

## The Relationship between Students' Metacognitive Writing Awareness and Writing Performance

العلاقة بين الوعي وراء المعرفي الكتابي لدى الطلاب وأداء الكتابة

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### Abstract:

Writing in a foreign language involves a particular attention that requires the management and supervision of one's cognitive processes. This paper examines the relationship between the metacognitive writing awareness of second year students of English at the Teacher Training School of Constantine and their writing performance. After accomplishing a writing task, participants' metacognitive writing awareness was assessed through an open-ended questionnaire. The students' scores in writing were correlated to the depth of their post-writing metacognitive reflection; besides, the latter was analyzed to detect the metacognitive sub-components experienced and verbalized by skilled writers and to compare them to the ones of less skilled writers. The findings revealed a positive correlation between writing proficiency and metacognitive awareness; moreover, skilled writers displayed a more frequent use of the metacognitive sub-components than less skilled writers.

**Keywords:** Metacognition, Writing Proficiency, Writing Process, Metacognitive Knowledge, Metacognitive Regulation.

مِلْحَصُ الْبَحْثِ

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تتطلب الكتابة باللغة الأجنبية تركيزًا خاصًا يستلزم تسييرا وتأطيرا ذكيا للعمليات المعرفية، يتطرق هذا المقال للعلاقة الموجودة بين الوعي الما وراء معرفي لعملية الكتابة وحسن الأداء عند طلبة السنة الثانية الإنجليزية بالمدرسة العليا للأساتذة بقسنطينة. بعد الانتهاء من نشاط الكتابة، يتم تقييم الوعي الما وراء معرفي للكتابة عند الطلبة من خلال استبيان مفتوح. النقاط المتحصل عليها مرتبطة بمدى عمق التفكير الما وراء معرفي في مرحلة ما بعد الكتابة ، إضافة الى ذلك يتم تحليل هذا الأخير من أجل التعرف على العناصر التحتية الما وراء معرفية الخاضعة للتجربة والمعبر عنها من طرف كتاب محترفين حتى يتم مقارنتها بآخرين أقل مهارة. بينت النتائج وجود علاقة واضحة بين المهارة في الكتابة و الوعي الما وراء معرفي، في حين تجلّى استعمال العناصر التحتية الما وراء معرفية عند الكاتب الماهر أكثر من ما هو عليه عند الكاتب الأقل مهارة.

**الكلمات المفتاحية :** ما وراء المعرفة، المهارة في الكتابة، سيرورة الكتابة، الوعي الما وراء معرفي، الضبط الما وراء معرفي.



## Introduction

In the domain of educational psychology, one competence that is currently highly recommended by researchers is the awareness and management of one's cognitive and emotional sphere. As attention is turned towards the learning rather than the teaching process, concepts such as, self-regulated learning, learner autonomy, reflective learning, and metacognition are gaining increasing recognition in learning. The present study investigates the metacognitive awareness of second year students at the Teacher Training School of Constantine and its relationship to writing proficiency. More precisely, the degree of learners' awareness of their writing strategies, difficulties, and strengths is correlated to the quality of their writing product.

### 1-Literature Review

#### 1-1-Definition of Metacognition

Metacognition was first coined by Flavell (1979) who defined it as cognition of cognition; simply put, thinking about one's thinking. It refers to the monitoring and controlling of one's

own thinking (Efklides, 2008). Similarly, Nelson and Narens (1990) explain that the flow of information between the object level (cognition) and the meta-level (metacognition) is assured by the dichotomy: Monitor and Control. Through *monitoring*, the meta-level is informed about the processes occurring in the cognitive level (Metcalf, 1994). Once the meta-level is informed about the cognitive level, the former *controls* the latter either by initiating, by continuing, or by putting an end to a cognitive action (ibid)

Anderson (2002a, 2008) refers to metacognition as the ability to make thinking visible and to reflect on what is known and what is unknown (Anderson, 2012). He further adds, "Metacognition results in critical but healthy reflection and evaluation of one's thinking which may result in making specific changes in how one learns" (ibid, p. 170). Hence, when used in learning, metacognitive awareness serves to reflect back on the learning experience and to self-evaluate the learning process. This activity requires adequate metacognitive knowledge which is one of the two components of metacognition.

