



The Effectiveness of Meta-cognitive Strategies on Developing Writing Skills of EFL Yemeni University Students

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Keywords

1. Meta-cognitive writing strategies
 2. Yemeni EFL students
 3. writing skills
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Abstract:

The present study is aimed at investigating the effectiveness of using the meta-cognitive strategies on Yemeni second-year university EFL students' writing performance. It explored if there is a significant relationship between second-year students' use of the meta-cognitive strategies and their writing performance. To achieve the objectives of the study and answer the research questions, the researchers adopted the quantitative approach with an experimental design. The study sample consisted of 60 EFL students from Sana'a University. They were equally divided into two groups: the experimental group and the control group. The experimental group was taught writing skills using the meta-cognitive strategies, and the control group was taught writing skills using a product approach. The data were collected using pre- and post-tests to determine students' performance in terms of writing skills. Results show that the total mean scores among the participants were 22.33 based on a five-point Likert scale. Furthermore, the results reveal that there were statistically significant differences between the two groups in the four domains in the posttest in favor of the experimental group. This study ends with some recommendations for the university EFL learners in Yemen and presents some suggestions for further research.

فاعلية استراتيجيات ما وراء المعرفة في تطوير مهارات الكتابة لدى دارسي اللغة الانجليزية كلغة أجنبية في الجامعات اليمنية

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الكلمات المفتاحية

٢. الطلاب اليمنيون

١. استراتيجيات الكتابة ما وراء المعرفة

٣. مهارات الكتابة

الملخص:

هدفت الدراسة الحالية إلى التحقق من فعالية استخدام استراتيجيات ما وراء المعرفة على الاداء الكتابي لدارسي اللغة الانجليزية كلغة أجنبية في الجامعات اليمنية. كما استكشفت ما إذا كانت هناك علاقة دالة إحصائية بين استخدام هؤلاء الدارسون لإستراتيجيات ما وراء المعرفة وأدائهم الكتابي. ولتحقيق أهداف الدراسة والإجابة على أسئلة البحث، اعتمد الباحثان المنهج الكمي بتصميم تجريبي. تكونت عينة الدراسة من (60) طالبًا وطالبة بجامعة صنعاء. تم تقسيمهم بالتساوي إلى مجموعتين تجريبية وضابطة. تم تدريس مهارات الكتابة للمجموعة التجريبية باستخدام استراتيجيات ما وراء المعرفة، وتم تدريس مهارات الكتابة للمجموعة الضابطة باستخدام الطريقة الاعتيادية. تم جمع البيانات باستخدام الاختبارات القبليّة والبعدية لتحديد أداء الطلاب في مهارة الكتابة. أظهرت نتائج الدراسة أن المتوسطات الكلية للدرجات بين المشاركين بلغت (22.33) بناءً على مقياس ليكرت الخماسي. كما أظهرت نتائج الدراسة وجود فروق دالة إحصائية بين المجموعتين التجريبية والضابطة في المجالات الأربعة في الاختبار البعدي، وذلك لصالح المجموعة التجريبية. وتختتم هذه الدراسة ببعض التوصيات للمتعلمين المعنيين بتدريس اللغة الإنجليزية كلغة أجنبية في اليمن (TEFL) وتقدم بعض الاقتراحات لإجراء المزيد من الأبحاث.

Introduction:

Writing is a complex process that is considered one of the most essential skills in language learning. According to Moybeka et al. (2023), writing is an essential activity for students as an active, productive activity. Writing is shown as a discovery process as the students try to find their ideas together. Hadiani (2017) and Humairoh (2021) stated that writing is the way one's ideas, thoughts are organized and expressed.

Writing in English has also proved itself as the most difficult language skill for EFL learners, requiring special competencies. The major difficulties found in students' writing are mostly in the linguistic and meta-cognitive aspects (grammar, spelling, punctuation, organization, mechanics, vocabulary, and content) (Bulqiyah et al. 2021 and Nourazar et al. 2022).

Writing skill is a vital aspect of the teaching and learning of English as a foreign language. Teaching writing is a process that involves intensive instruction and practice on how ideas, thoughts, and feelings can be cohesively and coherently presented in a written form. That is, teaching writing is not only putting words on a piece of paper but also helping students produce a discourse that is intelligible to the readers (Utami et al., 2025).

Writing offers an opportunity for students to develop their thinking skills. Wolpert-Gawron (2014) and Utami et al. (2025) stated that teaching writing is about putting together ideas and guiding the students to communicate with the readers to the best of their ability.

Meta-cognitive strategies have been extensively studied and were found to be an effective approach to developing students' learning skills, including writing. They proved successful in helping students overcome many difficulties during the process of writing process (Atmojo, 2021).

