push students resort to a set of learning strategies at the expense of others when the subject matter changes is the main objective of the current study. Evidently, the variety of learning strategies accounts for the differences in individuals' learning capacities, especially when the students shift from one area of inquiry to another within the same span of time. In this vein, the objective behind this work is to test whether students employ different metacognitive learning strategies to achieve comprehension and self-regulation in two different school subjects for the same group having the same tutor in both subjects, or that their brains function similarly regardless of the acquired element (Grammar and reading comprehension) are the case. Therefore, an empirical study based on mixed method approach is used to pinpoint the different metacognitive strategies utilised by students in these subjects to achieve comprehension. A questionnaire was first utilized to find out the learning strategies students use and the variables responsible for students' full comprehension achievement. Second, interviewing students about how they employ the aforementioned strategies in their tasks comes to complete the vision of the study. The participants are S2 students in English department in the higher school of Education and training in kénitra (E.S.E.F.k). A mixed group of 32 students divided between 7 males and 25 females. Recommendations and implications will also be discussed in the study.*

**Keywords— Learning strategies, metacognition, grammar, reading comprehension, self-regulation, active learning**

## **I. INTRODUCTION**

Cognition and metacognition acquire a wide range of interest in a number of disciplines. A huge bulk of research has spelt much ink on the study of the critical relationship between them due to their overlapping nature (Rahimi & katal, 2012). The hectic pace of life today necessitates the rejection of the traditional approach to learning that bolsters the mastery of content at the expense of the development of skills and

the nurturing of attitudes. While metacognition encourages continuous and autonomous learning, the aim is the creation of learners who are able to cope with new situations and who can use memory and application as the most germane to solve delays and difficulties in learning that are recognized only when cognitive processes are not working regularly. To copy Garison (2007)'s words, the focus is on "the covert" (student) and "the overt" (behaviour and environment) aspects

and the relationship between them. In one educational day, students are exposed to at least four different school subjects. The ability to attain comprehension and confirm application varies from establishment to establishment, from a category of students to another and from level to level besides age and mindset which are also important variables to consider.

### 1.1. Research Hypothesis

This research hypothesis focuses on exploring whether there is a consistent application of metacognitive strategies by students in ESEFK, The Higher School for Education and Training, in Kénitra when studying reading comprehension and précis and grammar under the instruction of the same professor. The hypothesis assumes that students who experience a consistent teaching approach from the same professor will tend to apply similar metacognitive strategies in these two different subject areas.

### 1.2. Research Questions

This study was based on semester 1 and semester 2 students; an exceptional group that studies the same subjects in both semesters. In order to meet desirable results, the following generated research questions seek answers based on the responses of the participants:

RQ1: Do students have prior experiences with metacognitive instruction or been exposed to the concept of metacognition? Does this affect their use of metacognitive strategies in reading comprehension and grammar classes taught by the same professor?

RQ2: What specific metacognitive strategies do students report using in reading comprehension and grammar classes, and are there noticeable similarities or differences between the two subject areas?

RQ3: Are there any factors, such as teaching methods, instructional materials, or classroom dynamics that students believe contribute to their similar or differing utilization of metacognitive strategies in the two classes?

### 1.3. Methods

This study investigates empirically, using a mixed method approach, the variations in the perceived effectiveness of metacognitive strategies between reading comprehension and grammar classes, and how do these perceptions correspond to the observed similarities or differences in strategy use. This kind of design falls within the ambit of studying the variables that push students to use different strategies to achieve understanding of the subject matter within the same curriculum. Thus, interviewing students about their

awareness of learning strategies and how they employ them in their tasks comes as a prior, of great consequence, step to this study before administering a questionnaire to find out metacognitive learning strategies that students use and to locate the variables responsible for students' full comprehension achievement.

## II. LITERATURE REVIEW

The importance of education and learning is the concern of a number of researchers and linguists. According to Kolb (1976) "Learning is a holistic process of adaptation to the world. It is not a mere result of cognition; learning involves the integrated functioning of the total person's thinking, feeling, perceiving, and behaving." The meaning implied in the quotation is that the traditional way of learning and acquiring knowledge should be rejected today in the new era of technological innovations. Learners today are required to be more practical, using suitable strategies to achieve comprehension. The study would aim to investigate the correlation between the use of metacognitive strategies and measurable improvements in students' academic performance and problem-solving capabilities in higher education.