## **1-2-Components of Metacognition**

### **1-2-1-Metacognitive Knowledge**

Metacognitive Knowledge is the stored beliefs one has about the variables that affect cognitive operations (Flavell, 1979). It is the stored knowledge based on the learner's accumulated experience related to cognitive activities (Flavell, 1985). Flavell divides those variables into three categories: *person, task, and strategy*. Another framework of Metacognitive knowledge is the division: (1) Declarative Knowledge, (2) Procedural Knowledge, and (3) Conditional Knowledge (Jacob et al., 1987; Schraw et al., 2006)

The declarative knowledge is linked to the question 'What?' (What do I know? What is required from me?) and is equivalent to the two first categories suggested by Flavell (1979) 'Person' and 'Task'. The first category: 'Person' concerns the knowledge and beliefs that individuals have about themselves as 'cognitive processors'. It includes the awareness of one's own cognitive strengths and weaknesses. Harris et al. (2009) also

include the knowledge learners have about their affective factors such as motivation, anxiety, and self-efficacy (Harris, 2009). The second category, '*Task*' concerns the knowledge about how task variables can affect cognitive enterprise. It includes information about the nature of the task, its requirements, and its purpose (Flavell, 1979). For example; in EFL writing, a learner's *Task Knowledge* involves the knowledge s/he has about the goal of the writing task; such as learning the structure of the argumentative essay.

Procedural knowledge conforms in Flavell's model to the '*Strategy*' category; it concerns knowledge about 'How?' to manage a cognitive activity; in other words, it is the knowledge of the different procedures that facilitate task achievement and the ability to use cognitive strategies. The latter are distinguished from the metacognitive ones in that cognitive strategies are ways to accomplish a goal or sub-goal by manipulating directly the information while metacognitive strategies are higher order skills that orchestrate the cognitive strategies and insure their successful use (Flavell, 1979; Doly, 1998). In the case of EFL writing, strategic knowledge refers to learners' knowledge and management of pre-writing, writing, and re-writing strategies.

Conditional knowledge deals with the questions 'when?' and 'why?' It relates to the reason why selecting one particular strategy is appropriate at a certain stage in the task. In other words, it is the result of interaction between all the categories: *Person*, *task*, and *strategy*. Effective learners know the adequate strategy that fits their learning style and the task at hand. A notable difference between skilled and less skilled learners is the knowledge about strategies and the conditions of their use (Veenman, 2015)

The activation of metacognitive knowledge is of fundamental importance in the learning process. However, the process does not always involve conscious intention and is not necessarily used effectively as learners' metacognitive knowledge may either 'be inaccurate, can fail to be activated when needed, can fail to have much or any influence when activated...' (Flavell, 1979, p. 908) Therefore, Doly (1998) emphasizes the importance

of activating metacognitive knowledge in educational contexts by encouraging learners to represent them through verbalizations before, while and after the task which would raise learners' consciousness and awareness about their metacognitive knowledge.

### **1-2-2-Metacognitive Regulation**

In addition to Metacognitive Knowledge, Metacognitive Regulation is the second major constituent of metacognition; it is also sometimes referred to as 'Executive Processes', 'Metacognitive Skills' or 'Metacognitive Strategies'. Brown (1982) divides it into three steps: planning, monitoring, and evaluating. First, planning includes preliminary actions such as predicting the outcomes, estimating the time required for the task and its difficulty as well as selecting and ordering the strategies in accordance with pre-set goals. Second, monitoring takes place in the actual unfolding of the activity; it is the conscious attention that supervises task progression, questions the efficiency of the procedures used against the defined goals, and detects any errors. Finally; evaluation is concerned with the results of the cognitive process; it checks the outcomes in relation with the strategies used and permits an assessment of the learning process and a prospective re-adjustment and re-planning.