According to Habib (2023), meta-cognitive writing strategies, as processes, become the solution to develop the students' writing skills and are useful for the students in the writing process, such as planning, monitoring, and evaluating. They can be

applied when teaching writing skills to the students who face difficulties composing essays (Bulqiyah et al. 2021).

In the current study, it was found that EFL Yemeni students encounter writing problems generating ideas and organizing them in their essays. This suggests that they need some help to develop their writing skills and that writing teachers should utilize the meta-cognitive strategies to help their students acquire those skills. The meta-cognitive strategies are supposed to solve some of the students' difficulties, such as those related to how to generate ideas (Utami et al., 2025).

1.2. Statement of the Problem

The researchers have noticed that even though the second-year students in the Department of English, Faculty of Languages have been studying the English language from grade seven at school to level two at the university and still encounter many difficulties writing English texts. The difficulties are related to two aspects: the linguistic aspect, which involves grammar, cohesive devices, spelling, and punctuation, and the meta-cognitive aspect of writing, which is related to organization, mechanics, vocabulary, language use, and content. The latter aspect represents a big problem for the learners, and therefore it is selected to be the topic of this study. The meta-cognitive aspects are related to finding ideas for the topic, specifying the purpose of writing, organizing the ideas, and considering the style. As stated by Almaktry (2001) and Saif (2007), "The writer has two major problems: how to come up with ideas and how to put words on paper in a coherent and organized way" (p. 32).

In the case of Yemeni EFL learners, such problems are further compounded by a number of factors, including first language interference, very limited English vocabulary items, and lack of knowledge of the various methods of discourse organization as well as diverse sentence structures. In addition to the students' low proficiency of English, the majority of the students often embark on doing their writing assignments without careful thinking and do not revise what they have

written. All this makes it more demanding for writing teachers to help their students develop writing skills.

2. Literature Review

2.1. The Concept of Metacognition

The concept of meta-cognition, which was first proposed by Flavell (1979), refers to the process of thinking about one's own thoughts and ideas. As Flavell (1979) and Dehham et al. (2025) stated, meta-cognition is the conscious regulation of the students' knowledge and the understanding of the students' mental processes, which enhances their performance and leads to more effective and efficient learning. When students utilize the meta-cognitive strategies, they can better plan their writing, monitor their progress, and make the necessary evaluation to improve their writing (Al-Zubeiry, 2019).

Meta-cognition plays an important role in developing writing skills. Further, meta-cognition plays a crucial role in education, for it enables students to improve their planning, monitoring and evaluating of their learning. This means it can help students to improve their writing process (Kocak and Bayaci, 2010, and Zakariyya, 2012). It also plays an essential role in developing academic writing (Ajayi, 2024). According to Schraw (1998), Fincham and Li (2021), it is necessary to perform a task, and to understand how the task was performed.

Furthermore, meta-cognition is considered important for efficient use of thinking in solving writing problems. Hacker et al. (2009) and Ramadhanti and Yanda (2021) pointed out that meta-cognition has an important role and determines success in writing skills because the written products are called applied meta-cognition. Furthermore, meta-cognition enables students to notice their weaknesses, which they can address by implementing new strategies (Tosuncuoglu and Kirmızı, 2019).

The purpose of this study is to investigate how Yemeni EFL university students can perform their writing process when they employ different writing techniques and activities. Moreover, it explores how students' use of meta-cognitive strategies can affect their performance in writing.

2.2. Meta-cognitive Writing Strategies in the Classroom

By adopting meta-cognitive strategies in writing instruction, the teachers can help their students to realize the progress of their performance in developing their writing skills. Using meta-cognitive strategies plays a crucial role in enabling students to become active participants in their learning of the writing process. It enables them to enhance the needed mental abilities and make them fit to a suitable level. Meta-cognitive strategies include thinking about the task and how to plan, monitor, and evaluate it. The teachers can teach writing essays, with a focused effort on assisting students to use meta-cognitive strategies.

Meta-cognitive writing strategies are crucial for facilitating EFL students' performance and help students to become more effective and autonomous. They also facilitate the students' ability to communicate their ideas and thoughts. Integrating planning, monitoring, and evaluating techniques, the students can enhance their ability to develop their progress (Ajayi, 2024).

Adopting metacognitive writing strategies into the classroom can make the process of teaching more effective, enjoyable, and fun. The teachers can use the meta-cognitive strategies to improve their teaching methods. When they use meta-cognitive strategies in their classes, their students become more interested in the course they are studying (Savvidis, 2016; Boricha, 2019; and Al-Mekhlafi et al. 2021).