### 2.1 Higher Education in Morocco: A system of Education

The paramount goal of education as a whole all over the world, from elementary through secondary, and vocational to higher education, is to implement the learning of various elements in different contexts, and to recognize and extend that learning to current as well as to novel situations (Haskell, 2000). In this vein, for a better quality education in Morocco, Mezyani (1999) specified: "Higher education in Morocco, which has developed quite rapidly owing to a fast growing population and to the system of free education for all, is catered for by three types of post-secondary institutions." Mezyani (1999) refers to the fact that besides the private not-for-profit schools which are semi-public institutions like Alakhawayn University and others that are for-profit like the International University of Casablanca, there exist two other types: The public university system, which grants registration opportunities to all students holding baccalaureate certificates without conditions, and the public non-university system, this involves institutions of higher education that are characterized by limited access policy; they set certain conditions for students' admission (Ouakrim, 2003).

A concrete example of these schools is the Higher Schools of Education and Training in Morocco which limit the age for those who are eligible to join their seats to 22 or 23 years of age. The category of students who join our school should pass from a pre-selection test through a written test and to finally book a seat in the school the candidates sit for an oral final test. Only the high achievers are accepted and the holders of a profile to become teachers.

As before mentioned, due to the limited number of students in class, the public non-university system in Morocco and elsewhere, enables students to study at ease in classrooms and to abide by a certain pace of control in classes. This type of system also enables the tutors to apply adept use of communicative approach to comply with the need of students and to observe a wide range of behaviors in the course of tasks' accomplishments. In this context, learning experts (e.g. Oxford, 2017) believes that adept use of strategies is inherently involved in achieving self-regulation.

## **2.2. Reading Comprehension and Grammar in the Moroccan curriculum**

The targeted modules in this study are Grammar and reading comprehension. They are two essential modules for students majoring in English. In the first two semesters our students study grammar 1 in semester one (S1) and grammar 2 in semester two (S2). The same for reading comprehension, but grammar extends to semester three (S3) while reading comprehension turns to extensive reading. The current study focuses on these two modules to examine the metacognitive learning strategies used by the same students in both subjects. While grammar can work among the various clues students resort to in order to achieve understanding in a reading comprehension text, studying reading comprehension cannot be understated; a well-written text relies heavily on grammar.

In non-English speaking countries, like Europe and Asia, where English is taught as L1, the position of the grammar course in the curriculum is not questioned (Gelderen, 2010). However, in the countries where English is taught as L2 including Morocco the teaching and learning of grammar is the routine and the norm. Moreover, academic research relies heavily on reading and comprehending the messages each piece of writing conveys. Therefore, in order to do so, understanding vocabulary items in communicative texts, along with understanding the grammatical structures and knowing how to apply the rules properly regardless of the techniques the students do to comprehend them, is vital for both grammar and reading comprehension. In brief,

research underscores the vital role of reading comprehension and grammar and ascertains the strong relationship between them for education all over the world (Kelly, 2019, Block & Israel, 2005).

## **2.3. Cognition and metacognition**

One of the bare essentials to successful learning, to which special momentum was given and about which multitude studies were advanced is the "thinking of thinking" or "the learning to learn" (Zimmerman & Schunk, 2011). The first thinking refers to cognition and the second refers to metacognition. That is to say, a fusion between being aware of and understanding and knowing how one learns, besides the ability to develop and assess an observable process to be applied in various situations. According to scholars, cognition is the process when the human brain is able to function in the form of practicing mental activities on a daily basis, such as memory, learning, problem-solving, attention and decision-making for the person to perceive the world around. Metacognition comes at this level to take further step making a person more aware of his/her cognitive processes via planning, monitoring, evaluating and comprehending. This is what explains that metacognition helps successful learning.

Flavell (1979) who is considered the 'father of the field' defines metacognition in education as being drawn up from the process of acquiring skills about cognitive processes. It is evident that due to the fast paced age of today, the adaptation to change makes lifelong learning an imperative for students. The development of novel skills and competencies in order to successfully and actively engage in a modern society of technology, multiculturalism and innovation "Our personal competencies and knowledge are also a catalyst for innovation, productivity and competitiveness (Radovan, 2019)."

