Examining the Effects of Metacognitive Strategy Training on EFL Learners' Writing Performance

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ABSTRACT

This study aimed at examining whether metacognitive strategy training has any effect on EFL learners' writing performance within the Algerian context. Third year EFL students at Abbas Laghrour University in Algeria (n=78) were subject to an embedded three-month intervention of metacognitive strategy training, after which they were examined in terms of their maturation in writing as well as metacognition. Results from the Kruskal-Wallis H test have shown that only one of the two treatment groups outperformed the control group in writing. The aspect of writing most affected was structure. Also, ANCOVA results have shown that the treatment group which was not affected by the intervention did not show any maturation in levels of metacognitive awareness or regulation, hinting towards a lack of internalization of the treatment. It is then recommended that teachers intending to integrate metacognitive strategy training into the EFL writing classroom do cautiously. Implications for further research are also discussed.

KEY WORDS: *Metacognition, metacognitive strategy training, EFL writing.*

INTRODUCTION

One of the most crucial elements which should be taken into account in any learning environment is, of course, the actual process of 'learning'. In an ideal learning situation, any individual is capable of facilitating her efforts through manipulation of various factors influencing this process. These factors range from the individual's detection of her own mental strengths and weakness, the ability to balance between these strengths and weaknesses as needed by selecting the appropriate strategy to handle a particular task, and the ability to effectively assess her own progress throughout the whole process. In this case, the learner would consciously manage her own cognitive processes to her advantage so as to maximize the use of her cognitive potential.

However, it has been observed that students of (EFL) at the University of Khenchela, in Algeria, seem to experience some gap between the learning tasks with which they are faced and their knowledge of their cognitive processes executed for such tasks. Bouchefra (2015) asserts that most writing courses in Algeria are devoted to teaching grammar rules and teaching 'about writing' as opposed to actual practical writing. This, according to him, is what has lead learners to inadequately dealing with real-world writing demands, such as passing semester exams in which writing is vital. Because language teaching in Algeria has, for the most part, only provided learners with opportunities to memorize non-contextualized information without their practical use, learners seem to have become conditioned to this learning method.

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Moreover, one of the most pivotal skills to master in a target language is writing (Pajares, Johnson & Usher, 2007) because of the practicality of the skill in nearly any domain in life. Mastery of the skill, however, entails mastery of its numerous aspects, from the most basic conjugation of individual verbs to the overall coherence of the work and the impression it inflicts on the reader. An apt writer can balance between the various aspects of writing in order to construct a cohesive piece while managing to follow the relevant criteria for accuracy.

Again, EFL learners in Algeria appear to fall back when it comes to writing, more so than any of the other language skills. The researchers have observed that even the most competent students tended to make the most rudimental mistakes: inaccurate conjugation of a simple tense, word to word translation from the mother tongue, a lack or inappropriate use of punctuation, and overall incoherence, among many other mistakes. When questioning Algerian teachers of English writing, Salima (2012) found that these learners had overall poor writing. In addition, when reporting perceived reasons for such poor performance, more than 60% of the teachers reported a lack of awareness about the significance of writing among their students as being a major factor in, 50% reported a major hindrance as a lack of concentration, and 30% reported a lack of mastery of writing skills. Despite the poor level of students' writing reported by the teachers, 59% of the students themselves had reported that their level as being either 'good' or 'very good'. This, along with the mentioned learning methods that they seem to have adopted, lends support to the belief that there exists a lack of self-reflection and monitoring of learning- more precisely-a lack of metacognitive awareness and strategy use among Algerian students.

METACOGNITION

John H. Flavell- the father of metacognition- initially coined the term metacognition and defined it as "thinking about thinking" (Flavell, 1979, p. 906). Tobias and Everson (2009) described metacognition as "a higher-order, executive process that monitors and coordinates other cognitive processes engaged during learning, such as recall, rehearsal, or problem solving to name a few" (p.108). Metacognition is divided into two components: knowledge of cognition and regulation of cognition (Flavell, 1979; Schraw et al., 2006); the former encompasses declarative, procedural and conditional knowledge while the latter encompasses the processes of planning, monitoring and evaluation.

Researchers on a wider scale have studied the impact of metacognition on various academic fields, ranging from mathematics to biology and physics. In the field of English teaching and learning, metacognition is believed to play a crucial role in facilitating the process of language learning.

For instance, Oxford (1990) asserts that language learners should be in command of their learning, and this can be accomplished through the following Metacognitive streategies (McSs): (1) Centering learning, (2) Arranging and planning learning, and (3) Evaluating learning. Centering learning calls for the student to try and associate the new content with what is already known, orient his/her attention, and invest more time and effort to listening instead of speaking. Arranging and planning calls for the individuals to organize their learning, establish goals, plan for specific tasks, and pursue chances to practice. Finally, language learners implement evaluation strategies when monitoring their progress as well as assessing the product of their efforts (Oxford, 1990).