Meta-cognitive writing strategies are techniques and actions that students apply to develop their thinking and learning process. As Al-Zubeiry (2019) points out, meta-cognitive writing strategies are important as they lead to the development of the thinking skill. They also lead to the improvement of writing skills. Metacognitive writing strategies play an essential role in developing writing performance. Du-Tot and Kotze (2009) and Al-Zubeiry (2019) reported that meta-cognitive strategies include the stages of modeling, in which the teachers specify the process for writing an essay.

Moreover, using meta-cognitive writing strategies facilitates staying focused and maintaining concentration while writing (Oxford, 1990; Al Moqbali et al., 2020).

Many studies have investigated the direct effectiveness of the meta-cognitive strategies on writing performance using writing tests. For instance, Lv and Chen (2010) used meta-cognitive strategies to improve the students' writing skills. Cer (2019) also reported that the meta-cognitive strategies positively affected the learners' writing skills after applying the meta-cognitive strategies instruction. Al-Zubeiry (2019) reported that employing meta-cognitive strategies in instruction can be effective in improving students' writing skills. Similarly, Hayati et al. (2023) showed that using meta-cognitive strategies in instruction by the teachers may have a significant positive effect on the students' writing skills. Moreover, Nourazer et al. (2022) confirmed that focusing on linguistic aspects and activities can be effective in improving the students' writing skills. Dhillon (2024) argued that employing meta-cognitive strategies can be effective in developing the students' writing skills. Saleh et al. (2025) found that using metacognitive strategies can improve the writing skills of the students. Briefly, there is strong evidence supporting the effectiveness of the meta-cognitive strategies on writing performance. When applied effectively, these strategies may enhance the students' ability to write.

2.3. Previous Studies within the Framework of Meta-cognitive Writing Strategies

Many previous studies were conducted to investigate the effectiveness of using the metacognitive writing strategies in different parts of the world. In the Chinese context, for example, Lv and Chen (2010) studied the impact of teaching meta-cognitive strategies to first-year non-English major students at a Chinese vocational college. Their study was conducted in an actual class context, with an experimental group of 44 participants and a control group of 42 participants. The researchers used a pretest and a post-test, which involved writing a text of approximately 120

words. The results show that the experimental group improved in their writing skills, obtaining high scores on the tests. However, no statistically significant differences were found between the two groups.

In southern Africa, Magogwe (2013) investigated the relationship between students' meta-cognitive strategies and their writing performance. The study involved 30 students in an advanced English writing course at the University of Botswana. They were randomly assigned to two groups of fifteen participants each: experimental and control groups. The data were collected using the pre-test and post-test. The results of the study revealed that the participants had a moderate use of meta-cognitive writing strategies, which suggests that they may have focused more on the linguistic aspects of writing rather than on the metacognitive aspects.

In Turkey, Kaya and Ateş (2016) investigated the impact of the meta-cognitive strategies and their effect on the narrative text. They used a quasi-experimental method involving 64 elementary Turkish learners studying writing. The participants of the study were divided into two groups, with the experimental group consisting of 33 participants and the control group of 31. The research tool was based on the t-test (pre-test and post-test). The results of the study revealed that the participants of the experimental group were more successful than those of the control group.

Samsudin (2016) reported a significant difference in the students' writing aspects (organization, mechanics, vocabulary, language use, and content) before and after employing the intervention. The study involved two groups (experimental and control) of first-year students of a Bachelor Education. They were taking the Academic Writing course. The data were collected using a pretest-posttest instrument. The researchers found that the participants of the experimental group showed more improvement in the writing aspects than those of the control group.

In Iran, Azizi et al. (2017) examined the relationship between using meta-cognitive

writing strategies and the performance of the students in writing. The researchers used a writing test, which was filled out by 30 Iranian EFL participants. The results showed a strong and positive relationship between meta-cognitive strategies and the students' writing performance. The results of this study also revealed that the successful students used more meta-cognitive strategies than the others.

Furthermore, Pitenoe et al. (2017) investigated the impact of the cognitive and meta-cognitive strategies on the writing of 75 intermediate Iranian learners. The participants of the study were divided into three groups: two experimental groups received meta-cognitive writing strategies instruction; however, the control group received writing instruction using the traditional method. The study was based on a writing test (pre-posttest). The findings of the study revealed that the participants of the experimental group's writing had improved post-test after meta-cognitive writing strategies.

In Turkey, Cer (2019) investigated the impact of meta-cognitive writing strategies and their effect on the EFL learners' writing skills. The quasi-experimental study included 44 participants at a private Turkish secondary school. They were divided into two groups. The experimental group of 23 pupils received meta-cognitive writing strategies instruction, whereas, the control group of 21 pupils received traditional writing practices. The treatment was based on a writing test (pre- and posttest). The results of the study revealed that the meta-cognitive strategies improved the students' writing abilities better.