### **1-3- Writing and Metacognition**

Writing has been defined as both an individual thinking process and a textual product presented to an audience (Hyland, 2009). Hacker et al. (2009) provide an exhaustive definition to composing that encompasses both the cognitive and social aspect with a focus on metacognition, 'Writing is the production of thoughts for oneself and others under the direction of one's goal-directed metacognitive monitoring and control, and the translation of that thought into an external symbolic representation.'(Hacker et al., 2009, p. 154)

The attention brought to metacognitive processes in writing began with the investigations about the writing process that emerged in the 1980's; particularly with the work of Flower and Hayes (1980, 1981) and Bereiter and Scardamalia (1987). Flower and Hayes explain that, 'a great part of the skill in writing

is the ability to monitor and direct one's own composing process' (Flower et al., 1980, p. 39). They highlight the central place of metacognitive regulation in writing wherein monitoring is the online attention to thoughts. It is associated to reading and reviewing strategies; whereas control deals with the direction of meaning production; that is, editing, drafting, idea generation, word production, translation, and revision (Hacker et al., 2009; Knospe, 2018)

Bereiter and Scardamalia (1987) contrasted the writing process of novice and mature writers. While the former merely generates content from the long term memory in the knowledge-telling model (Bereiter et al., 1987), the latter is represented in the knowledge-transforming model. In other words, mature writers solve rhetorical and content problems by constantly planning, monitoring and revising their writing. These metacognitive processes constitute the core of writing, and their role is more significant than linguistic competence (Devine, 1993). Hacker goes further and claims that metacognition is not just essential in writing, but writing itself is applied metacognition (Hacker et al., 2009)

## 2-The Study

The present study was conducted in the Department of English at the teacher training school of Constantine ENSC on April the 24<sup>th</sup>, 2019 to investigate the relationship between second year students' metacognitive knowledge and their writing performance. The following two complementary research questions were used to guide this investigation:

- 1-What is the relationship between learners' ability to explore and reflect on their writing and their writing performance?
- 2-How are the metacognitive sub-components displayed in the written discourse of skilled and less-skilled students-writers?

On the basis of these questions, two hypotheses are formulated:

- 1-The quality of students' metacognitive reflections would correlate positively with their writing performance.
- 2-Skilled students-writers would display richer and more elaborated metacognitive knowledge and regulation than less skilled students-writers.

## **2-1-Methods and Instruments**

### **2-1-1-Data Collection Tools**

In order to investigate second year students' metacognition and its relationship with their writing performance, a randomly selected group of twenty five students was provided with two instruments: A writing task and a questionnaire consisting of reflective prompts in the form of open ended questions.

#### **2-1-1-1-The Writing Task**

First, the writing task is expressed in the following instruction: 'Describe a person in your life who has inspired you.'

The descriptive essay is one of the six essay types that second year students study in the module of written expression in the Department of English of the ENSC. This essay type requires the selection of vivid vocabulary, detailed and precise imagery using the five senses, as well as the use of figurative language. The assignment was performed within two hours as a practice to the theoretical lesson they received a week earlier dealing with the pattern of the descriptive essay.

The essays are then scored by the teacher who adapted a writing rubric for evaluating descriptive writing developed by Khatib and Mirzaii (2016). Among the different types of composition scoring techniques that are available in the literature, the analytic scoring type is adopted in this study for its reliability. Analytic scoring; unlike the holistic one, separates the features of composition into different elements and assigns a score for each area to achieve more objectivity and precision. The Analytic Rating Scale for EFL Descriptive Writing (Khatib et al., 2016) is divided into four criteria: 1) Genre-Related Elements, 2) Language-Related Elements, 3) Content & Organization, and 4) Mechanics. Each criterion is allocated a scale; for example, the genre- related elements-in this case descriptive- is allotted the highest number of points. The division of points has been modified in the current study in order to reach a total of twenty points.

#### **2-1-1-2-The Open Ended Questionnaire (Reflective Prompts)**

Second, the participants are provided with a questionnaire consisting of reflective prompts that push them to think about their thinking and observe their practices, attitudes and strategies in the writing process. They are also required to reflect on their final written product. After finishing the writing task, the participants should in one hour elaborate their answers to these prompts in the form of a two pages essay-which has been referred to as 'metacognitive reflection' (Silver, 2003). The prompts are adapted from Yancey's 'Reflection in the Writing Classroom' (1998) suggested activities. In order, to direct the students' attention towards their own experience and to elicit genuine answers, the questions are formulated in the first personal pronoun 'I'. The questionnaire is divided into two parts: 1) Reflecting on the process and 2) Reflecting on the product; as shown below:

### **The Reflective Prompts**

As a witness of what happened during your own writing process; ask yourself the following questions and answer them by including as many relevant details as possible. (You should fill at least two pages; DO NOT restrict yourself with yes/no short answers)

#### **a. Reflecting on the Process**

##### **Getting Started**

- Did I use any strategy to facilitate the beginning of my composing process?
- Did I have difficulties starting writing? How did I manage to make it easier?

