



قسم المناهج وطرق التدريس

استخدام استراتيجية تفكير القبعات الست لتنمية مهارات الكتابة  
لدى طلاب المرحلة الثانوية  
( بحث مستل من رسالة الدكتوراه )

إعداد

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## Using Six Thinking Hats Strategy to develop Secondary School Students' Writing Skills

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### مستخلص البحث

هدفت الدراسة الحالية إلى تنمية مهارات الكتابة لدى طلاب المرحلة الثانوية باستخدام استراتيجية قبعات التفكير الست. ولتحقيق هدف الدراسة تم استخدام المنهج شبه التجريبي. وتكونت عينة الدراسة من ٦٠ طالبة تم تقسيمهن إلى مجموعتين: التجريبية (٣٠) طالبة والضابطة (٣٠) طالبة. تم تدريس المجموعة التجريبية من خلال الباحثة باستخدام استراتيجية تفكير القبعات الست بينما تم التدريس للمجموعة الضابطة باستخدام الطريقة المعتادة. ولقد قامت الباحثة بإعداد قائمة بمهارات الكتابة، وإعداد اختبار مهارات الكتابة (قبلي - بعدي) تم تطبيقه قبلًا وبعديًا على مجموعتي الدراسة، وإعداد مقياس للكتابة؛ وقد بينت النتائج أن استخدام استراتيجية تفكير القبعات الست لها تأثير إيجابي على تنمية مهارات الكتابة لدى طلاب المرحلة الثانوية. ولقد كانت النتائج مؤكدة ومدعمة للفروض؛ وخلصت النتائج إلى توصية المعلمين ومصممي المناهج باستخدام استراتيجية تفكير القبعات الست في تدريس اللغة الإنجليزية وتعلمها.

### Abstract

The current study aimed at investigating the effect of using the six thinking hats strategy to develop secondary school students' writing skills. To achieve such an aim, the quasi-experimental design was used. The participants of the study consisted of sixty students divided into two classes. One class represented the experimental group (n=30) taught through the six thinking hats strategy, and the other class represented the control group (n=30) that received regular instruction. The researcher used a writing skills' checklist, a writing skills' pre-post test, and a rubric. The participants were pre-post tested using the writing skills test. The results showed that there were statistically, and significant differences between the mean scores of the experimental and control groups. This reflects that using six thinking hats strategy had a positive effect on developing secondary school students' writing skills.

**Key words:** Six thinking hats, Writing skills, Secondary stage.

## Introduction

English language is the most widely used language in the world. It is now a tool that lets individuals around the world connect together. English language has four main skills, which are listening, speaking, reading, and writing. Writing and speaking are productive skills, while listening and reading are receptive skills. Among these four skills, writing is a vital skill for learning, communicating, and working in a world full of direct communication and open-sources for online learning in English. Learning to write in English becomes an essential skill for learning, recording information, expressing thoughts, and organizing ideas.

As a matter of fact, writing is a difficult skill to acquire and it is the last skill to be learned in the process of language acquisition. Students find it difficult because they have to produce a well-structured piece of writing. This process obligates them to master grammar, to generate and produce ideas related to the topic, to be aware of organization and mechanics, and to focus on choosing vocabulary and sentence structure. So, writing needs to be instructed, trained, and developed in a world full of written communications in English. It is more than reflecting on language components such as grammar, because it also requires focus on the way of producing thoughts that are related to the topic.

The importance of writing in English comes from its consolidating other language skills because when we listen we write and when we read we write. Writing is one of the life skills; we read to write and we write to learn. According to Crystal (2003), writing is one of the most important aspects of intercultural communication; this is seen as a critical prerequisite, particularly at the present

time, which is characterized by internationalization. In this respect, English is a global language of intercultural communication among different people all over the world. So, writing in English serves a crucial role in achieving this international communication. This is obvious in the necessity of English writing for a variety of purposes as part of the wider goal of achieving intercultural communication

EFL students consider writing a complicated task because they have problems in communicating their ideas effectively on paper, and they need to acquire macro strategies like planning, drafting and revising; and micro strategies as automatic search for words and syntax (Adas & Bakir, 2013). De La Paz and Graham (2002) consider knowing what to write and how to write a difficult mission for all language learners; they define writing as a challenging task because it involves the composition of various cognitive resources and problem-solving activities. This is confirmed by Smalley et al., (2001); They assure that when learners are asked to produce a piece of writing, many of them tend to procrastinate because they do not know how to begin and cannot think of anything to say about the topic at hand.

## **Components of Writing**

According to Weigle (2002), there are five components of writing: content, organization, vocabulary, language usage, and mechanics. Content refers to the material that exists in the composition, such as topics, explanations, discussions, and the core of the main topic discussed. The organization means that during composing the written text, the sequence of each sentence or paragraph is prominent; there should be good organization

among them. Vocabulary deals with the ability to use the words correctly in a composition as rich as possible; the greater the vocabulary used for the text, the greater the opportunities for a better result will be produced. Language use is all about the construction of structures as well as the components of the language applied in the written text, such as grammar and the complexity of the sentences. Mechanics deal with the punctuation, spelling, capitalization, as well as the type of handwriting mechanics, whether they are clear and legible or not. It is important to arrange the writing mechanics well since it can affect the writing results.

Although writing is a productive skill and it is important for EFL learners as a productive skill, it is still the most difficult skill for them and the last skill to be taught. Unfortunately, secondary school students lack some writing skills, including: they could not write coherent or relevant ideas, some of the ideas they write are not grammatically correct, there are some words that are misspelled and they do not pay much attention to mechanics and organization.

Teachers of EFL should use various approaches, methods, and strategies to help students develop their writing skills. Some of the methods, approaches, and strategies teachers use include writer's workshop, genre-based approach, product-based approach, interactive approach, collaborative writing and cognitive activation.

Also, the problem of thinking, that EFL learners face, could be solved using a method made by Edward DeBono; he presents what is known as "Six thinking hats" strategy:

## **Six thinking hats strategy**

The six thinking hats strategy is a powerful tool that facilitates productive, critical thinking, collaboration, communication, and creativity; it is a time-tested, proven and practical thinking tool; it provides a framework to help people think clearly and thoroughly by directing their thinking attention in one direction at a time.