In Saudi Arabia, Al-Zubeiry (2019) investigated the impact of meta-cognitive strategies on developing the students' academic writing skills. The sample consisted of 50 females of the seventh level who are studying an English academic writing course at the University of Al-Baha. They were randomly assigned to two groups of twenty-five participants each (the experimental and the control groups). The treatment was based on a writing test. The results of the study showed that the participants of the experimental group

are better than the participants of the control group.

In India, Radhakrishnan et al. (2021) investigated the effectiveness of training metacognitive strategies in the first year of non-English learners in Indian Instrumentation and Control Engineering. The participants of the study were divided into two groups: The experimental group consisted of 51 participants, and the control group was composed of 22 participants. The researchers used a pre-test-posttest. The results indicated that the experimental group participants outperformed the control group in the post-writing test.

In the Iranian context, Nourazer et al. (2022) carried out a study to explore the effect of the meta-cognitive strategies instruction on the writing performance of 80 intermediate Iranian learners who are studying English as a foreign language. They were randomly distributed to a control group and an experimental group consisting of forty participants in each. The data of this study were collected using a test. The results of this study showed that there was a clear distinction between the control and the experimental groups' writing performance after the instruction in favor of the experimental group.

In Saudi Arabia, Alseaidy et al. (2023) investigated the impact of meta-cognitive strategies on developing writing skills for master's students. The quasi-experimental study involved 17 participants at the College of Education, University of King Faisal, during the academic year 2021-2022. Participants of the study were divided into two groups: The experimental group consisted of 9 participants. The group was given instructions using meta-cognitive writing strategies. The control group consisted of 8 participants. The group was given instructions using the product approach. The data were collected using a pre-posttest design in writing before and after the treatment. The results of the study revealed that there was a statistically significant difference between the mean scores of the participants of the experimental group and the participants control group after the instruction in favor of the experimental group.

In Indonesia, Utami et al. (2025) examined the effectiveness of the PLEASE strategy on students' writing skills among eleventh-grade students in Tanjung Pinang city. The quasi-experimental study involved 83 participants. They were divided into the experimental group of 41 participants and the control group of 42 participants. The researchers used a writing test to collect the data. The results of the research indicated that there was a more significant effect of implementing this strategy on the experimental group than on the control group.

3. The Objectives of the Present Study

This study aims to investigate the effectiveness of using meta-cognitive strategies in teaching writing to Yemeni EFL undergraduate students. Towards this aim, the study attempts to answer the following questions:

- 1- Is there any statistically significant difference at 0.05 in the mean scores obtained by the experimental group on the pre-test and the post-test?
- 2- Is there any statistically significant difference at 0.05 in the mean scores obtained by the experimental group and the control group on the posttest?

4. Methodology

4.1. Research Design

The researchers used the quantitative, descriptive approach to investigating the data of the study collected through the writing pre- and post-tests administered to the participants of the two groups. It was based on the quasi-experimental design.

4.2. Participants

This study involved 60 participants (25 males and 35 females, 20-27 years old) who were second-year students enrolled in the Bachelor's program at the Faculty of Languages at Sana'a University during the first semester of the academic year 2023-2024. The population of the study was divided equally into two groups, that is, 30 in each group. They were enrolled in the Academic Writing (III) course. All the participants were chosen randomly regardless of their age, gender, or any other

variable. They were more or less homogeneous in terms of language proficiency.

4.3. Instrumentation

To achieve the aims of the study, the researchers prepared an achievement test. The pre-test and post-test achievement tests were administered to measure the performance of the students of the two groups. To ensure its validity, the test was distributed to five university teachers in the English Department, Faculty of Languages at Sana'a University, and also in the English Department, Faculty of Arts at Ibb University. They gave comments and suggestions, which were taken into consideration in preparing the final version of the test, which contained a total number of four questions. It took the participants approximately from an hour and a half to two hours to complete the test.

Tool of the Study

The instrument of the study was prepared by the researchers to measure the effectiveness of the meta-cognitive strategies on the students' writing performance. It consisted of a pre- and post-tests that were used to determine the students' level before and after the experimental treatment.

The General Aims of the Test:

To answer the research questions of the study, the researchers used the achievement test to elicit the data, which measures the effect of using the meta-cognitive writing strategies on the proficiency level of the students.

The Items of Test

The achievement test consisted of four writing questions. It included four writing aspects carrying 100 marks. The first question included eight items of true or false statements, with 24 marks being allotted to them. The second question had eight items of multiple choices that were allotted 24 marks. The third question contained six items of choose the best alternative allotted 12 marks. And the fourth question was about writing an essay and assigned 40 marks.

Instruments Validity and Reliability

For validity purposes, the test was validated by a panel of five teachers in the

TEFL and Education for evaluation to obtain their critical opinion regarding the content and construct validity of the test.