## **2.4. Learning Strategies**

It is vital to state that the process of learning is highly dependent on a certain cognitive design of the brain in which memory plays a consequent role of information store. One of the most relied upon traditional strategies to learning is memorization when memory stands at the center of the operation. Accordingly, two major sorts of memory are deemed to have recognizable importance: short-term memory and long-term memory. (Atkinson & Shiffrin, 1971 as sited in Martinez, 2000). Ephemeral as it is, short term memory fails to capture information for the long term and remains limited to store the portions of information that were able to remain only because oblivion was not the case.

In this case, and as it is the aim of this present study, adopting new strategies to learning that keep the brain active when the circle of learning becomes an ongoing process is consequent. But what is learning? Kolb (1976) believes that "Learning is the relatively permanent change in a person's knowledge or behavior due to experience." Kolb (1976) emphasizes the important role of experience in shaping the person's attitudes and guiding his or her behavior during the process of learning. This emphasis on experience is used to set the difference between experience and other cognitive forms that are applied in the process of learning.

### **2.5 Learning and Kolb's theory of experience**

It is deemed vital to this study to highlight the role of experience and background knowledge in the process of learning which takes various forms from voluntary to intentional. In order to show how experience can be translated into concepts and how new experiences are generated in order to mentor the choice of new experiences in the process of learning (Kolb & Kolb 1984). It is widely observable that our students fall back on the experience background they have compiled especially while reading, they tend to invoke and draw out their own beliefs and ideas about a topic or a theme of the studied element in order to reexamine their beliefs and test their ideas and integrate with more refined ones to facilitate and accomplish their process of learning. This is an avenue that scholars traced in their research. In this same vein, the theory that Kolb & Kolb (1984) advocated emphasizes the employment of experience especially in higher education; they insist on engaging students in processes that improve their learning.

### **2.6 Learning Strategies in Grammar and Reading comprehension.**

In most educational milieus, grammar is an integral part of courses in foreign languages for both language specific designs as well as for non-language specific designs. It is essential that in the Moroccan educational contexts, students should study grammar and reading comprehension modules among others to validate their semesters. There is a query whether the mastery of grammatical rules help students in understanding the messages conveyed in reading comprehension texts. Universally speaking, "the ability to use points of grammar in an accurate, meaningful and appropriate way is a high priority for many language learners and; therefore, showing them how to attain this goal effectively is the responsibility of their teachers (Larsen-

Freeman 2003)." Students should have prior knowledge on how to deal with an element under study. Simon (1969) in this context states that "Students will not see the value in grammar unless we actually show them how it is applied." Huge strides have been made in language learning by expert scholars in this domain. An endeavour to create an order for the grammar learning strategies was made by Oxford and Lee (2007 as stated in Pawlak, 2011), who posited a clear cut division of three basic categories: strategies for implicit learning when the focus is on form, strategies for explicit inductive learning and strategies for explicit deductive learning (i.e. assisting the process of understanding rules).

## **III. METHODOLOGY**

This study adopted a mixed method approach, which implies the incorporation of both qualitative and quantitative strands in a single study in order to enhance usefulness of research findings. According to Creswell (2014, p 2): "Mixed method approach is an approach to research in the social, behavioural, and health sciences in which the investigator gathers both quantitative (close-ended) and quantitative (open-ended) data using the strengths of both sets to understand the research problem." The aim, in such a case, is for the researcher to be eclectic while choosing the methods by combining both of the aforementioned approaches in the same study. Thus, following Creswell, et.al's. (2003) classification, "exploratory sequential" was employed in this design. I started my mixed methods research with a qualitative instrument, which was inaugurated with adept observation of the students' behaviours while fulfilling their tasks before interviewing them in order to trigger the themes that will be employed later on in the questionnaire.

### **3.1 Data collection methods**

The interviews were guided by a couple of open-ended questions about students awareness of the learning strategies adopted by them to deal with a grammar task or a reading comprehension text and the different strategies they follow to reach comprehension. These first steps helped a lot in shaping the direction of this entire study. The interviews were conducted online and the themes were collected accordingly. The second side of the coin bears the use of a quantitative component in the form of a questionnaire. In brief, I find it vital to this study to use a questionnaire in order to seek the variables behind students' choice of certain metacognitive learning strategies in one subject at the

expense of others in another studied element.