Similarly, O'Malley and Chamot (1990) list three groups of McSs that should be used in the language classroom: 1) Planning strategies, 2) Monitoring strategies, and 3) Evaluating strategies. Anderson (2002) also believes emphasis should be most placed on metacognition in order to facilitate acquisition of stronger learning skills.

Adkins (1997) highlights the significance of McS use for language learning. Students become conscious learners seeing as they control their own learning through personal filtration and selection of appropriate strategies. Students become committed and motivated since they plan and set goals for their own objectives and tasks. Similarly Magaldi (2010) asserts that metacognition fosters autonomy in language learning. Furthermore, in a metacognitive- rich environment, the teacher should play the role of the mediator, keeping a close eye on the learners in order to modify their behavior in case of any mistakes (Álvarez, 2010). As the learner practices and masters the skill or task, this intervention is reduced and eventually eliminated, which fosters autonomy among learners (Álvarez, 2010).

Metacognition in writing

The complex interplay of various mental activities involved in text production make the phenomenon a key interest of cognitive psychology (Alamargot & Chanquoy, 2001). The first cognitive model which sought to describe such mental processes was developed by John Hayes and Linda Flower in 1980. One of the key elements in Flower and Hayes's model is 'monitor', which- according to the authors- is the mechanism responsible for guiding and coordinating the other three writing processes in the model. Berninger and Swanson (1994) , however, argued that the monitor is a broad control mechanism that regulates the totality of mental processes (including memory systems) evoked during composition; hence, should be better labeled as metacognitive control, considering it as a crucial element in the writing process.

Between the metacognitive and cognitive levels, Butterfield, Hacker and Albertson (1996) highlight linking monitoring and control strategies. The former include examples such as: revisiting a complicated portion of a text, referring to previous text, and setting expectations for the ongoing text. Control strategies, however, seek to refine vague or erroneous features of a text. This can be best explained in the context of Nelson and Narens's (1990) significant article, in which they analytically differentiate between monitoring and control. According to the authors, monitoring is "analogous to listening to the telephone handset-is that the meta-level is **informed** by the object-level" (p.127). Control, on the other hand, is "analogous to speaking into a telephone handset-is that the meta-level **modifies** the object-level" (p.127). Monitoring, therefore, evaluates cognitive processes or tasks such as generating ideas, organization, execution, and revision. Conversely, control allows individuals to coordinate these cognitive processes to suit their objectives.

Hacker, Keener, and Kircher (2009), however, declare that metacognition is not just a substantial part of writing. They went as far as to contend "that writing is applied metacognition" (p.154).This was illustrated as such:

[R]eading, re-reading, reflecting, and reviewing are used as monitoring strategies of our own thoughts. Editing, drafting, idea generation, word production, translation, diagnosing, and revision are used as control strategies of our own thoughts. The monitoring and control of our own thinking is metacognition. Writing is applied metacognition. (Hacker et al., 2009, p.161)

The authors supported their argument by stressing that writing is a process of meaning creation and that the group of monitoring activities described above are, in essence, strategies aimed at monitoring the creation of meaning. The meaning these strategies seek to confirm is that which is in accordance with the writer's set goals. Likewise, the set of control activities is aimed at controlling the creation of that meaning. Once monitoring strategies have detected a disequilibrium between intended meaning and that which has been portrayed, control strategies are activated in an attempt to equipoise between the two (Hacker et. al, 2009).

In addition to the aforementioned theoretical underpinnings, Victori (1999) established a relationship between metacognitive awareness and writing performance. Surat, Rahman, Mahamod, and Kummin (2014) examined 18 EFL high school students in terms of the three categories of metacognitive knowledge. They consequently discovered that students did not exhibit sufficient metacognitive knowledge (on the level of all three categories) to practice writing efficiently.

While Victori (1999) and Surat et al. (2014) examined metacognitive awareness/ knowledge, to the knowledge of the researchers only Panahandeha and Asl (2014) examined the effect of strategy use. Sixty students participated in an experiment in which half of them were subject to only planning and monitoring strategy training. In this study, those who had been subject to the treatment outperformed those in the control group in argumentative writing performance. The study, however, only examined two processes of metacognitive regulation: planning and monitoring. Considering the scarce literature on metacognitive strategy training in writing, the current study is driven by the need for such an empirical investigation (especially one which includes all processes of regulation) and especially an investigation within the Algerian context.

In addition, this study served as an attempt to bridge the gap in writing among EFL students which had been observed by the researchers. Hence, the researchers initiated this intervention through which students tackle various writing tasks and problems through in-depth reflection with the intention of raising learners' metacognitive awareness as well as conditioning them to use McSs while undergoing the processes of writing. In doing so, the researchers have adopted the following research questions:

1. Does the integration of an embedded metacognitive strategy intervention in the EFL writing classroom improve students' writing performance?