The validators suggested some modifications to avoid redundant items, and some items were paraphrased to make them clearer. Some other items were deleted because they defective. Their suggestions were seriously taken into consideration by the researchers.

To ensure the reliability of the test, it was administered to a pilot sample of 30 students who were not part of the study sample.

Furthermore, to verify the reliability of the test, the researchers used computed the reliability scores of the instrument (cronbach's alpha). The Alpha score obtained was (0.86)). It indicates high reliability of the instrument. According to Frankel and Wallen (2006), as cited in Al-Mekhlafi, et al. (2021), the reliability score of the instrument must be (0.70) and above.

Data Analysis

The data of the study were analyzed using the SPSS program. To investigate the students' performance in using the meta-cognitive strategies, the resrachers used descriptive statistics, such as means, standard deviation, and frequency.

Table (1): Mean, Standard Deviation of Pre-Test and Post-Test for the experimental group in the Domains of Writing Skills

Domains	the test	No.	Mean	Std. Deviation	Value (t)	Sig. (2-tailed)	Value η^2
Organization	Pre	30	15.70	3.58	8.464	0.000	0.71
	post	30	21.90	2.63			
Mechanics	Pre	30	10.80	3.74	9.143	0.000	0.74
	post	30	17.80	3.24			
Vocabulary	Pre	30	7.43	2.16	7.828	0.000	0.68
	post	30	10.86	1.35			
Content	Pre	30	15.66	7.03	12.951	0.000	0.85
	post	30	30.76	4.61			
Overall	Pre	30	12.4	2.71	21.057	0.000	0.94
	post	30	20.33	2.01			

Table (1) above illustrates that there is a statistically significant difference at ($\alpha= 0.05$) between the mean scores of the experimental group in the pre-test and post-test in the total score of the test. It is presented that the mean score of the experimental group in the pretest was 12.4, with a standard deviation of 2.71, whereas the mean score of the posttest was

Furthermore, the test results were used to compare the experimental group and the control group in the pretest and posttest. The T-test for two independent samples was used in order to measure the difference between the mean of the pretest and posttest for the experimental group. A t-test for two independent samples was used to measure the difference between the mean of the posttest for the experimental group and the control group. To calculate, Cohen's equation was also applied to measure the effect size between the experimental and the control groups.

5. Results and Discussion

This section attempts to answer the research questions of the study.

5.1. Answering the First Research Question

The first research question was: *Is there any statistically significant difference at 0.05 in the total mean score between the pre-test and the post-test of the experimental group?* To answer this question, the Paired Samples t-test was used to measure the difference between the total mean score of the pretest and posttest of the experimental group, as shown in Table 1 below:

20.33, with a standard deviation of 2.01. The P-value was ($\alpha= 0.00$). That is lower than the significance level of ($\alpha=0.05$). The results also indicate that there are statistically significant differences between the mean score of the pretest and posttest of the experimental group in favor of the posttest.

The finding of the present study lends support to the findings of Lv and Chen (2010), Cer (2019), and Alseaidy et al. (2023), who reported that meta-cognitive strategies have a high impact on the development of writing skills. For example, Radhakrishnan and Sethuraman (2021) used meta-cognitive strategies to improve learners' writing abilities and proved their effectiveness. The finding of the present study also supports those of Nourazer et al. (2022), who emphasized the influence of meta-cognitive strategies on developing writing skills.

Table (2): T- test Results for Two Independent Samples (Control – Experimental) in the Posttest

Domains	Groups	No	Mean	Std. Deviation	Value (t)	Sig. (2-tailed)	η^2 Value
Organization	Control	30	18.70	4.29	3.481	0.001	0.17
	Experimental	30	21.90	2.63			
Mechanics	Control	30	15.20	4.23	2.669	0.010	0.11
	Experimental	30	17.80	3.24			
Vocabulary	Control	30	9.33	1.917	3.574	0.001	.018
	Experimental	30	10.86	1.35			
Content	Control	30	25.06	4.88	4.647	0.000	0.27
	Experimental	30	30.76	4.61			
Overall	Control	30	17.08	2.24	5.934	0.000	.038
	Experimental	30	20.33	2.01			

Table (2) reveals that there was a significant difference between the mean of the experimental group, which was (22.33) with a standard deviation of (2.01), and the mean of the control group, which was (17.08) with a standard deviation of (2.24) and with the probability of (0.00) in favor of the experimental group. According to the results, the means of the posttest of the experimental and the control groups are different from each other, and a remarkable difference was observed in the domains of writing skills, as shown in the table (2) above.