### 3.2. The sample

The sample in this study is non-random, derived from the Higher School of Education and Training in Kenitra. They are Semester Two (S2) students who are majoring in English as a foreign language. The overwhelming majority of the thirty-one students, who are divided between 7 boys and 24 girls, used to belong to science streams in their formal senior high school education. This is a variable to notice related to the mindset of students who base their metacognitive strategies heavily on the practical side to fulfill tasks. It is necessary to state that the same group studies grammar and reading comprehension and under the guidance of the same tutor, and this is the preset on which this study is based. The fuse that ignited the main objective of this study is the observation made by the teacher in teaching the same group two different subjects. What is worthy to mention is that the sample are university students who are majoring in English but whose targeted language is not the mother tongue, in other words, learning and applying the grammatical rules of a language which is not the mother tongue is not as easy as one thinks.

## IV. DATA ANALYSIS PROCEDURES

This results section will display the data collected via the mixed method approach. The first phase is a thematic analysis; it is the analysis of a series of themes that emerged out of the talks of the students of the Higher School of Education and Training according to which the questionnaire was based. The second one; however, will translate the frequencies and the percentages resulted from the questions into tables and figures. For consistency requirements it starts with the characteristics of the participants, their age and gender and their original stream in baccalaureate. Accordingly, this section will go on to discuss and analyze the data pertaining to the research questions about the strategies the students opted for in grammar and reading comprehension in order to test if there are any commonalities or differences between the uses of each set, given that the same strategies were presented in both cases in the questionnaire.

## V. RESULTS AND DISCUSSIONS

### 5. 1. Results

#### Level

31 réponses

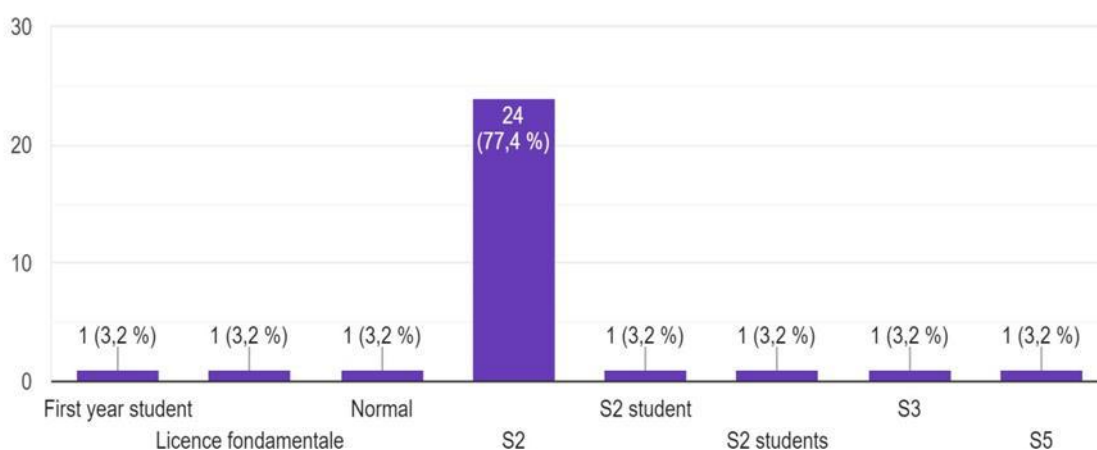


Table 1: The level of students

The level of the non-random sample of students who participated in the completion of this study is semester two students. They are 31 students in class. All of them have responded to the questionnaire.

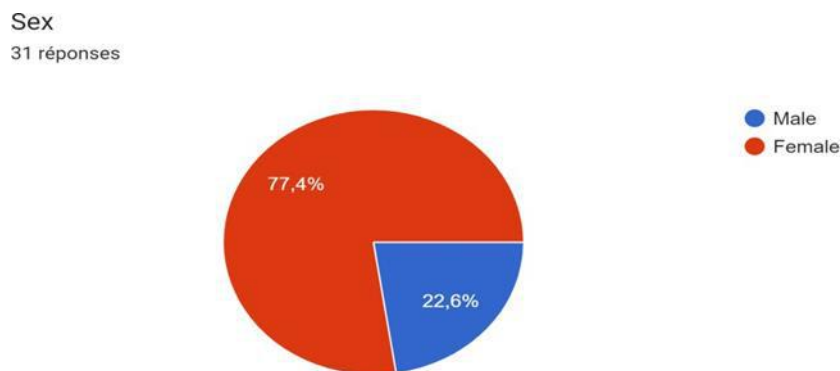


Fig.1: The Gender of the participants

This figure represents the total number of males that represents 22.6 % and the total number of female students that represents 77.4 %. In the class, only 7 males out of 24 female students study in semester two.