2. On what level of writing does metacognitive strategy training have the greatest effect?

3. How effective is the intervention in developing EFL students' overall metacognition?

Hypotheses

The following hypotheses were formulated:

H₁: Integration of metacognitive strategy training in the EFL writing classroom significantly improves writing performance.

H₂: Metacognitive strategy training has the greatest effect on the level of convention.

H₃: Students who are subject to the intervention experience a significant development in overall metacognition.

Method

To effectively answer the above research questions, the researchers adopted a quasi-experimental design which implemented quantitative means of data collection.

Participants

A sample of 78 third year students was extracted for this study. The students came from similar regional backgrounds in Algeria (they are from the same state). Coming from the same regions, these learners also have very similar academic backgrounds.

These learners were initially found in three administrative groups. One of the groups was allocated to control, and the other two to the treatment. Due to mainly administrative constraints, the researchers could not re-allocate the students according to necessary protocol. Hence, the researchers could not execute random selection or assignment. The researchers had initially intended on testing every student in all of the groups; however, there were drop-outs since some students did not attend the pre-test and/or the post-test. After drop-outs, the control group consisted of 25 subjects, the first treatment group was left with 26 students, and the second treatment group contained 27 subjects. From the students selected, 60 are female and 18 are male.

Instruments

The distribution of writing tests (Appendix D) throughout the school-year has allowed the researchers to measure students' writing levels. All three groups were subject to pre-tests and post-test which took the form of simple questions to which subjects had to respond in the form of an essay. Assessment of the essays was based on a 20-point evaluation rubric comprised of five 4-point categories (Appendix E).

The researchers used the Metacognitive Awareness Inventory (MAI) devised by Schraw and Dennison (1994) as a reliable ($\alpha= .90$) measure of metacognition. Pre-and post- intervention MAI scores were collected for all three groups.

The questionnaire originally contained 52 questions based on a dichotomous yes-or-no scale. When piloting the questionnaire, however, the researchers discovered some issues in applying it to this particular context. First, there appeared to be too many questions for the students. The students seemed to lose interest before reaching the end. This resulted in many incomplete questionnaires and/or haphazard ticking of answers. This was evident when the researchers observed that by the time many of the subjects reached the second half of the questionnaire, they were checking off answers without reading the question. Second, the researchers believed the format of the questions appeared to generate a form of response bias. All of the questions were in the form of affirmative statements to which the readers agreed or disagreed. This, in the researchers' opinion, was leading the readers to respond in the affirmative, especially since readers were not provided with an intermediate alternative to yes or no. Finally, many students had difficulty understanding several questions because of vocabulary they did not understand.

To overcome some of the obstacles encountered in the pilot questionnaire, the researchers reduced the number of questions to 39 by removing one or two questions from each category, replaced most of the difficult words with their easier counterparts, and changed the structure of the questions. The new questions were presented in the form of a 5-point Lickert scale. Subjects

were asked to select from 0 to 4 what most characterized their learning, 0 denoting 'never/ not well at all' and 4 denoting 'very often/very well'. The meaning/content of the questions was in no way modified.

The inventory covers all three aspects of metacognitive knowledge: declarative, conditional, and procedural knowledge and it covers five aspects of strategy use: planning, information management, comprehension monitoring, and evaluation strategies.

The intervention

The intervention was an attempt to train EFL learners the necessary McSs for planning, monitoring, and evaluating their learning. Students were stimulated to learn and apply these McSs within the domain of writing. The strategies used in the intervention are mainly an accumulation of the McSs outlined by O'malley and Chamot (1990) and Chamot and Kupper (1989). Table 1 provides an overview of the strategies included in the treatment and how they were embedded into the writing classroom.

Table 1- Overview of McS Used in the Intervention

Strategy Name	Explanation
Goal setting	Learners identify weaknesses based on a table of criteria of a complete and effective essay. Learners then set personal goals to improve their weaknesses.
Establishing purpose	Teacher presents learning objectives to open every lesson. Teacher also presents purpose of each strategy that is to be learned. Learners summarize the learning purpose at the end of every lesson.
Directed & selective attention	Because purpose is constantly established, learners conciously focus their attention on that particular task and learning objectives. Furthermore, pre-set goals allow them to direct their attention on learning strategies most relavent to their goals.
Prior knowledge activation	Learners brainstorm what they already know about the writing process and subsequently link it to what they need to learn; in turn, they strive to fill in the gaps (i.e. via their personal learning goals).