De Bono (1995) sets out six colors for the hats. These colors are white, red, black, yellow, green and blue: The white hat presents information, facts, and figures. The red hat expresses feelings, emotions, and intuition. The black hat refers to critical thinking and points of weakness. The yellow hat deals with benefits, advantages, and principles. And the green hat is the hat of creativity; it introduces new ideas and offers solutions and suggestions to problems. The blue hat is the manager of thinking; it is "thinking about thinking"; it organizes and controls the thinking process and gives the "overview."

## **Six Hats Benefits**

McAleer (2006, p.44) stated the benefits of using six thinking hats in the classroom. These benefits are that it provides a visual image by using different colors that are easy to learn, remember, and use. It makes thinking visible and focused as well as developing critical and creative thinking. It could be employed in listening, speaking, reading, and writing. It develops problem-solving, decision-making, leadership and independence. It creates awareness by providing multiple perspectives on the issue at hand. It lets students ask quality questions. It lets students have focused and in-depth discussions. It makes a systematic self-evaluation, develops students' confidence

and encourages cooperative groups and teamwork in an effective and organized way. It removes the ego and saves time. It is an internationally recognized tool for teaching thinking in all content areas. It enables us to see our thinking, focus, change and improve it. Each colored hat represents a different mode of thinking, and it presents opportunities for wonder and thoughts.

### **Context of the problem**

Writing compositions in English is one of the main problems EFL students face. They need to develop their writing skills for educational and professional purposes. Unfortunately, students consider writing the most difficult skill, especially when they write paragraphs, e-mails, letters, and essays; because they face some challenges during the writing process. These challenges include weaknesses in some writing aspects such as grammar, content, vocabulary, organization, and mechanics.

Also, Students consider writing an individual work. They fear sharing their writings with others. They do not take feedback for their writing, which makes them passive recipients. They do not recognize the phases of the writing process (pre-writing phase, during writing phase and post writing phase). They also have a problem in finding, expressing, connecting and evaluating ideas related to the topic they are writing about. In addition, teachers make the writing task an individual work by using traditional methods. As a result, the writing task becomes one without interaction or collaboration. Also, teachers always concentrate on the final products more than the process itself.

During her work as an English teacher, the researcher noticed that secondary school students have

difficulties with writing. The majority do not write coherent or united paragraphs. They are writing sentences that are not grammatically correct. Their ideas lack coherence and unity. They pay little attention to mechanics and organization. Furthermore, they had difficulty producing and organizing thoughts about the topic they were writing about. They also had weaknesses in connecting ideas coherently and expressing their points of view. This was particularly clear when they wrote paragraphs, letters, and answered questions related to the novel they were studying.

The researcher reviewed studies and literature related to writing. Reviewed literature revealed that some studies (e.g. Ahmed, 2021; Hassan, 2021; Aboure, 2021; El-Nagar, 2016; ElSakka, 2011) found difficulties in the writing class.

In addition, the researcher conducted a pilot study when she administered a writing test to (N = 20) secondary school students. The students were asked some questions. In the first question, the students were asked to write a topic about "Mobiles". In the second question, the students were asked to write a story from three pictures given to them; then, the students were asked to write down what they thought these pictures were talking about. Results of the pilot study revealed that the students had difficulty as they write fragmented sentences. Also, the sentences were not grammatically correct and the words were misspelled.

Also, the researcher asked a number of EFL English teachers (N = 23) about problems that students face in writing tasks. They said that students have difficulties expressing and relating their thoughts and ideas, besides having problems using appropriate structures and vocabulary. This indicates that students need to learn how

to produce, relate and express their ideas effectively in writing tasks, and it is very important that teachers should employ instructional strategies and methods to develop students' thinking skills during writing tasks.

Thus, there is a need to apply a strategy that helps students be more productive, focused and cognitively involved in writing tasks. Also, using effective strategies to develop thinking skills, such as the six thinking hats strategy, makes a good influence on developing students' writing skills.

### **Statement of the problem**

Based on the reviewed literature, the related studies and the pilot study; secondary school students found difficulty in writing correctly or fluently. They wrote fragmented sentences. They paid little attention to mechanics and organization in writing. Thus, the present study aimed at investigating the effect of using six thinking hats strategy to develop secondary school students' writing skills.

### **Aim of the study**

The current study aimed at developing secondary school students' writing skills by using the six thinking hats strategy.

### **Questions of the study**

1. What are the writing skills that could be developed by 2<sup>nd</sup> year secondary school students?
2. What are the features of the six thinking hats strategy?
3. What is the effect of the six thinking hats strategy on developing students' overall writing skills?
4. What is the effect of the six thinking hats strategy on developing each of the students' writing skills?

## **Hypotheses of the study**

1. There is a statistically significant difference at (0.05) level between the mean scores of the experimental and control groups in overall writing skills post-test in favor of the experimental group.
2. There is a statistically significant difference at (0.05) level between the mean scores of the experimental and control groups in each of the writing skills post-test in favor of the experimental group.
3. There is a statistically significant difference at (0.05) level between the mean scores of the experimental group's pre-post test in favor of the post-test.

## **Delimitations of the study:**

The present study was delimited to:

1. Thirty 2nd year secondary school students from Al-Zarka, Damietta.
2. Some components of writing including: content, organization, vocabulary, language structures and mechanics.
3. The second semester of the academic year 2020/2021.

## **Definition of Terms**

### **Writing:**

According to Anh (2019), writing is the practice of communicating using words via the use of a visual representation of thoughts.

Alsamadani (2010) defines writing as a complex, challenging and difficult process since writers are expected to produce written samples that are syntactically accurate, semantically acceptable and culturally appropriate.

**The operational definition:** The writing skill in this study refer to the writing ability of 2nd year secondary school

students in writing good paragraphs or good letters using correct grammar and well selected words. The paragraph or letter should be fluent and accurate.

### **Six thinking hats strategy:**

According to De Bono (2017), the six thinking hats is a strategy that allows different approaches to thinking. This method gives the person a great ability to be superior and successful and sets them to creativity. It is a way of learning how different factors should be addressed to reach creativity.