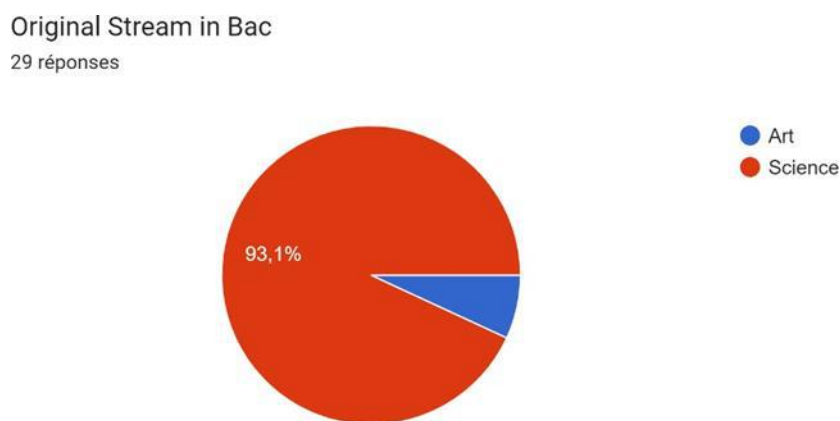


Fig.2: Original Stream in Baccalaureate

I deem it paramount to this study to find out about the students original stream in baccalaureate. As indicated in the chart 93.1% belonged to science stream and only 6.9% belonged to Arts stream. The importance of this variable lies in the fact that it divulges the mindset of students as well as it pinpoints the differences in using metacognitive learning strategies.

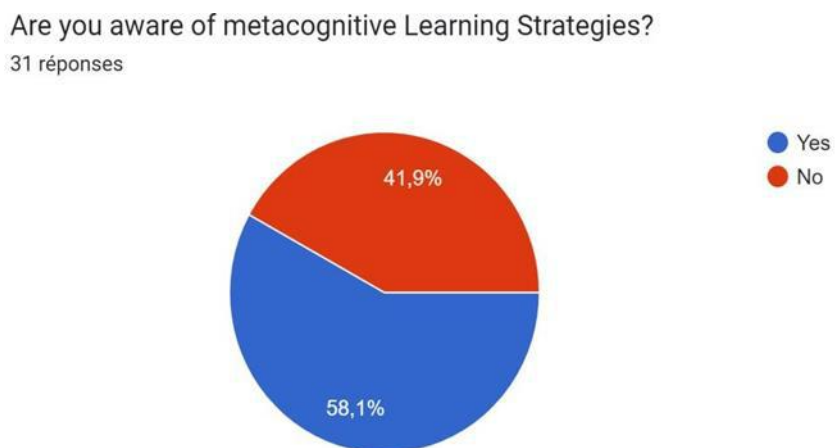


Fig.3: The awareness of metacognitive learning strategies

The question of this section aims at depicting whether the students have prior awareness of metacognitive strategies

or not. Results have shown that 58.1% are aware of them, while 41.9 are not. When asked, students' answers revealed that they were using some strategies without being aware of what they were.

Do you intend to using explicit or implicit learning strategies? (Implicit the focus is on the form) (Explicit the focus is on rule discovery and understanding)

31 réponses

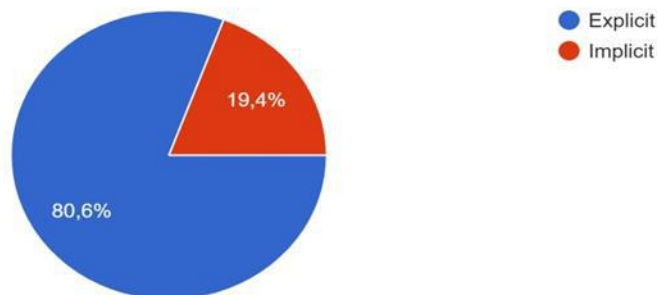


Fig.4: Using implicit versus explicit learning strategies.

The figure shows a strong use of explicit learning strategies that place the focus on rule discovery and understanding with the rate of 80.6% at the expense of implicit learning strategies that place a focus on the form only. The results of this figure are obviously related to grammar learning strategies.