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Self- management	Learners plan for their learning by setting their own goals, completing them at their own pace, and monitor and evaluate their own progress.
Comprehension check	After every lesson, learners respond to cue cards prompting them to monitor their understanding of the lesson and/or strategies learned.
Checking goal progress	Cue cards also include questions which prompt learners to monitor their progress in achieving their previously set goals and whether each lesson tends to their goals. Hence, learners are prompted to revisit their initial goals.
Summarizing learning	The same cue cards ask learners briefly to summarize what they have learned (i.e the most important points of the lesson) and identify significance of the learning tasks/ strategies.
Evaluating task success	Learners are asked to evaluate their success in completing each homework and how they could have done better.
Evaluating success of strategies	The same cue cards include questions on whether they used the last strategies and, if they did, whether each strategy was helpful or not.
Evaluating success of goal achievement	The same cue cards include questions on which goals, if any, have been achieved and which goals have yet to be achieved.

The intervention included a total of 11 McSs within the three regulation processes (planning, monitoring, and evaluating). Strategies were applied mainly through cues (Appendix B) aimed at stimulating self-reflection and evaluation among the students. The initial treatment session began with provision of the Table of Criteria (TOC) (Appendix A), which presents the essential elements of a coherent and complete piece of writing. After a brief discussion of each element, students were prompted to use the TOC as a guide to list their weaknesses in writing, which are then ordered from biggest to smallest weakness. They were subsequently told that these weaknesses serve as a hierarchy of goals which they would strive to meet.
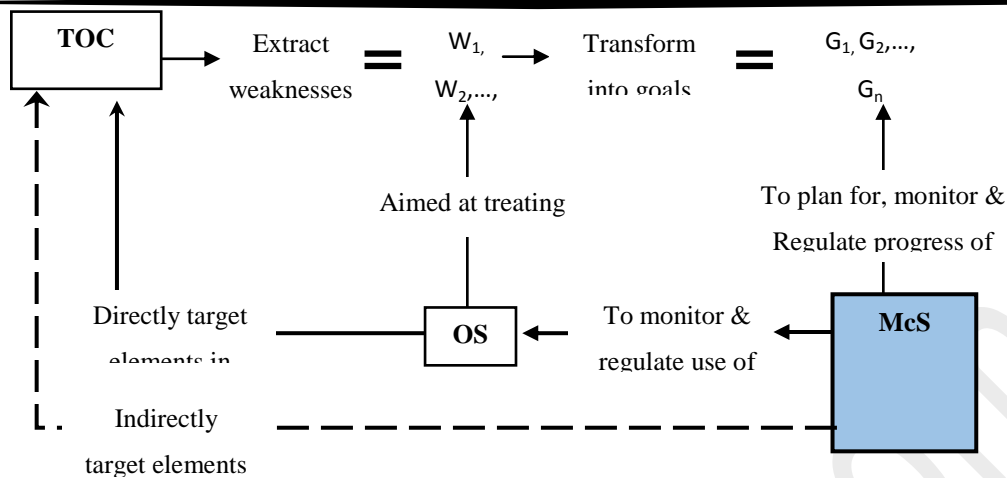
Fig. 1- Overview of the Intervention Process

Each element in the TOC was then presented and treated individually throughout the year. In doing so, learners, who had reflected on their weaknesses and set their goals in the initial treatment session, were stimulated to reflect back on those weaknesses in accordance with the element being treated. For instance, student X initially mentioned style/ voice as a major weakness in her writing. Weeks into the semester, a session is devoted to improving one's style in writing, and some strategies are provided. At this point, student X realizes that this was a major weakness of hers, so she devotes conscious attention and effort to learning these strategies, more so than maybe any other strategy- depending on her priorities in terms of goals.

The strategies presented for improving each element, however, were not metacognitive. They were comprised of various Other Strategies (OS) for dealing with each element directly. For instance, under the element of 'voice' in the table of criteria, the first criterion is the use of precise, interesting and vivid word choice (Appendix A); so dealing with this criterion directly (using OS), the teacher provided for selecting the right words, like using adjectives or adverbs to strengthen descriptions. The OS were presented for the control group as well as the treatment groups. What distinguishes the groups is the use of McSs for generating a link between the OS (those used for dealing with each element) and their goals. This link, and the use of McSs, however, does not happen haphazardly or automatically- at least not to the knowledge of the researchers. It is thought to occur upon reinforcement of reflection via constant metacognitive prompts (Appendix B) which target the strategies listed in Table 1. An overview of the intervention process is represented in Figure 1.

As the figure demonstrates, the intervention was dependent on the OS as well as the TOC for implementation of the McSs. The TOC had set the foundation for learners to establish priorities and reflect on their declarative and conditional knowledge, as well as a means for achieving procedural knowledge. In addition, it was a constant reference point for the learners when planning for, monitoring, and regulating their learning processes and products. The OS sought to target the elements in the TOC *directly* by treating the weaknesses (represented by W_1 to W_n) and, consequently, setting goals (represented by G_1 to G_n), which each learner had established in the initial session. The McSs- implemented and reinforced through the various prompts- sought

to target the elements *indirectly* via direct processing of the OS (see Appendix C for a sample of students' responses to the prompts for homework assignments).