##### **Goal Setting**

- At what point did I set a goal (find a focus) to my essay?
- Did I consider other organizational patterns before choosing the best one for my ideas? If yes, what are the different patterns?
- Did I stop regularly to check if I am meeting my goal, (to check if my ideas are supporting my thesis statement)? At which point? Describe it.
- Did I revise my thesis statement after developing my body paragraphs?

##### **Rigidity/Openness to Change**

- Did I follow the plan I settled (if any) at the beginning of my writing? Or did I change the division of paragraphs? What kind of difficulties did I face?

- Are there parts that I felt needed to be improved but were kept as they are? What is the reason for not changing them? (Try to feel what is preventing you from polishing your paper)

#### Revision

When did I start making changes? What type of changes?

On the basis of what did I make those changes? Did I expect the reaction of the teacher or my classmates? Did I remember something I learned in class?

What can I do to make my revision more effective?

#### Time management

Did I pace myself to manage my time? How did I do that?

I try to figure out the causes of my difficulty to finish my essay in due time.

#### Affective Domain/Emotions

-I Talk about my feelings before, while, and after having finished writing. How did I feel in each step? Were my feelings stable? Or did they change as the writing process progressed?

-Did my feelings encourage the elaboration of writing or hinder it? How?

#### **b. Reflecting on the Product**

-I now Re-read my written production? What are my thoughts about it? What is the thing I like most about it? What is the thing I want to change?

-From this writing task, what is the area in writing (finding original ideas, finding the best organization, limited vocabulary, syntax, mechanics, unity, coherence...) that I need to improve in?

-What can I do to overcome these problems?

-In what way will the writing of this reflection help me in my composing skills?

#### **2-1-2-Data Analysis Methods**

To answer the two research questions, the collected answers to the open-ended questions have been treated in two different ways:

The first objective of the study is to correlate the general metacognitive writing awareness of participants with their writing

performance. The participants' discourse is analyzed qualitatively by assessing the depth of each answered question. To insure the validity and reliability of the assessment, the scale developed by Faigley et al. (1985) is adapted. The answers are ranked into three categories: General-Intention Response, General-Strategy Response and Task-Specific Response. The first category refers to the answers that are very superficial and that can be attributed to any writing task; these answers do not exhibit any knowledge of writing strategies. The second category, concerns the answers that are simply descriptions of writing strategies that can be related to any writing assignment. Concerning the third category, 'Task-Specific Response', it involves deeper reflections that depict the particular operations, difficulties, and strategies performed for the precise writing task at hand.

The scale was modified by dividing the category 'Task-Specific Response' into two sub-categories: 'deep' and 'deeper' in order to account accurately for the discrepancy that exists in many elaborated answers. Each category in the scale is assigned a number of points to contrast the metacognitive reflection of each group. A part of the scale as used in this study is illustrated below:

Student	General-Intention Response (shallow)	General-Strategy Response (medium)	Task-Specific	
			Strategy (deep)	Response (deeper)
Did I use any strategy to facilitate the beginning of my writing process?	1pt	3pts	5pts	7pts
Did I have difficulties starting writing?	1pt	3pts	5pts	7pts
How did I manage to make it easier?	1pt	3pts	5pts	7pts

Table 1: The distribution of points in the adapted version of the scale Faigley et al. (1985)

The second research objective is to identify learners' verbalization of how they experienced each subcomponent of metacognitive knowledge and regulation as related to writing. Data is treated both qualitatively and quantitatively. The participants' discourse is coded by spotting each metacognitive subcomponent, and by analyzing how the participants articulated

the varied categories of metacognitive knowledge and regulation and by counting the frequency of occurrence of each detected category for every participant.