Tick the Metacognitive strategies that you rely on when it comes to grammar learning.

31 réponses

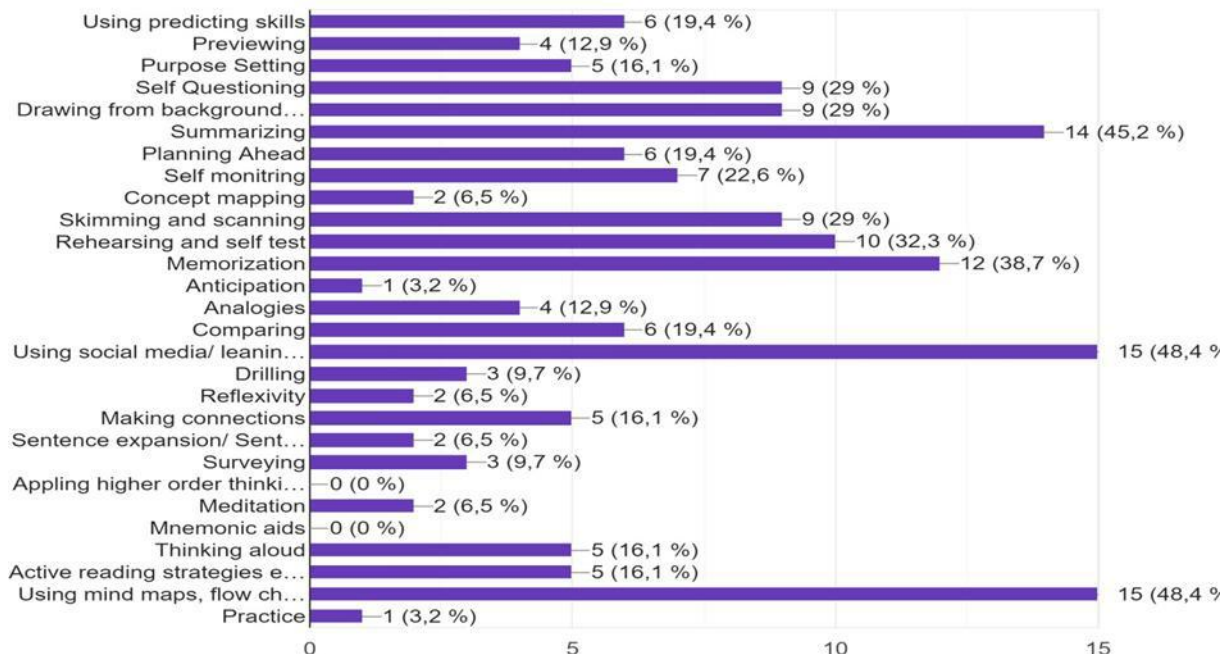


Table 2: Metacognitive strategies used in grammar.

This table represents the rate of metacognitive learning strategies used in grammar. In order to be practical, the higher rates are attributed to using mind maps and using media equally by 48.4% then summarizing by 45.2% then memorization by 38.7% and rehearsing and self-test by 32.3%. However, self-questioning and drawing back from background experience take the same rate by 29%.