According to Gencel (2018), the six thinking hats is a parallel thinking strategy that represents every different way of thinking with a colored hat. The strategy is used in the discussions which are intended to find the most appropriate solution for a problem or to understand an issue.

**The operational definition:** The Six thinking hats strategy is an up-to-date strategy that consists of six different colors, presenting six different thinking types, namely; objective thinking, emotional thinking, negative thinking, positive thinking, critical thinking and creative thinking to develop EFL students' writing skills.

### **Review of Literature and related studies**

#### **Writing:**

Writing is a productive skill which comprehends cognitive processes (Jebreil et al., 2015) such as expressing intentions, composing ideas, problem-solving and critical thinking (Fareed et al., 2016; Ginting, 2019). Brown (2015, P.427) states: "Written products are often the result of thinking, drafting and revising procedures that require specialized skills; skills not every speaker develop naturally". Writing is the practice of communicating using

words via the use of a visual representation of thoughts (Anh, 2019).

Writing is a crucial ability that second language learners must master in order to function as successful communicators, whether in an academic or professional setting. This necessitates a strong focus on the development of written communication abilities. The issues for developing these skills are quite high in English as Foreign Language (EFL) context; as many EFL learners seek to go abroad, primarily to English-speaking countries, to pursue higher education; while others set the goal of working for multinational organizations as part of their professional career (Rinnert & Kobayashi, 2009). EFL students prepare themselves for the demands of written communication abilities that are essential for academic and professional success (Hirvela, 2011).

Review of the literature revealed that there were studies conducted to tackle students' weakness in writing. This might be attributed to the methods and techniques used by teachers. These studies included Mohammad (2010), El-Sakka (2011), Tharwat (2012), Al-Alfi (2012), El-Behery (2013), Sayed (2013), El-Nagar (2016), Ahmed (2021), Hassan (2021) and Aboure (2021).

### **Six thinking hats strategy:**

Edward de Bono (1999) invented the concept of Lateral Thinking. Edward de Bono is a leader in the field of creative thinking and the direct teaching of thinking as a skill. He brings six thinking hats strategy to the world that is used equally in physics, lectures, television comedies, or brainstorming sessions. De Bono (1995) claimed that thinking has different modes which are objective thinking,

emotional thinking, negative thinking, positive thinking, critical thinking and creative thinking. He utilized six various colors which are red, black, green, white, yellow and blue. These hats present the aforementioned various thinking modes, and form the six thinking hats strategy.

According to (Serrat, 2009, p.3; Rebecca, 2009, p.56), six thinking hats strategy affords a common language that works in different cultures. It also enhances collaborative thinking, sharpens focus, facilitates communication, reduces conflict, enables thorough evaluations, improves exploration, fosters creativity and innovation, saves time and increases productivity. Moreover, it can be used in most topics, problems or activities. Students here are not supposed to use all the hats, and they do not have to utilize them in any particular order.

Review of the literature revealed that the six thinking hats strategy was effective in developing students' thinking and writing skills at different stages. These studies include (Al-Bahadli, 2011; Ling. & Dhanapal, 2013; Abd Kumari & Kumari, 2014; Abd El Meiseh, 2019; Haque, 2019; Phuntsho & Wangdi, 2019; Al-Khataybeh, 2020).

## **Method**

### **Design of the study:**

In the current study, the researcher used the quasi-experimental design with a control/experimental pre-post test design. Two groups were used in this study; experimental and control groups from two classes of 2nd year secondary school students from Imam Nasef secondary school in Al-Zarka, Damietta.

### Participants of the study:

A group of sixty students chosen from Imam Nasef secondary school in Al-Zarka, Damietta. They were divided into two groups, the experimental group (n=30) and the control group (n=30). The students' ages in both groups ranged from sixteen to seventeen years old. They have been learning English for ten years. The experimental group was taught via the six thinking hats strategy whereas the control group was taught through the regular instruction.

The two groups were homogenous in their entry level before the treatment. The following table (1) shows the homogeneity between both groups.

**Table (1)** "t" value of the experimental and the control groups in the writing pre-test.

Test	Group	No. of cases	Means	S.D	df	t-value	P≤0.05 t(critical) = 2.0017
Pre-test	Control	30	19.3	3.5149	5	-0.3494	Not significant
	Experimental	30	18.93	4.5480	8		

As shown in table (1), the outcomes showed that there were no statistically significant differences between the mean scores of the experimental and control groups in the pre-test of overall writing skills. t-value of the experimental and control groups in the writing pre-test was (-0.3494); which means it was not significant at level (.05). This means that the two groups were at the same level at the beginning of the experiment.

## **Instruments and materials of the study:**

The researcher prepared the following instruments and materials:

1. A writing skills checklist.
2. A writing skills pre-post test.
3. A writing skills rubric.
4. A teacher's guide.

### **1. The writing skills checklist:**

#### **a. The aim of the checklist**

The researcher designed the checklist to identify the writing skills should be developed by 2nd year secondary school students.

#### **b. Description of the checklist**

The checklist in its first version included fourteen sub skills that were divided into five categories: content, organization, vocabulary, language structure and mechanics. The category of content included three sub-skills. The category of organization included four sub-skills. The category of vocabulary included two sub-skills. The category of language and structures included three sub-skills. And the category of mechanics included two sub-skills.

#### **c. Validity of the checklist**

The researcher presented the checklist to five members to validate it in terms of suitability for 2nd year secondary students.

The jurors gave some remarks such as:

- Ex.:
- They omitted three skills.
  - They reworded seven skills.
  - They did not add any skills.

### **The writing skills pre/post test:**

#### **d. The aim of the pre/post test**

The aim of the pre/post test was to measure the students' level in writing skills before and after the treatment.

#### **e. Description of the test**

- Question one: students were asked to write a paragraph about travelling.
- Question two: students were asked to read a paragraph about smoking and then to answer the questions given below.
- Question three: students were asked to write a topic sentence that includes the main idea and five sentences represent the details of a paragraph entitled "The advantages and disadvantages of the Internet".

#### **f. Validity of the test**

The test was presented to the jury members to validate it.