The treatment was implemented for three-month duration for the two treatment groups. The control group was subject to the traditional teaching method. The experiment was single-blinded; however, due to inconvenience, neither the teacher nor the researchers were blinded.

Statistical analyses

To answer each research question, the researchers first analyzed the distribution of scores (for both the pre- and post-tests) in order to test for the assumptions of parametric testing. This was done by running Levene's test of homogeneity of variance and Kolmogorov-Smirnov and Shapiro-Wilk tests of normality.

Scores for the first data-set (those used to answer the first research question) did not violate the assumptions. Hence, Analysis of Variance (ANOVA) was used. Scores for the second data-set, however, violated the assumptions, so nonparametric alternatives were required. For comparison of the means, the researchers used the Kruskal-Wallis test, followed by a pairwise comparison of differences between each group. The third data-set demanded the use of Analysis of Covariance (ANCOVA). ANOCOVA was used to account for the effect of a covariate which was discovered in the process of data analysis.

RESULTS

Research question one

The first research question sought to discover whether McS training improved EFL learners' writing performance.

After establishing equal starting levels for the three groups (via a comparison of pre-test scores), the researchers proceeded by analyzing post-test scores. For the post test data, parametric-testing assumptions were in doubt (specically, the normality assumption), Hence, the researchers proceeded with using the Kruskal-Wallis H non-parametric test. According to the Kruskall-Wallis H test, there was a statistically significant difference in writing post-test performance among the three groups ($H(2)= 10.408$, $p=.005$). For a better understanding of the actual nature of this significance, the researchers conducted a post-hoc pairwise comparison.

The control group and the first treatment group performed relatively the same ($p= 1.000$). For the other two comparisons, however, the second treatment group (M=50.72) performed significantly better ($p=.041$) than the control group (M= 35.24). The greatest distance ($p= .008$) lies between the first treatment group (M= 31.94) and the second treatment group (M=50.72). Accordingly, the researchers can assume that the intervention was effective in improving writing performance for one of the two experimental groups.

Research question two

The second research question was proposed in order to understand on what level of writing, if any, the intervention had the most effect/

In the pre-test analysis, the researchers found that the starting levels of all three groups were relatively the same. In the post-test analysis, results from the Kruskal-Wallis H test have shown

that the groups performed significantly different in two of the five categories: style ($H(2)$=9.950, p=.007), and structure ($H(2)$=11.080, p=.004). For further investigation into the nature of the difference across groups, the researchers conducted a post-hoc pairwise comparison for the categories of style and structure. The pairwise comparison for style has shown that the only difference (p=.005) lies between the first treatment group (M=30.25) and the second treatment group (M=49.67). The control group (M=38.14), however, did not have significantly different scores from either of the two treatment groups.

The pairwise comparison for the category of structure has shown that there is a significant difference (p=.041) in performance between the control group (M=35.56) and the second treatment group (M=50.91). There is also a significant difference in performance (p=.005) between the first treatment group (M=31.44) and the second treatment group. With this being said, the researchers can make the claim that the level of writing most affected by the intervention was structure.

Research question three

The third research question sought to discover the extent to which the intervention was successful in developing students' overall metacognition. Again, with the distribution of scores violating the assumptions of parametric testing, the researchers conducted the Kruskal-Wallis H test for the pre-questionnaire. In doing so, it was discovered that the distribution of scores of the MAI were significantly different across the three groups ($H(2)$=13.934, p=.001). With different starting metacognitive levels, the researchers took into account the effect of students' initial MAI scores in the final analysis of the MAI by running an ANCOVA test and representing the initial scores as the covariate. Results of the ANCOVA test are presented in Table 2.

As the table shows, there was a significant difference in mean post-MAI scores ($F(2,63)$=10.239, p=.000) between the groups while adjusting for the initial MAI scores. This means that there was a significant effect of the intervention (represented by the row titled *Group* on the table) on students' overall metacognitive levels even after accounting for the effect of the covariate (initial metacognitive level (p=.729) represented by the row titled *TTL1* on the table). Moreover, the amount of variation in post-test scores accounted for by the intervention is 3,489.76 units, while only a small amount of variation was accounted for by the covariate (20.61 units).

Table 2-ANCOVA Results for Post-MAI Scores

Tests of Between-Subjects Effects

Dependent Variable: TTL2

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	4239.735[a]	3	1413.245	8.293	.000	.283
Intercept	13040.662	1	13040.662	76.525	.000	.548
TTL1	20.607	1	20.607	.121	.729	.002

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Group	3489.760	2	1744.880	10.239	.000	.245
Error	10735.906	63	170.411			
Total	579307.000	67				
Corrected Total	14975.642	66				

a. R Squared = .283 (Adjusted R Squared = .249)

The researchers also ran a post hoc test for the ANCOVA results. In comparing MAI scores of the two treatment groups with the control group, it was found that scores of the first treatment group were not significantly different from scores of the control group ($p=.054$). In contrast, the second treatment group performed significantly better than the control group ($p=.036$).