## 2-2-Analysis of the Results

### 2-2-1-The Writing Task Results

After grading the scores of the 24 students who participated in the study using: The Analytic Rating Scale for EFL Descriptive Writing (Khatib et al., 2016); the participants were divided into three groups of eight students each. The first group is labeled 'skilled writers'; it is composed of students whose scores vary between 13/20 and 15/20. The scores of the second group- 'average writers'- ranges from 10/20 to 12.5/20. The students whose scores are below the average are gathered in the third group: 'less skilled writers'. The means of the group is 10.76.

### 2-2-2-The Metacognitive Reflection Depth Results

The following table illustrates how the adapted scale (Faigley et al., 1985) was used to differentiate between the three categories in the question about time management:

	General- Intention Response (shallow)	General- Strategy Response (medium)	Task-Specific Strategy Response	
			(deep)	(deeper)
Time- Management	I tried to push myself to manage time effectively	I'm always late and I blame my previous knowledge and my vocabulary for not finishing my essays.	At the beginning, I paced myself to finish on time, but then I thought that I already wrote a lot and time was in my favor. This thought led me directly into procrastination and thus perfectionism.	Time is a huge problem for me. I need to find the motivation to get started first, then to keep going and not stopping constantly. I try to figure out the causes of my difficulty to finish my essay, but I do nothing about it but stressing and making a big deal of it, then hating the whole writing thing and get depressed which leads to taking forever to finish a simple essay.

Table 2: An Example of the Qualitative Analysis to the Question about Time Management

The results showing the difference in the writing scores and in metacognitive reflection depth between the three groups are displayed below:

	Writing Production Means	Post-Writing Metacognitive Reflection Means
Group 1 (Skilled Writers)	13.90	52
Group 2 (Average Writers)	11	32.875
Group 3 (Less Skilled Writers)	7.68	16.625

Table 3: The difference between the three groups in writing scores means and post-writing metacognitive awareness means

The table shows that the group of skilled writers achieved the highest mean in the Post Writing Metacognitive Reflection; whereas the group of less skilled writers had the lowest scores. To further illustrate this trend, the score of each student in the writing assignment is correlated to his/her score in the post-writing metacognitive reflection in the following scatterplot.

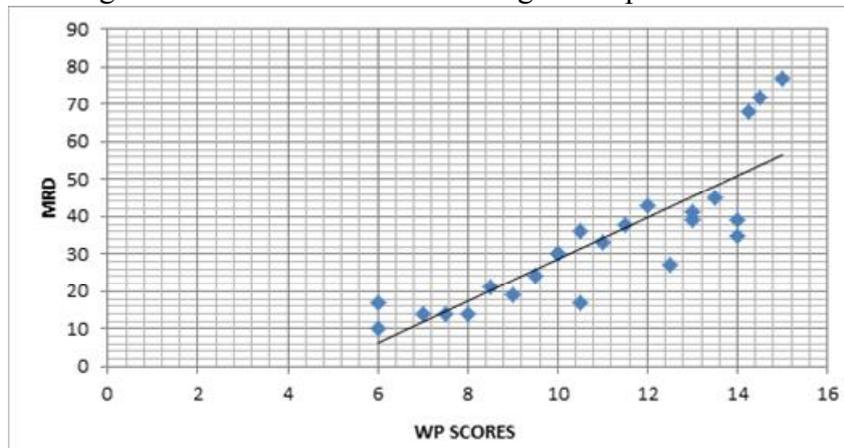


Figure 1: The Correlation between the Participants' Metacognitive Reflection Depth Scores and their Written Production Scores

The scatter plot shows the relationship between the two variables: The Post-writing Metacognitive Reflection Depth Scores and the Written Production Scores. On the one hand, the participants' grades in the descriptive writing task range between fifteen and six out of twenty. On the other hand, the MRD scores

range between 77 and 10. The participants with the three best grades in the writing task: ‘15/20’, ‘14.5’, ‘14.25’ achieved the highest scores in the MRD: ‘77’, ‘72’, ‘78’. The same pattern is appearing in the participants with the lowest grades in the writing task (between 8/20 and 6/20); their scores in the MRD are the lowest (between 17 and 10). However, regarding the participants whose scores vary between 14/20 and 10/20, the line is considerably fluctuating.