#### **g. Reliability of the test**

The reliability of the test was administered to a sample of 30 students. Those students were 2nd year secondary school students, randomly selected from Imam Nasef secondary school in Alzarqa, Dameitta. After two weeks, the test was re-administered and the Pearson Correlation Coefficient between the test / retest was calculated. The reliability coefficient was 0.98. Therefore, the test could be regarded as a reliable one for the purpose of the present study.

#### **h. Piloting the test**

The researcher piloted the test on twenty students different from those of the experimental and control

groups. Then, the researcher computed the time taken by each student and divided the sum by the numbers of the students.

Test time was determined in the following way:

*Test time*

$$= \frac{\text{Time taken by the slowest student} + \text{Time taken by the fastest student}}{2}$$
$$= \frac{60 + 40}{2} = 50 \text{ minutes}$$

Five minutes were added to the time of the test for giving the test directions. So, the time of the test became 55 minutes.

## 2. The rubric:

### a. The aim of the rubric

The rubric aimed at grading the writing skills test.

### b. Description of the rubric

The rubric consisted of five categories. Each category included sub-skills. The scale consisted of six degrees: excellent, good, average, fair, weak, and very weak. The rubric was presented to the jury members to validate it.

## 3. The teacher's guide:

### a. Aim and objectives of the teacher's guide

The teacher's guide helps teachers to teach writing skills using six thinking hats strategy.

By the end of sessions, students were able to:

- Write correct sentences.
- Spell words correctly.
- Write paragraphs in a good manner.
- Write a narrative.
- Write a short story.
- Consider unity and coherence of writing.

- Use varied words.
- Use grammatical points and structures correctly.
- Organize their writing appropriately.
- Use linking words and transitional words to connect between sentences and paragraphs.
- Use punctuation marks correctly.
- Consider capital letters in writing sentences and paragraphs.

#### b. Content of the teacher's guide

The teacher's guide contained fourteen sessions. The time of each session was 60 minutes. There were two sessions per week. The total number of the sessions was fourteen as shown in table (2):

**Table (2)** Framework of the sessions

Session no	Sub-skills	Writing area
1	Pre-testing	
2	The orientation session	
3	Presenting good introduction, body and conclusion.	Organization
4	Using a variety of ideas.	Content
5	Organizing ideas in an appropriate order.	Organization
6	Presenting the main idea clearly	Content
7	Providing clear details that are sufficient, appropriate and related to the topic ( the main idea)	Organization
8	Using clear pattern of development, main idea, supporting details, cohesion and coherence	Organization
9	Using appropriate linking words for different purposes	Vocabulary
10	Using correct sentence patterns	Language
11	Using appropriate and accurate grammatical structures	Language
12	Using a variety of vocabulary correctly	Vocabulary
13	Using appropriated techniques correctly (spelling and punctuation)	Mechanics

14	Post-testing	
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**c. Tasks and activities**

The researcher used several tasks and activities throughout the teaching sessions. She used pair and group work activities, brainstorming, conferencing between teacher and students, conferencing between students and other students, revision sheets and editing sheets.

**d. Evaluation techniques**

A formative and a summative evaluation were used during the treatment. Formative evaluation such as quizzes, tests, tasks and assignments were used at the end of each session. Summative evaluation was represented in administering the writing skills post-test at the end of the treatment.

## Employing the six thinking hats strategy in the writing session.

The writing session is divided into three stages: the pre-writing stage, the during-writing stage, and the post-writing stage.

The stage	Teacher's role	The hat	Student's role	The hat
i- Pre-writing 1- Planning	<ol style="list-style-type: none"> <li>1. The teacher presents the sub-writing skill.</li> <li>2. The teacher reminds and gives instruction about six thinking hats strategy (presents each hat individually).</li> <li>3. The teacher tells the students that they do not have to use all hats but it is better to use all of them in this topic</li> <li>4. The teacher gives example</li> </ol>	(The blue hat)	<ol style="list-style-type: none"> <li>1. The students answer questions in the worksheets that are related to the writing sub-skill which has been explained.</li> </ol>	(The white hat)
ii- During writing 2- Drafting	<ol style="list-style-type: none"> <li>1. The teacher identifies the sequence of using the hats and sets the time for each one.</li> <li>2. The teacher conducts a class discussion to collect and generate ideas.</li> </ol>	(The blue hat)	<ol style="list-style-type: none"> <li>1. Organize information logically and develop the topic with enough details and at the same time consider the audience and purpose of writing.</li> <li>2. Concentrate on getting the ideas on paper and write their texts from beginning to end without stopping regardless of language accuracy.</li> <li>3. Focus on communication of meaning.</li> <li>4. Organize these ideas.</li> </ol>	(White - red - yellow - black - green)

			5. Develop the identified ideas. you can use the black hat to analyze the ideas and eliminate the unnecessary ones	(The black hat)	
	<b>3- Revising</b>		<ol style="list-style-type: none"> <li>1. Revise the written drafts (The drafts may be expanded with new ideas or constructed by removing unrelated or unnecessary ideas or parts).</li> <li>2. Re-arrange ideas, and make changes to make the writing clearer.</li> <li>3. Re-read what you wrote.</li> <li>4. Consider what others say about the work.</li> <li>5. Add or delete parts. Select better words or ideas.</li> <li>6. Select better words or ideas.</li> <li>7. Re-arrange ideas and replace any unclear ideas.</li> <li>8. Complete any ideas that are not finished</li> </ol>	(The black hat)	
	<b>4- Editing</b>	1. The teacher checks the grammatical mistakes.	(The blue hat)	1. The students can check spelling using tablets	(The black hat)
<b>iii- Post-writing</b>	<b>5- Publishing</b>	1. The teacher ends the process.	(The blue hat)	<ol style="list-style-type: none"> <li>1. Students present and share their texts.</li> <li>2. Students introduce their final product.</li> </ol>	

## Results and discussion

### Verifying hypothesis one

To verify the first hypothesis stating that "There is a statistically significant difference at (0.05) level between the mean scores of the experimental and control groups in overall writing skills post-test in favor of the experimental group," t-test was used to investigate the difference between the results of the post-test of the experimental group and that of the control group in their writing skills. The following are the results of the t-test for the two samples, comparing the mean of the students' scores of the experimental and control groups in the overall writing skills post-test in favor of the experimental group.