DISCUSSION

Results from the three data sets have shown that McS training has been effective in enhancing writing performance, although this was the case for the second treatment group only. This only somewhat supports the first hypothesis (stating that there would be improvement) since the first treatment group experienced no improvement in writing.

The second hypothesis (that students' performance in convention would be most affected by the intervention) was not supported, since results have shown that performance in structure was most affected.

Although the treatment was equally applied to both treatment groups, findings from the third data set show that only the second group seemed to internalize the McSs. This can be reflected in their metacognition scores; again, only the second treatment group showed significant development in scores of metacognition from pre- to post- intervention measurements. Based on their MAI scores, the first treatment group did now show development in metacognitive levels. These results again somewhat conflict with the third hypothesis, which states that the two treatment groups would experience development in metacognitive scores.

The difference between the two treatment groups' internalization of McSs is reflected in their responses to the homework assignment cue cards. Majority of students in the second treatment group responded effectively to the prompts. Although some responded to one essay prompt, many successfully responded to the cue cards for all five essays (they were provided five essays to write and respond to throughout the intervention). The first treatment group, however, did not respond effectively. The researchers received neither essays nor responses to cue cards from any of the students.

In discussing with their teacher of writing, she described the first treatment group as uncooperative and undisciplined. She repeatedly contrasted them with the second treatment group, which she described as very cooperative. Therefore, her account of the students' behavior and the researchers' account of the lack of completion of assignments and tasks are in parallel with the answers generated for the three research questions. It seems that the first treatment

group was not motivated to participate either in the metacognitive activities or in the writing course itself, or maybe they were not motivated to participate in both.

Findings from this study seem to support the viewpoints of Oxford (1990), O'Malley and Chamot (1990) and Adkins (1997) who have highlighted the important role played by metacognition in language learning. This is evident in the comparison of the development of learners in the two groups. Those who have effectively utilized the strategies experienced an improvement in their writing while those who failed to utilize the strategies did not improve. Also, in reviewing metacognitive strategy training in the field of English teaching and learning, Raoofi et al. (2014) found that all of the interventions had a significant effect on learners' performance. Again, those who utilized the intervention seemed to support Raoofi et al (2014). These findings are also somewhat in line with those reported by others in the field of EFL writing. Victori (1999) who had discovered a causal relationship between metacognitive knowledge and second language writing performance and Panahandeha and Asl (2014) found significant improvement in writing performance of learners subject to strategy training.

 The issue, which initiates further inquiry, lies in the fact that the first treatment group as a whole was affected by this phenomenon. It was not a single or a few distinct individuals who were affected. Hence, what could have contributed to one group and not the other group to being cooperative? What could have led to the former group's lack of internalization of the intervention? Are there any possible circumstantial variables (such as classroom environment), social variables (such as the nature of the relationships and interaction among peers within each group or the nature of relationship between the students and teacher of each group) or any other variables which could have contributed to the differences in behavior and processing?

Researchers are invited to examine this contradiction and any variables that may have contributed to it. They should also look into the long-term (positive) effects of the treatment. This is to say, do McSs permanently change the writer's ability, or is the improvement in performance a mere product of constant reinforcement around the time of testing? Moreover, are such strategies (as those implemented in the writing classroom and target writing) transferrable to language skills like speaking, reading, listening, or even those other college-level courses taken by EFL learners like linguistics, literature, or phonetics?

CONCLUSION

Although McSs can be effective in enhancing writing performance, caution should be taken so that the strategies are actually internalized. Successful integration and internalization of metacognitive training into the writing classroom may mean that EFL learners not only adopt some strategies for planning, monitoring, and evaluating their writing processes and products, but with enough evidence, they may also gain general learning strategies which they can transfer to other facets of their life. Thus, students may become more autonomous learners who can approach any seemingly tedious learning task with confidence. In observing a direct causal relationship between McSs and language learning, teachers should be more motivated to promote metacognitive awareness and provide explicit instructions on McSs for their students. This should not only facilitate learning of the target language, but it should also enhance their overall learning habits. This, again, should be done with caution.

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Appendix A

Table of Criteria

CATEGORY	DETAILS
1. Convention/ Usage	a) Excellent command of Standard English b) Precise and accurate grammar/ usage c) Excellent use of coordination and subordination d) Accurate capitalization, indentation, punctuation, and spelling
2. Style/ Voice	a) Precise, interesting, and vivid word choice b) Very rich vocabulary c) Words paint a picture d) The writer creates a strong connection with the reader e) The piece is attractive and carries energy f) The piece is creative and authentic

3. Function/ Focus	a)	Responds to the prompt accurately
	b)	Clear thesis and details
	c)	Appropriate to the audience and purpose
	d)	The piece is complete
	e)	Vocabulary in the scope of the topic
4. Fluency/ Coherence	a)	All details related to topic
	b)	Ideas are linked by effective transitional words and phrases
	c)	Excellent development and logical flow of ideas
	d)	Clear focus
	e)	Transitions are used skillfully
• 5. Structure/ Organization	a)	Excellent organization of the piece and readable
	b)	Structure corresponds to the task well
	c)	Variety in sentence structure
	d)	Excellent organization of thoughts and ideas

Appendix B

Metacognitive prompts

Post-lesson prompts

1. What have I learned?
2. How well do I understand the content?
3. What is the purpose of learning this content?
4. What information is important to remember?