To insure that there is a significant positive relationship between the two variables, the correlation coefficient was calculated. The calculation revealed that the value of  $r=0.85$  which means that there is a strong positive relationship between the written reflection quality and the written products quality. Hence, we confirm the first hypothesis:

-There is a positive correlation between the quality of students’ post-writing metacognitive reflections and their writing performance

**2-2-3-Metacognitive Sub-components Results**

The second research objective is to identify skilled and less skilled students-writers’ verbalization of their metacognitive knowledge and regulation related to writing. The total number of occurrence of each detected sub-component in each group is shown in the table below.

	<b>Metacognitive Knowledge</b>				<b>Metacognitive Regulation</b>			<b>Total</b>
	<b>Declarative person</b>	<b>Declarative task</b>	<b>Procedural strategy</b>	<b>Conditional</b>	<b>Planning</b>	<b>Monitoring</b>	<b>Evaluation</b>	
<b>Group1 (skilled)</b>	<b>40</b>	9	14	10	15	21	<b>25</b>	<b>134</b>
<b>Group 2 (average)</b>	9	6	10	7	14	11	9	<b>66</b>
<b>Group 3 (less skilled)</b>	3	3	10	3	2	7	8	<b>36</b>
<b>Total</b>	52	18	34	20	31	39	52	<b>236</b>

Table 4: Qualitative and Quantitative Coding of the Metacognitive sub-components

The participants' answers to the reflective prompts were analyzed by detecting and counting the number of appearance of each metacognitive subcomponent. Out of the twenty four post-writing reflections analyzed, 123 cases of metacognitive knowledge evidence were spotted and 122 cases of metacognitive regulation. When contrasting the metacognitive awareness of the three groups, a striking difference is observed. The group of skilled writers has 134 instances of metacognition while the average and less skilled writers have 66 and 36 instances respectively.

More frequent use of all the metacognitive sub-components is discerned in the 'skilled writers' group than the two other groups. The most remarkable difference is the prevalence of the Declarative Knowledge 'person' category in the group of skilled writers. One example of an excellent student-writer verbalization of this category is the following: *'The most difficult thing for me when writing a descriptive essay is finding ideas, sometimes I find one and eliminate it thinking that it is not good enough or readers will not get it. This type of writing makes me hesitant and confused'*. The answer of this student includes declarative knowledge about a personal difficulty in this particular type of writing 'descriptive task'; therefore, it was coded with both 'person' and 'task' category.

An additional example is another skilled student-writer's phrasing: *'I think I really know that perfectionism is my problem; trying to perfect the essay right from the beginning which leads to stress and delayed production'*. This statement is an illustration of MK 'person' category related to both the cognitive and affective domain. The same participant carries on: *'Yes, I stopped many times for the sake of coherence which is a natural habit in me; whenever I write. I tend to review and write on the same time which somehow gives me a satisfactory feeling about my writing that pushes me to go for more'*. Again, more than one metacognitive sub-component is shown in this statement. In addition to acknowledging a cognitive habit and its motivating effect which is classified with MK (person category) 'cognition & affect', the statement also reveals a sub-component of MR

(Monitoring) which is, as displayed in the table, another frequently identified sub-component among the group of skilled writers. Hence, when coding data, many answers were affiliated to more than one metacognitive sub-component.

The second considerable difference between group 1 (skilled writers) and the other groups is the frequency of coded instances of MR (Evaluation). Twenty five cases illustrating the process of evaluation are observed in the group of skilled writers against nine and eight cases in the group of average and less skilled writers respectively. An example of a good student-writer's evaluation of her writing performance and reflective practice is quoted,

*'I think I managed to convey my view of this person to the reader; what I liked the most is that I managed to reflect each feature/look on his personality. I would like to change my conclusion and come out with a stronger thesis statement...After writing this sheet, I know what my strength points are, where I can gain more time then lost it in dealing with my weaknesses, I also know how to overcome my confusions, simply by starting free-writing and then ordering everything to come up with a plan'*

Some of the second and third group participants' discourse was coded as evaluation even if it was a superficial one; for instance, one student wrote, *'After reading my production, I felt that it's average and there are things that need to be changed, but it's too late. I need to improve too many things like my vocabulary, so I have to read more'*. Despite the lack of precision in this evaluation, it was categorized as one because the second method in treating the data is mainly a quantitative one, based on counting the frequency of each coded metacognitive sub-component.