These results indicate that the meta-cognitive strategies can affect the students' writing skills. Particularly, the results suggest that when the students who are taught the meta-cognitive strategies, their writing skills improve more than those who are taught through the traditional method. The students of

5.2. Answering the Second Research Question

The second research question of this study asks: "Is there any statistically significant difference at 0.05 in the total mean score of the post-test between the experimental group and the control group?" To answer this question, the Independent Sample t –test was calculated to compare between the experimental group and the control group in the writing posttest. Table (2) below displays the results,

the experimental group put some effort into revising and commenting on their peers' essays. Thus, it seems that using the meta-cognitive strategies increased the students' abilities to apply the stages of essay writing in their writing, and this advancement is caused by using the meta-cognitive strategies in teaching the experimental group participants. The finding of the present study lends support to the findings of Utami et al. (2025), who emphasized that there was a more significant effect of implementing the PLEASE strategy in the experimental group rather than the control group. However, this finding does not support the findings of Sofiatarialina (2015) and Moqbali et al. (2020) who found that there was no significant difference between the students' use of the meta-cognitive strategies and their achievement.

6. Conclusion

The main objective of the present study was to investigate the effect of using meta-cognitive strategies on the writing performance of the Yemeni EFL undergraduate students. The second objective was to find out whether there was any statistically significant difference between the experimental group and the control group in terms of their writing performance. The experimental group seemed to have improved their writing performance obtaining higher scores in the posttest.

The study employed a quasi-experimental design on sixty participants enrolled in the second year at the Department of English in the Faculty of Languages at Sana'a University.

The study emphasizes that meta-cognitive strategies should be utilized in writing classes as they appear to have a positive effect on developing writing skills. It also emphasized that writing essays should be restricted through planning, monitoring, and evaluating.

Moreover, the results reveal that the participants of the experimental group outperformed by far their control group counterparts. The results indicate that there is a significant difference between the experimental group and the control group in terms of the writing performance.

6.1. Recommendations for Teachers and Students

Based on the findings of the current study, the researchers suggest the following recommendations for the teachers in the EFL context:

- Teachers should create real situations to help the students practice more and more to apply the meta-cognitive strategies in writing.
- Teachers should create an encouraging atmosphere in the writing strategies lectures to enhance the students' performance.
- Teachers should use techniques and activities to support using the meta-cognitive strategies to enable their students to practice them in their writing essays.
- Teachers should develop the students' monitoring skills to deal with the meta-cognitive and linguistic aspects by adopting a

strategy to develop the writing skills of their students.

- Students should use the meta-cognitive strategies because they are helpful to them in writing essays.
- Teachers should provide their students with authentic materials in the classroom as they are considered rich resources for developing the meta-cognitive writing strategies.
- Students should learn the basic stages of the meta-cognitive strategies employed in writing.

6.2. Suggestions for Further Studies

- It is suggested that more research should be done on the effectiveness of using the meta-cognitive strategies in developing other language skills (i.e. reading, speaking, and listening).
- Conducting further studies to investigate the effectiveness of the meta-cognitive strategies in developing the writing skills of the students of the secondary schools in Yemen.
- Conducting studies to investigate the impact of meta-cognitive strategies on other variables such as creative thinking, critical thinking, gender, and age.

References

- [1] Ajayi, J. (2024). Meta-cognitive Strategies in the Classroom retrieved from https://scholar.google.com/citations?view_op=view
- [2] Al-Maktary, H. (2001). The Effectiveness of A strategy Training Programme on Developing Writing skills of English Department Students in Taiz University. Unpublished doctoral dissertation, Faculty of Education, Alexandria University
- [3] Al-Mekhlafi, M. A., Al-Showthabi, A., and Alshargabi, E. A. (2021). Yemeni EFL University Students' Attitudes towards Using as a Learning Tool. *Journal of Educational and Psychological Sciences*. (5)3 151–168
- [4] Al-Mekhlafi, M. A., Al-Sharjabi, E. A. and Al-Shothabi, A. A. (2022). The Impact of a Blended Course on Yemeni University Students' Perceptions and Collaborative Knowledge Construction Performances. *Innovation*, 3(2), 64-71. [Doi: 10.11648/j.innov.20220302.15](https://doi.org/10.11648/j.innov.20220302.15)
- [5] Al Moqbali, I. S., Al Humaidi, S., Al Mekhlafi, A., and Hilal, M. A. (2020). Meta-cognitive Writing Strategies Used By Omani Grade Twelve Students. *International Journal of Learning, Teaching and*