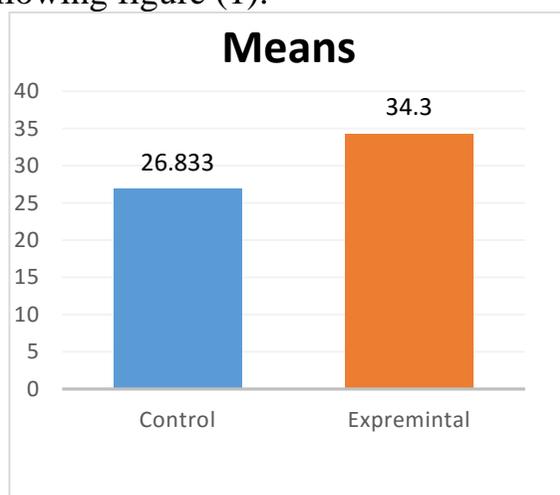
**Table (3) "t" value of the experimental and control groups in the overall writing skills post-test**

Test	Group	No. of cases	Means	S.D	df	t-value	$P \leq 0.05$ t(critical) = 2.0017
Post	Control	30	26.833	2.335	58	5.14	significant
	Experimental	30	34.3	7.598			

Table (3) shows that the means of the control and the experimental groups were 26.833 and 34.3, respectively. This means that the experimental group improved their writing skills and there were significant differences at (0.05) level between the mean scores of the experimental and control groups in overall writing skills post-test in favor of the experimental group.

Therefore, it can be inferred that the proposed program had a great effect on the experimental

group students' overall writing performance in the post test as compared to that of the control group students who received regular instruction. t-value was (5.14), which means it is significant at level (.00001) as  $t_{critical} (.00001) = 4.84$  . This improvement is illustrated graphically in the following figure (1):



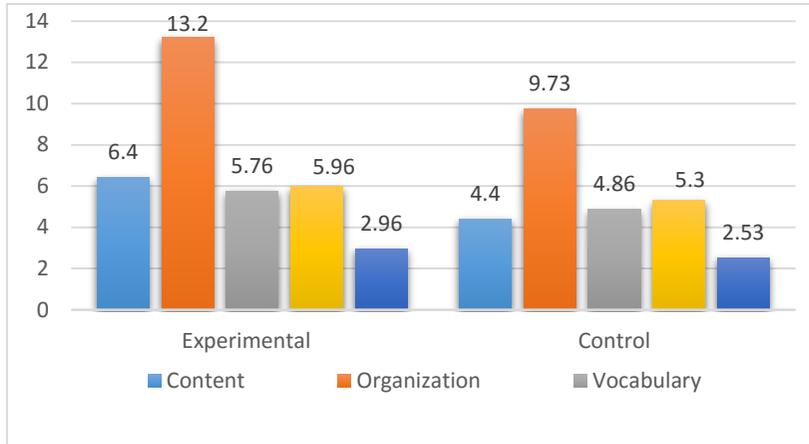
**Figure (1).** The experimental and control groups writing post-test

**Table (4)** .Compares the experimental and control groups' mean scores of each writing area in the writing post-test.

Writing area Group	Content	Organization	Vocabulary	Language structure	Mechanics
	Experimental	6.4	13.2	5.76	5.96
Control	4.4	9.73	4.86	5.3	2.53

As shown in table (4), results indicated that the experimental students' mean scores at each level in the post-test increased. These results implied that the higher means were for the post- administration of the

experimental group in the writing test. These results implied that the highest difference between the mean scores of the two groups was in organization; the content; the vocabulary; then language; and finally mechanics.



**Figure (2)** .The mean scores of the experimental and control groups in each writing area.

To sum up, t-test of the paired sample results about the difference between the students' mean scores of the overall writing skills of the post-administration of the test was statistically significant at 0.00001 level in favor of the experimental group. This indicates the effectiveness of the proposed strategy in improving students' writing skills, so the first hypothesis is accepted.

To test the educational significance of the differences, in addition to the statistical significance, the effect size ( $\eta^2$ ) was computed. This is shown in the following table (5):

**Table (5).** The effect size of the differences between the experimental and control groups

Writing area	t-value	D.F	Effect size ( $\eta^2$ )	Effectiveness
Overall writing skills	5.144798	58	0.313357	large
Content	6.662413609	58	0.433526012	large
Organization	5.820051732	58	0.368693755	large
Vocabulary	2.592701018	58	0.103860949	Medium
Language and structure	1.916562259	58	0.059559261	Small
Mechanics	2.396999	58	0.090133333	Medium

As shown in table (5), the experimental and control groups clearly differed in terms of content and organization, medium in terms of vocabulary and mechanics, and finally small in terms of language and structure. The scale of the degree of the effect size is illustrated in the following table (6):

**Table (6)** Effect Size (Statistical Power Analysis, Cohen, 1988, P. 281-288)

small	$\eta^2 = \mathbf{0.01}$
medium	$\eta^2 = \mathbf{0.06}$
large	$\eta^2 = \mathbf{0.14}$

### Verifying hypothesis two

The second hypothesis stated that "There is a statistically significant difference at (0.05) level between the mean scores of the experimental and control groups in each of the writing skills post-test in favor of the experimental group", t-test was used

to investigate the difference between the results of the post-test of the experimental group and that of the control group in their writing skills. The following are the results of the t-test for the two samples, comparing the mean of the students' scores of the experimental and control groups in each of the writing skills in the post-test.