Cue cards for homework assignments

1. How much time did I have to complete this task?	8. How well am I using them?
2. How did I manage my time? Did I do it well?	9. What were my learning goals?
3. What strategies have I used to finish the task?	10. What goals have I accomplished? Where have I improved?
4. Did I achieve the purpose of the assignment?	11. What goals have not been accomplished? Where do I need to improve?
5. Am I on the right track in my learning/ strategy use?	12. Can I still accomplish these goals?
6. Have I used the strategies I have learned so far?	13. What could have I done differently?
7. What strategies have I found most effective for which purpose?	

Final-assignment self-review promptsAppendix C

Answer the following questions about your work and **explain.**

1. Are my ideas clear? Organized?
2. Are my sentences complete?
3. Do the sentences link to each other smoothly?
4. Do the paragraphs link to each other smoothly?
5. Are all my ideas relevant and connected to one main idea?
6. Do all my paragraphs have a topic sentence, supporting details?
7. Is my grammar/usage consistent?
8. Have I punctuated efficiently?
9. Have I capitalized efficiently?
10. Is my language appropriate for the reader?
11. Is my language appropriate for the purpose?
12. Do the subject/ object/ verb agree?
13. Is the meaning of each sentence clear?
14. Is my work complete?
15. Are my supporting details strong?
16. Are my introduction and conclusion strong? Are they creative?
17. Is my work logically organized?
18. Have I chosen precise and suitable words?
19. Have I used enough adjectives and adverbs?
20. Is the piece interesting to read?
21. Are there enough examples and details?
22. The sentences vary in length and structure.
23. The different parts are tied together well.
24. Have I repeated myself?
25. Have I replaced frequent words with synonyms?
26. What strategies have I used to plan/ organize my ideas? Edit/ revise? Why?

Sample of students' response to metacognitive prompts for homework assignment

Student X

① Time of finishing the Task :
- logical division essay : 1h
- chronological order essay : 1h
- cause effect essay : 1h
- compare contrast essay : 30 minutes
- argumentative essay : an hour

② Time management : I divided my time in good way, each part is on a given time
- I started write the introduction and conclusion first then the body.

③ the strategies that I have used to finish my task.
* making a mindmap of the ideas and words that are related to my topics.
* putting a list included all the Transitions that may help me in writing my essays.
* Writing the major points of the thesis Statement that will be developed in the body.
   ① logical division essay : * dividing my topic into subtopics with their related ideas
   ② chronological order : * making a list for the most important events in a chronological order * organizing them according to their happening * Writing the useful narrative Transitions
   ③ cause effect : * making a list for the reasons & results, using the block organization
   ④ compare contrast essay : making a table for Similarities & differences add to the use of block organization.
   ⑤ argumentative essay : making a list for the counter arguments and my arguments using examples.
② Yes I did, I have achieved the purpose of the assignment.
③ yes, I'm on the right track in my learning and strategy use since I used them correctly and in an effective way.
④ yes, I have used all the strategies and ways that I have learned So far.
④ the most effective strategies that I have found : * 1_ using mind mapping for the ideas organization * 2_ a block organization strategies.
⑤ I'm using them effectively because they are much easier and organised methods.
⑥ My learning goals : * using the appropriate strategies for writing each kind of essays * how to organize my ideas in essay * how to deal with different Topics * improving my writing skill * using the different essay patterns * rich my vocabulary list

(handwritten notes, green ink)

13. the goals that I have accomplished
- learning new words.
- the way of organizing the ideas add to the use of examples.
- using the most effective strategies
- how to deal with the contr. arguments in argumentative essay
- using different patterns (logical order, chronological order, division order).
- I've improved them in all my essays especially in cause effect, compare contrast, division order)
11. the goals that I haven't accomplished: using the point by point organization & chain organization that is to be improved in compare contrast / cause effect essays.
12. yes, I still accomplish them.

Student Y

(handwritten)

3/ Explain the decline of reading among the students.

1/ I took 45 minute to finish this work.
2/ I took 25 mn to gather information about the topic and the Vessel for organization and outlining; writing.
3/ the strategies was:
- gathering data.
- organize them
- outline
- write
4/ yes, I did
5/ yes, I am to the right track
6/ yes i I used the strategies I have learned so far.
7/ outline
8/ I am so good in outlining.
9/ academic writing with no mistakes were very good.
10/ avoiding the mistakes writing the academic essay.
11/ the mistakes.
12/ yes, I am.
13/ Nothing but hard work.