Hence, we answer the second research question:

2) Skilled students-writers display more instances of declarative metacognitive knowledge (person), and metacognitive regulation (monitoring and evaluation) in their discourse than less-skilled writers.

### **3-Discussion**

The aim of this study is to investigate the relationship between metacognition and writing proficiency. Two complementary issues guided this research: 1) the correlation between learners' metacognitive reflection depth and their writing performance, 2) the difference between skilled and less skilled writers in experiencing various metacognitive sub-components.

First, the findings in this study suggest a positive correlation between the writing performance of second year students and their metacognitive writing awareness. This finding conforms to previous ESL and EFL research results correlating metacognition and writing performance such as Kasper (1997) and Farahian (2018). This is also consistent with the reviewed literature in L1 writing which highlights the role of metacognitive processes in contrasting mature and novice writers (Bereiter & Scardamalia, 1987). On one hand; as indicated in previous research, the discourse of less-skilled writers in this study focused on lower-order processes and the reporting of superficial actions such as checking mechanics, vocabulary, and grammar rules. On the other hand, skilled writers reflected more about their writing processes by spotting and describing the recurrent problems they face in writing such as goal setting, managing time and affective factors.

Second, all the metacognitive sub-components were detected in the written discourse of the participants in the three groups; however, they appear more frequently in the discourse of skilled writers than in the one of average and less-skilled writers. That is, evidence of less skilled writers' manipulation of metacognitive sub-components was less present than with the skilled ones. The most used metacognitive subcomponent in the group of skilled writers is the 'person' subcategory in MDK. In other words, skilled writers are more aware of their own cognitive and affective habits towards writing than less skilled writers. This is aligned with the findings of previous research such as, Farahian (2018), Zimmerman et al (1994), Victori (1999), and Yanyan (2010).

Another notable difference between the group of skilled writers and the other groups is the frequency of coded instances of

Metacognitive regulation in the subcategory of *evaluation*. This corroborates with the findings in Gorzelsky et al (2016). In fact, in the skilled writers' group, twenty five cases of self-evaluation both on the writing process and product were spotted in their discourse. These included diagnosing issues related to content, organization, as well as linguistics ones. However, average and less skilled writers often did not answer the question related to evaluating their own written product or limited their answer to superficial aspects related to editing. A third metacognitive subcomponent that differentiates to a certain extent skilled from less skilled students in this study is *monitoring*. That is, more instances of audience awareness were found in the skilled writers' group than the other students; moreover, the former showed more ability to control the relevance and coherence of their writing than less skilled writers.

Still, there are other subcategories of Metacognitive Knowledge (task, strategy, and conditional knowledge) and Metacognitive Regulation (planning) in the group of skilled writers that do not significantly contrast with the other groups of less skilled writers. This might be due to the fact that some metacognitive operations are unconscious and not accessible to the students' knowledge. Besides, the memory is fallible; it therefore makes it difficult for them to report all the metacognitive moves they experienced (Nowacek, 2013) (Zimmerman & Kitsantas 1997). A more important number of participants are needed to validate the trends identified in this study. Nevertheless, the findings in our investigation are in conformance with L1 writing theories and most L2 writing research about the central role of metacognition in writing. Besides, the data generated in this study shows that students are able to write about their own writing, cognitive/affective domain, and learning experience when they are encouraged to do so. Researching more about the metacognitive subcomponents distinguishing skilled from less skilled writers can give more insight to teachers in assisting learners who are struggling with writing.

### **Conclusion**

This study explores the post-writing metacognitive reflections of sophomore students at the Teacher Training School of Constantine and the relationship with their scores in writing. The results reveal a positive correlation between the writing proficiency of students and their metacognitive awareness. Moreover, the written discourse of the participants showed that the skilled writers exhibit more metacognitive knowledge about themselves as writers than less skilled writers. The analysis of the metacognitive reflection also shows that skilled writers possess better metacognitive regulation skills; mainly, in the sub-components: Evaluation and monitoring. Contrarily, the discourse of less skilled writers was superficial and often limited to very short answers. The difference between skilled and less skilled writers' metacognitive awareness indicates that metacognition is key to help learners improve their writing skills. Therefore, instructors need to instill in learners the habit of thinking about their thinking and writing about their writing. Such training would give learners a sense of ownership of their writing experience.

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