**Table (7)** .Comparing the experimental and control groups' mean scores of each sub-skill in the post writing test

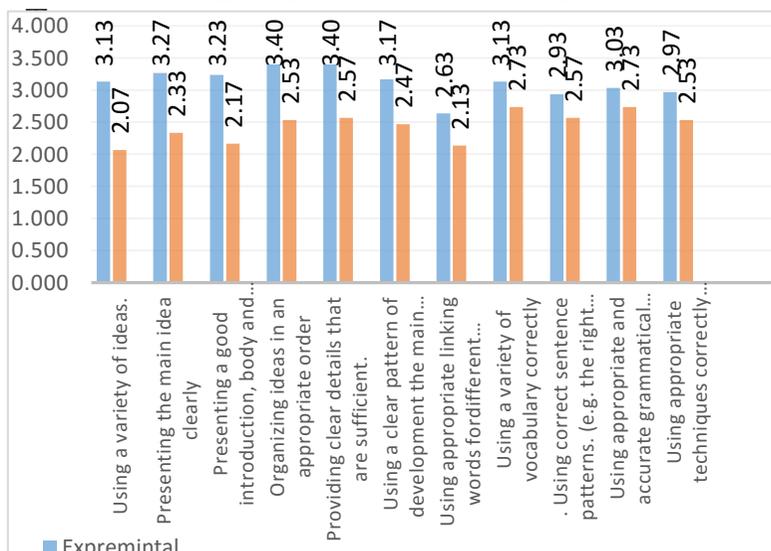
Writing area	The sub-skill	Group	S.D	Mean	D.F	t-value	P ≤0.05 t(critical) = 2.0017
1. Content	1. Using a variety of ideas	Exp.	0.77607 9152	3.13333 3333	58	6.01 78	significant
		Con	0.58329 2281	2.06666 6667			
	2. Presenting the main idea clearly	Exp	0.63968 383	3.26666 6667		5.15 3	significant
		Con	0.75809 8044	2.33333 3333			
2. Organization	3. Presenting a good introduction, body and conclusion	Exp.	0.72793 2042	3.23333 3333	58	6.48 5	significant
		Con.	0.53066 8631	2.16666 6667			
	4. Organizing ideas in an appropriate order.	Exp.	0.96846 8396	3.4		4.34 1	significant
		Con.	0.50741 6263	2.53333 3333			

	5. Providing clear details that are sufficient.	Exp.	0.89442 7191	3.4		4.06 4	signifi cant
		Con.	0.67891 0554	2.56666 6667			
	6. Using a clear pattern of development the main idea, supporting details, cohesion, and coherence.	Exp.	0.79147 7594	3.16666 6667		3.92 7	signifi cant
		Con.	0.57134 6464	2.46666 6667			
3. vocabulary	7. Using appropriate linking words for different purposes.	Exp.	0.88991 7987	2.6333 33333	58	2.57 3	signifi cant
		Con.	0.58329 2281	2.13333 3333			
	8. Using a variety of vocabulary correctly	Exp.	0.89955 289	3.13333 3333		2.04 3	
		Con.	0.58329 2281	2.73333 3333			
4. Language	9. Using correct sentence patterns. (e.g. the right tense)	Exp.	0.78491 5253	2.93333 3333		2.15 3	signifi cant
		Con.	0.50400 6933	2.56666 6667			
	10. Using appropriate and accurate grammatical structures. (e.g. correct	Exp.	0.96430 5479	3.033333 333	58	1.45 8	Not signifi cant
		Con.	0.58329 2281	2.73333 3333			

	sentence structure)						
5. Mechanics	11. Using appropriate techniques correctly (spelling and punctuation).	Exp.	0.61494 79	2.96666 6667	58	2.39 7	signifi cant
		Con.	0.77607 9	2.53333 333			

As shown in table (7), results indicated that the experimental students' mean score of each writing sub-skill in the post-test was increased except for skill number 10 because its t-value was (1.458), which means that it was not significant at level (.05) where t-value = (2.0017). This could indicate that students need more time to learn this skill. These results implied that the higher means were for the post-administration of the experimental group in the writing test. This indicates the effectiveness of the proposed strategy in improving students' writing skills, so the second hypothesis is accepted.

**Figure (3). The mean scores of the experimental and control groups in each writing skill.**



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educational significance of the differences in each sub-skill, the effect size ( $\eta^2$ ) was computed. This is shown in table (8):

**Table (8)** .The effect size of the differences of the exp. and control groups in each sub-skill

Writing skills	t-value	D.F	Effect size ( $\eta^2$ )	Effectiveness
1. Using a variety of ideas.	6.0178	58	0.384384384	large
2. Presenting the main idea clearly	5.153	58	0.314103	large
3. Presenting a good introduction, body and conclusion	6.485	58	0.420361248	large
4. Organizing ideas in an appropriate order.	4.341	58	0.245283	large
5. Providing clear details that are sufficient	4.064	58	0.22170983	large
6. Using a clear pattern of development the main idea, supporting details, cohesion, and	3.927	58	0.2101	large

coherence				
7. Using appropriate linking words for different purposes	2.573	58	0.102505695	Medium
8. Using a variety of vocabulary correctly	2.043	58	0.067164	Medium
9. Using correct sentence patterns. (e.g. the right tense)	2.153	58	0.074006116	Medium
10. Using appropriate and accurate grammatical structures. (e.g. correct sentence structure)	1.458	58	0.035356	Small
11. Using appropriate techniques correctly (spelling and punctuation).	2.397	58	0.090133333	Medium

As shown in table (8), it is clear that the effectiveness of the strategy was large in the sub-skills numbers (1, 2, 3, 4, 5, 6), medium in numbers (7, 8, 9, 11) and small in number (10).

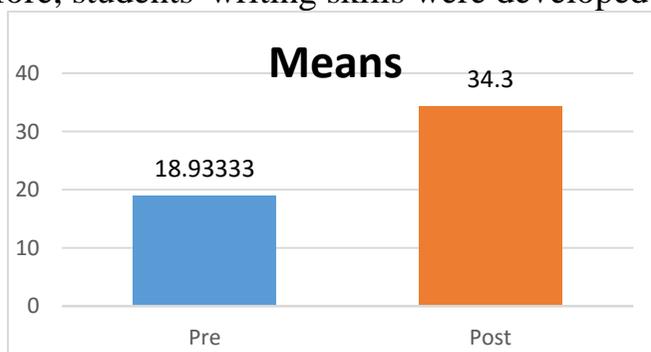
### Verifying hypothesis three

To test the third hypothesis stating that, "There is a statistically significant difference at (0.05) level between the mean scores of the experimental group's pre-post test in favor of the post-test", t-test was used to investigate the difference between the results of the experimental group before and after the treatment. The following are the results comparing the mean of the students' scores before and after the treatment in favor of the post test.