- Educational Research*, 19(8), 214-232.
<https://doi.org/https://doi.org/10.26803/ijlter.19.8.12>
- [6] Alseaidy, H. K. H. and Ibrahim, A. H. A. (2023). The Effectiveness of Meta-cognitive Strategies in Developing Research Plan the Writing Skills for Master's Students at the College of Education - King Faisal University. *Social Science Journal*, 13(2), 5660-5673.
- [7] AL-Zubeiry, H. Y. A. (2019). The Efficacy of Meta-Cognitive Strategies Instruction in Enhancing Saudi EFL Students' Academic Writing. *International Journal of Social Sciences & Educational Studies*, 5(4), 71- 86.
- [8] Atmojo, A. E. P. (2021). PLEASE strategy for teaching writing viewed from students' self-esteem. FOSTER: *Journal of English Language Teaching*, 2(2), 309-319.
<https://doi.org/10.24256/foster-jelt.v2i2.39>
- [9] Azizi, M., Estahbanati, N., and Nemati, A. (2017). Meta-Cognitive awareness of writing Strategy use among Iranian EFL learners and its impact on their writing Performance. *International Journal of English Language & Translation Studies*, 5(1), 42-51.
- [10] Boricha, M. (2019). Top 10 Benefits of Technology in the Classroom. Accessed on 3rd June, 2019 from: <https://www.techrrival.com/benefits-of-technology-in-the-classroom>.
- [11] Bulqiyah, S. Mahbub, M.A. and Nugraheni, D.A. (2021). Investigating writing difficulties in essay writing: Tertiary students' perspectives. *English Language Teaching Educational Journal*, 4(1), 61-73. 10.12928/eltej.v4i1.2371
- [12] Cer, E. (2019). The Instruction of Writing Strategies: The Effect of the Meta-cognitive Strategy on the Writing Skills of Pupils in Secondary Education. *Journals.sagepub.com/home/sgo* SAGE Open, 9(2), 1-17.
<https://doi.org/10.1177/2158244019842681>
- [13] Dehham, S.H., and Abbas, S. H. (2025). The correlation between Iraqi EFL University Students' Meta-cognitive Awareness and Writing Performance. *Arab World English Journal*, 16(1):252-266.
<https://dx.doi.org/10.24093/awej/vol16no1.15>
- [14] Dhillon, B. P. S. (2024). Investigating Meta-cognitive Knowledge and Regulation in Indonesian University Students' Academic Writing: Strategies and Attitudes. Unpublished doctoral dissertation, Pendidikan University, Indonesia
- [15] Du-Toit, S., and Kotze, G. (2009). Meta-cognitive strategies in the teaching and learning of mathematics. *Pythagoras*, 2009(70), 57-67.
- [16] Fincham, N. X. and Li, G. (2021). Online English Learners' Meta-cognitive Knowledge Development about Writing: Implications for Second Language Writing Pedagogy. *Educational Innovations and Emerging Technologies* (1)1, 67-83,
<https://doi.org/10.35745/eiet2021v01.01.0007>
- [17] Flavell, J. (1979). Meta-cognition and cognitive monitoring: A new area of Cognitive developmental inquiry. *American Psychologist*, 34(10), 906-911.
<http://dx.doi.org/10.1037/0003-066X.34.10.906>
- [18] Frankel, J. R. and Wallen, N. E. (2006). How to design and Evaluate Research in Education. (6thed). The McGraw- Hill Companies, inc.
- [19] Habib, M. (2023). The effect of PLEASE strategy of students' skill in writing descriptive text at SMA Dar Alfalah Tanjung Balai. *Journal of English Education, Linguistics, Literature, and Language Learning and Teaching*, 1(1). 20-26.
<https://ejurnal.bangunharapanbangsa.id/index.php/jee/article/view/105/87>
- [20] Hacker, D. J., Keener, M. C., and Kircher, J. C. (2009). Writing is Applied Meta-cognition. In D. J. Hacker, J. Dunlosky, & A. C. Graesser (Eds.), *Handout of Meta-cognition in Education* 154-172. New Jersey: Routledge.
- [21] Hadiani, D. (2017). The Students' Difficulties in Writing Thesis Statement. *Semantik*, 2(1), 80-86.
- [22] Hayati, M., Dollah, M., Nair, S. M. and Wider, W. (2023). Effective Use of Meta-cognitive Strategies of Students in ESL Writing Based on Gender. *World Journal of English Language*, 13(8), 26-34.
- [23] Humairoh, S. A. (2021). Exploring Students' Difficulties in Writing. (A Qualitative Case Study at the Department of English Education, UIN Syarif Hidayatullah Jakarta).
- [24] Kaya, B. and Ateş, S. (2016). The Effect of Process-Based Writing Focused on Metacognitive Skills- Oriented to Fourth Grade Students' Narrative Writing Skill. *Education and Science* 41(187), 137-164.
DOI:10.15390/EB.2016.6752