Appendix D

Writing tests

Pre-test Questions

Control Group and Experimental Group 2 (they took the test together in the same room so they had the same questions)

Choose one of the following topics and write an essay

1. Describe the most effective teacher you have ever had.

2. If you had to choose only one of the five senses to live with for the rest of your life, what sense would you choose and why?

Experimental Group 1 (They took the test a day after the other groups, so they had to have different questions)

Choose one of the following topics and write an essay

1. Describe the most influential person in your life.

2. If you were forced to spend the rest of your life in a library, a museum, or a zoo, which would you choose and why?

Post-test questions

Control Group and experimental group 2

Choose one of the following topics and write an essay

1. Modern lifestyles mean that many parents have little time for their children. Many children suffer because they do not get as much attention from their parents as children did in the past. What do you think are the causes and effects of this lifestyle?

2. A Person's worth nowadays seems to be judged according to social status and material possessions. Old-fashioned values, such as honour, kindness, and trust, no longer seem important. To what extent do you agree or disagree with this opinion?

   Give reasons for your answer and include any relevant examples from your knowledge or experience.

Experimental Group 1

1) Some people say that advertisements encourage us to buy thing that we really do not need. Others say that advertisements tell us about new products that may improve our lives. Which viewpoint do you agree with? Give reasons for your answer and include any relevant examples from your knowledge or experience.

2) In some countries, young people have little leisure time and are under a lot of pressure to work hard in their studies. What do you think are the causes and effects of these lifestyles? Give reasons for your answer and include any relevant examples from your knowledge or experience

3) Appendix E

Evaluation Rubric for Writing

Score	4	3	2	1	0
Convention/ Usage	• Excellent command of Standard English • Precise and accurate grammar/ usage • Excellent use of coordination and subordination • Accurate capitalization indentation, punctuation, and spelling	• Good command of Standard English • Few errors in grammar/ usage • Competence in coordination and subordination • Errors in capitalization, indentation, punctuation and spelling do not interfere with meaning	• Weak command of Standard English • Some fragments or run-on, and ungrammatical sentences • Weak command of coordination and subordination • Errors in capitalization, indentation, punctuation and spelling interfere with meaning	• Inadequate Standard English • Many run-ons or fragments, and serious and frequent grammar errors • Coordination and subordination inadequate • Errors completely obscure meaning	• Student is incapable of producing acceptable elements of the listed criteria
Style/ Voice	• Precise, interesting, and vivid word choice • Very rich vocabulary • Words paint a picture • The writer creates a strong connection with the reader • The piece is attractive and carries energy • The piece is creative and authentic	• Somewhat interesting and precise word choice • Writer creates a connection with reader • Piece is somewhat attractive and lively	• Words somewhat vague and dull • Weak connection with reader • Sketchy details and development • The piece is somewhat boring and typical	• Words very dull and incomprehensible • There is no connection with reader • The piece is extremely boring and unoriginal	• Student is incapable of producing acceptable elements of the listed criteria

Function/ Focus	• Responds to the prompt accurately • Clear thesis and details • Appropriate to the audience and purpose • The piece is complete • Precise vocabulary in the scope of the topic	• Responds to the prompt; • Appropriate to the audience • Focus not clear at every point • Some points underdeveloped • Sense of completeness	• Somewhat irrelevant response • Inattentive to audience and purpose • Inconsistent focus on topic • Piece lacks many features	• Completely irrelevant response • Completely inattentive to audience • Focus on topic not sustained • Piece is not complete	• Student is incapable of producing acceptable elements of the listed criteria
Fluency/ coherence	• All details related to topic • Ideas are related by effective transitional words and phrases • Excellent development and logical flow of ideas • Clear focus • Transitions are used skillfully	• Details related to topic but some details not used effectively • Transitions used frequently and well • Well- developed and somewhat logical flow of ideas	• Weak use of supporting details • Weak use of transitions • Weak development and flow	• Rare or irrelevant use of supporting details • Little to no, or completely inaccurate use of transitions • Choppy development and illogical flow of ideas	• Student is incapable of producing acceptable elements of the listed criteria
Structure/ organization	• Excellent organization of the piece and readable • Structure corresponds to the task well • Variety in sentence structure • Excellent organization of thoughts and ideas	• The piece is well-organized and readable • Structure corresponds to the task • Sentence structure somewhat varied • Good organization of ideas	• Bad organization of the piece. Somehow unreadable • Structure does not correspond to the task • Basic and typical sentences with little variation • Ideas are somewhat organized	• The piece is completely unorganized and unreadable • Structure irrelevant to prompt • No sentence variation • Thoughts are completely sloppy and disorganized	• Student is incapable of producing acceptable elements of the listed criteria