**Table (9) t-test results compare the experimental group's mean scores of the pre- and post-test**

Group	Test	No. of cases	Means	S.D	df	t-value	$P \leq 0.05$ t(critical) = 2.045
Exp. Group	Pre-test	30	18.933	4.548	29	18.397	significant
	Post-test	30	34.3	7.598			

As shown in table (9), results indicated that the experimental group students' mean score in the overall writing skills in the post-test was (34.3) where the mean score of the pre-test for this group was (18.93). These results indicated that the higher mean was for the experimental group's post administration of the test. Therefore, students' writing skills were developed.



**Figure (4)** .The experimental group's mean scores of the pre- and post-test.

Moreover, t-test was used to compare the mean scores of the experimental group in the pre- and post-test in each sub-skill. Results indicated that the experimental students' mean score of each writing sub-skill in the post-test was increased. These results implied that the higher mean scores were for the post administration of the experimental group in the writing test. Thus, there were statistically consistent with the third hypothesis of the

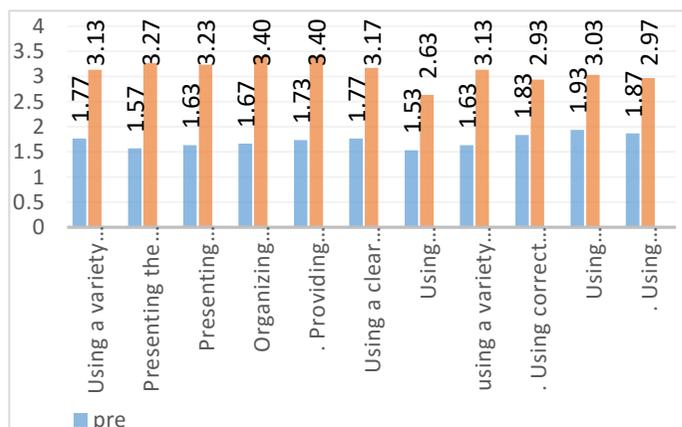
study as there are statistically significant differences between the pre-test and post-test mean scores of the experimental group in the writing skills in favor of the post-test. This is shown in table (10).

**Table (10).** t-test results comparing the experimental groups mean scores of each sub-skill before and after the treatment

Writing area	The sub-skill	Test	S.D	Mean	D. F	t-value	P ≤0.05 t(critical) = 2.045
1. Content	1. Using a variety of ideas	Pre	0.50400 6933	1.7666 66667	29	8.08 92	signifi cant
		Post	0.77607 9152	3.1333 33333			
	2. Presenting the main idea clearly	Pre	0.50400 6933	1.5666 66667		11.4 34	signifi cant
		Post	0.63968 383	3.2666 66667			
2. Organization	3. Presenting a good introduction, body and conclusion .	Pre	0.66867 5135	1.6333 33333	29	8.86 6	signifi cant
		Post	0.72793 2042	3.2333 33333			
	4. Organizing ideas in an appropriate order.	Pre	0.71115 9002	1.6666 66667		7.90 1	signifi cant
		Post	0.96846 8396	3.4			
	5. Providing clear details that are sufficient.	Pre	0.52083 046	1.7333 33333		8.82	signifi cant
		Post	0.89442 7191	3.4			
	6. Using a clear pattern of developme	Pre	0.62606 2316	1.7666 66667		7.59 9	signifi cant
		Post	0.79147	3.1666			

	nt the main idea, supporting details, cohesion, and coherence.	st	7594	66667			
3. vocabulary	7. Using appropriate linking words for different purposes.	Pre	0.57134 6464	1.5333 33333	29	5.69 7	significant
		Post	0.88991 7987	2.6333 33333			
	8. Using a variety of vocabulary correctly	Pre	0.66867 5135	1.6333 33333		7.33	
		Post	0.89955 289	3.1333 33333			
4. Language	9. Using correct sentence patterns. (e.g. the right tense)	Pre	0.46113 3037	1.8333 33333	29	6.61 8	significant
		Post	0.78491 5253	2.9333 33333			
	10. Using appropriate and accurate grammatical structures. (e.g. correct sentence structure)	Pre	0.52083 046	1.9333 33333	5.49 7	significant	
		Post	0.96430 5479	3.0333 33333			
5. Mechanics	11. Using appropriate techniques correctly (spelling and punctuation)	Pre	0.89955 289	1.8666 66667	29	5.52 9	significant
		Post	0.61494 79	2.9666 66667			

The mean scores of the experimental group in the pre- and post-test in each sub-skill is illustrated in the following figure (5):

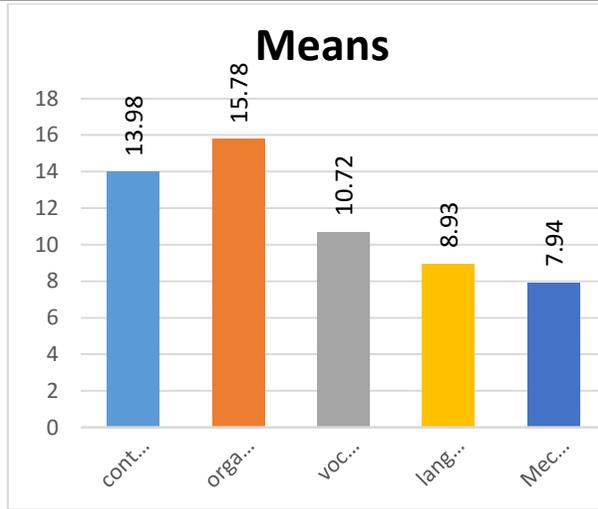


**Figure (5)** .The experimental group's pre-post mean scores.

**Table (11)**. t-test results comparing the experimental group's t-value of each writing area

Content	Organization	Vocabulary	Language structure	Mechanics
13.9795	15.775	10.7176	8.9303	7.9395

As shown in table (11), results indicated that the highest t-value was for the organization (15.775), following that was content (13.9795), vocabulary (10.7176), language structure (8.9303) and finally mechanics (7.9395). The t-test of the post-administration of the test was statistically significant at 1E-17 level (i.e., 0.00000000000000001). This indicates the effectiveness of the designed program in improving students' writing skills.