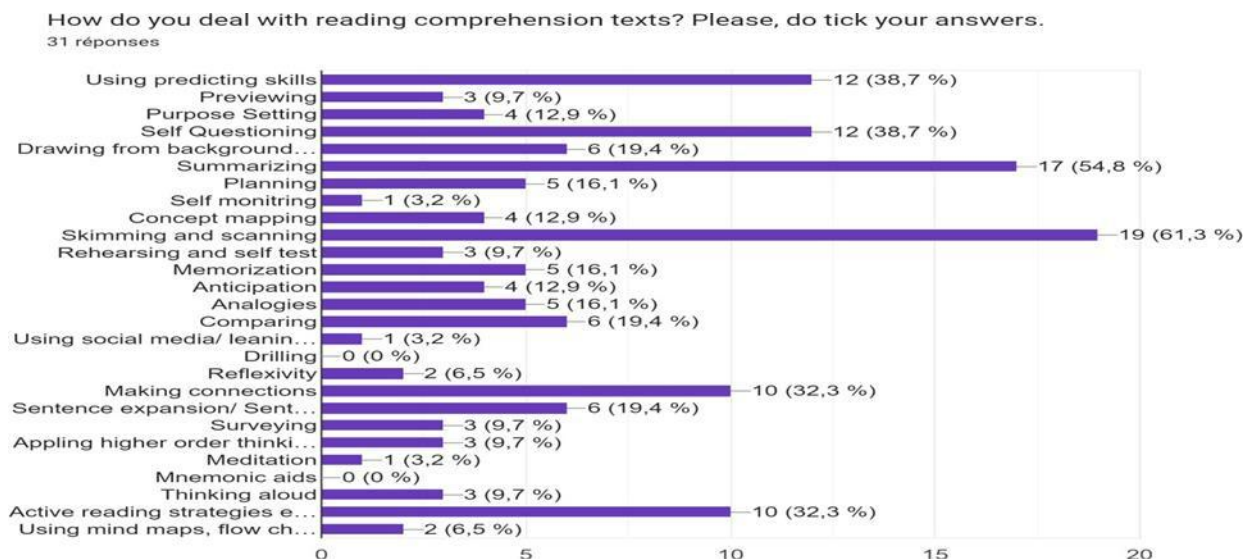


Table 3: Metacognitive strategies used for reading comprehension

Skimming and scanning strategies are placed on top by 61.3% followed by summarizing by 54.8% then using predicting skills and self-questioning by 38.7%. These are the major skills students opted for to reach comprehension in reading comprehension, and they are obviously the main learning strategies to study reading comprehension.

## 5. 2. Discussions

The use of online interviews has really a great potential in attaining specific population that is difficult to access. A piloting trial procedure was necessary to test the extent to which my questions were easy to grasp by students before sending the questionnaire. A set of 15 students, of the same level who belong to the school of Arts and Languages in Ibn Tofail University, received the questionnaire and answered the questions properly, this indicates that all the items are well understood and they share the same characteristics with the intended sample.

I designated a set of open-ended questions in the interview that read as follows: RQ1: Are students aware of metacognitive learning strategies? RQ2: What are the metacognitive learning strategies you opt for in dealing with grammar and reading comprehension? Specify. The aim here is to collect the strategies and make use of them in the questionnaire then to generalize them on the whole class.

The emergent themes of the pre-set questions denote that students have prior knowledge of what metacognitive learning strategies are. This proves that the first research question is positively answered. However, there is a variation between students'

answers concerning the second research questions. Some students use some strategies which others are not aware of and the vice versa. The students rely heavily on using mind maps and media to focus on their grammatical elements, which are technical strategies by all means given that they opt for explicit learning that focuses on rule discovery and understanding. As far as the strategies that are specifically employed for reading comprehension the figures and the tables show that all the students are aware of them and use them in big numbers.

## VI. CONCLUSION

“Learning to learn’ at university requires a fundamental change in students’ beliefs and attitude since they need to understand what their role as learners in higher education involves (Wingate, 2007).” Knowledge of the right path to trace in learning is a prerequisite for students attending higher education, and they should master it. In this sense, improvement in learning and teaching can be helped by knowledge of the students’ learning styles in order to apply them properly and effectively. The fact that students had a previous scientific background in their senior high schooling is not proved applicable in learning these two specific subjects. Students must be taught the competencies related to the subject matter as well as the learning style of use. Teachers, then, should direct students’ learning in the proper ways to build understanding.

The observation on which I based my assumption that students’ mindsets can be a variable to account for, besides their age, in dealing with grammar or reading



comprehension was not, to some extent, right. Students displayed sufficient independent learning which made me notice the use of forethought self-reflection and rehearsal before giving presentations and organization, elaboration strategies and motivation; the students often show a high increase in self-confidence. As a homogeneous group, they tend to generate vigorous classroom learning environment although they were proven to miss and misuse metacognitive learning styles. Improvement in learning and teaching can be helped by knowledge of the students' learning strategies in order to apply them properly and effectively.

## VII. LIMITATIONS

There are various limitations to this: First, the proactive step towards discovering the extent to which students, relying on variables as original stream, age, motivation and peers' mind-set effects, could use metacognitive strategies properly in this study is proven negative. Second, the study was based on semester one students, while in our school students receive an effective and intensive study of metacognitive learning strategies in the final semesters. Third, the raised percentages of some learning strategies over others display that students use some strategies interchangeably in both subjects.

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