- [25] Kocak, R. Bayaci, M. (2010). The Predictive Role of Basic Ability Levels and Meta-cognitive Strategies of Students on their Academic Success, *Procedia Social and Behavioral Sciences*, 2(2), 767-772.
- [26] Lv, F., and Chen, H. (2010). A Study of Meta-cognitive-Strategies-Based Writing Instruction for Vocational College Students. *English Language Teaching*, 3(3), 136-144.
- [27] Magogwe, J. (2013). An Assessment of the Meta-cognitive Knowledge of Botswana ESL University Student Writers. *Academic Journals*, 8(21), 1988-1995 doi:10.5897/ERR07.087.
- [28] Moybeka, A. M. S., Syariatn, N., Tatipang, D. P., Mushthoza, D. A., Dewi, N. P. J. L., and Tineh, S. (2023). Artificial Intelligence and English classroom: The implications of AI toward EFL students' motivation. *Edumaspul: Jurnal Pendidikan*, 7, 2444-2454. <https://doi.org/10.33487/edumaspul.v7i2.6669>
- [29] Nourazer, S., Kakvand, R., and Aliasin, S. H. (2022). The Impact of Scaffold Meta-cognitive Writing Strategy Instruction on Iranian Intermediate EFL Learners' IELTS Writing Task 2. *Education Research International*, 1-8, Zanzan University. Zanzan, Iran.
- [30] Oxford, R. (1990). Language learning strategies. Boston, Massachusetts: Heinle & Heinle Publishers.
- [31] Pitenoe, M. R., Modaberi, A., and Ardestani, E. M. (2017). The Effect of Cognitive and Meta-cognitive Writing Strategies on Content of the Iranian Intermediate EFL Learners' Writing" *Journal of Language Teaching and Research* DOI:<http://dx.doi.org/10.17507/jltr.0803.19>, 8, (3), 594-600.
- [32] Radhakrishnan, G. & Sethuraman, M. (2021). Integrated Practice of Meta-cognitive Strategies and Second Language Writing. *MIER Journal of Educational Studies Trends & Practices*, 11(1), 118-136. DOI: [10.52634/mier/2021/v11/i1/1752](https://doi.org/10.52634/mier/2021/v11/i1/1752)
- [33] Ramadhanti, D. and Yanda, D. P. (2021). Students' Metacognitive Awareness and Its Impact on Writing Skill. *International Journal of Language Education*, (5)3, 193-206. Doi: <https://doi.org/10.26858/ijole.v5i3.18978>
- [34] Saif, A. M. D. (2007). An Analysis of Common Grammatical Errors Made by the Students of Level One at the National Institute of Administrative Science. Master's thesis, Taiz University.
- [35] Saleh, N. M. A. Mutahar, A. A. M, and Alwai, A. M.S. (2025). Meta-cognitive Writing Strategies of Master Students in the Departments of English at Yemeni Universities. *International Journal of Language and Literary Studies*. 7(1).379-395. <http://doi.org/10.36892/ijlls.v7i1.2047>.
- [36] Samsudin, Z. (2016). Comparing the Process Approach with the Product Approach in Teaching Academic Writing to First-year Undergraduates. *The Asian Journal of English Language & Pedagogy*, 4, 84-104.
- [37] Savvidis, P. (2016). Top 6 Benefits of Using Technology in the Classroom. Accessed on 3rd June, 2019 from: <https://www.webanywhere.co.uk/blog/2016/02/top-6-benefits-technology-classroom>.
- [38] Schraw, G. (1998). Promoting general meta-cognitive awareness. *Instructional Science*, 26, 113-125.
- [39] Sofiaturosolina (2015). An Analysis of Learning Strategies for Second Semester Students of Paragraph Writing Class in English Education Department, UIN Sunan Ampel Surabaya, Academic Year 2013-2014 (Graduate Thesis, Sunan Ampel State Islamic University.
- [40] Tosuncuoglu, I., and Kirmizi, O. (2019). A Review on Writing Meta-cognitive Awareness of Turkish Advanced Level EFL Learners. *International Online Journal of Education and Teaching* (IOJET), 6(1), 136-149. <https://doi.org/http://www.iojet.org/index.php/IOJET/article/view/562>
- [41] Wolpert-Gawron, H. (2014). Writing Behind Every Door: *Teaching Common Core Writing in the Content Areas (1st ed.)*. Routledge. <https://doi.org/10.4324/9781315819860>
- [42] Utami, D. P., Yundayani, A., and Puspitasari, M. (2025). Utilizing PLEASE strategy as a meta-cognitive writing process in teaching writing a recount text for students' writing skills and motivation. *SALEE: Study of Applied Linguistics and English Education*, 6(1), 219-233. <https://doi.org/10.35961/salee.v6i1.1716>
- Zakariyya, A. A. (2012). Impact of Meta-cognitive Strategy on Attitude, Retention and Performance in Calculus among Colleges of Education Students in North-central Zone, Nigeria. Phd Thesis