**Figure (6)** t-test results comparing the experimental group's t-value of each writing area

As it is clear, it can be said that the third hypothesis was accepted. To conclude, the three hypotheses of the study were supported by the results. So, the six thinking hats strategy was effective in developing 2nd year secondary school students' EFL writing skills. This was reflected in the high scores that the students of the experimental group obtained after being exposed to the strategy.

To test the educational significance of the differences in each sub-skill, the effect size ( $\eta^2$ ) was computed. This is shown in the following table (12):

**Table (12).** The effect size of the differences of the exp. and control groups in each sub-skill

Writing skills	t-value	D.F	Effect size ( $\eta^2$ )	Effectiveness
1. Using a variety of ideas.	18.397	29	0.921081	large
2. Presenting the main idea clearly	10.42	29	0.789201878	large
3. Presenting a good introduction, body and conclusion.	14.297	29	0.875758	large
4. Organizing ideas in an appropriate order.	10.77	29	0.8	large
5. Providing clear details that are sufficient	10.465	29	0.790643	large
6. Using a clear pattern of development the main idea, supporting details, cohesion, and coherence	13.813	29	0.868055556	large
7. Using appropriate linking words for different purposes	9.957	29	0.773684	large
8. Using a variety of vocabulary correctly	7.94	29	0.68490566	large
9. Using correct sentence patterns. (e.g. the right tense)	8.762	29	0.725806	large
10. Using appropriate and accurate grammatical structures. (e.g. correct sentence structure)	9.919	29	0.772340426	large
11. Using appropriate techniques correctly (spelling and punctuation).	6.81	29	0.615254	large

As shown in table (12), it is clear that the effectiveness of the strategy was large in all of the sub-skills.

## Discussion

The results of the study indicate that the six thinking hats strategy was effective in developing 2<sup>nd</sup> year

secondary school students' writing skills. The strategy helped students be enthusiastic about solving their problems, either in thinking or in writing. Students also enjoyed getting feedback from the teacher during the sessions. The six thinking hats strategy was effective because it helped students develop their writing and thinking skills. This is because:

1. The teacher's guide prepared by the researcher helps teachers to teach writing skills effectively, and this is reflected in the students' progress in the thinking and writing skills.
2. The objectives of the teacher's guide were concise and helped teach the sessions of the program in a good manner, emphasizing thinking and teaching skills.
3. Students enjoyed working in groups and doing pair-work activities. This helps them work collaboratively in the writing class.
4. The frequent feedback provided by the teacher helped students be active participants in the writing activities.
5. The tasks and activities that students were engaged in helped them develop as writers.
6. The evaluation techniques used by the teachers while teaching writing skills by using the six thinking hats strategy help students develop their writing skills.
7. The summative evaluation represented in the writing skills post-test revealed students' development and progress in the writing skills.

Based on the aforementioned exposition, it becomes clear that the six thinking hats strategy had a large effect on developing secondary school students' writing skills. This matches with the study of Abd El Meiseh (2019) and AL-Khataybeh AL Tarawneh (2015), which proved that the six thinking hats strategy

enhanced students' writing performance and produced positive effects on the students' performance in writing classes. The current research also revealed that using the six thinking hats strategy in all writing areas, including organization, content, vocabulary, language structure, and mechanics, improved EFL students' writing skills. This is consistent with the findings of Al-Bahadli (2011), who found that students' compositions are of higher quality in terms of composing, style, sentence formation, usage, and mechanics. Moreover, the study proved that group work and pair work activities helped students work cooperatively and benefit from each other. This is consistent with the study of **Tooley (2009)**, which found that the six thinking hats strategy helped students interact with others, discuss what they are doing, develop understanding through role play, and have a clear target.

Also, by using the six hat strategy, students were able to find, organize, and relate ideas related to the topic. In addition, they were trained to eliminate unnecessary ideas. This agrees with the study of Ling (2014), who confirmed that the six thinking hats strategy helped learners organize their thoughts more efficiently and made learners gain higher-order thinking skills, as thinking becomes more focused, comprehensive, and constructive. Furthermore, the study revealed that the six thinking hats strategy allowed students to employ different kinds of thinking, including objective thinking, emotional thinking, positive thinking, critical thinking, creative thinking, and managing thinking by utilizing six different colors,

which include white, red, black, yellow, black, green, and blue. This matches with the study of Kumar et al. (2019), which found that six thinking hats helped students think about a topic from different perspectives, write better paragraphs, think from various points of view, and organize their ideas. Results also indicated that there were some errors in writing in terms of spelling and punctuation that were common and natural. Students also focused on the organization of ideas and conveying meaning rather than correction of errors. In addition, the study revealed that giving feedback was a good idea that enhanced their attitudes towards writing. Moreover, moving the responsibility from the teacher to the students let them exchange experience from peers and let them engage in the activities more.

## Conclusions

Based on the results of the study, it can be concluded that:

1. EFL students' writing skills were improved after applying the six thinking hats strategy.
2. Group work and pair work activities helped students work cooperatively and benefit from each other.
3. Using tasks and activities that match with students' learning styles helped students develop their writing skills.
4. The frequent feedback and the comments provided by the teacher helped students develop their writing skills.
5. In the writing class, the responsibility should move from the teacher to the students, where the teacher lets students exchange experience from pairs and lets

them engage in the writing activities.

6. Using the six thinking hats strategy developed secondary school students' writing skills in the various stages of writing.
7. There should be frequent classroom assessment techniques in the writing classroom.

## **Recommendations**

Based on the results and conclusion of the study, the following recommendations are suggested:

- Curriculum designers are advised to include the six thinking hats strategy in the English textbooks.
- In-service EFL teachers could be trained through courses or workshops on how to use the six thinking hats strategy to develop students' writing skills.
- EFL teachers should know how to give support to the students and help them to be independent learners.
- EFL teachers need to change their roles from being instructors to being monitors and advisors.
- EFL teachers should not concentrate only on language forms, but they have to teach their students how to think and how to express themselves in writing.

## **Suggestions for further research**

The present study provides a model for applying the six thinking hats strategy to develop secondary school students' writing skills. Hence, further research is needed to:

- Use the six thinking hats strategy to develop

preparatory students' writing skills.

- Use feedback techniques to develop students' writing skills.

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