# The Effect of the 6+1 Trait Writing Model on ESP University Students Critical Thinking and Writing Achievement

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**Abstract**

The aim of this study was to determine the effectiveness of the 6+1 trait writing model on ESP university students' critical thinking and writing achievement. It was assumed that students who receive training using the 6+1 trait writing model would reveal greater gains in critical thinking and writing achievement. Six instruments -designed by the researchers- included: (critical thinking skills checklist, writing skills checklist, critical thinking skills test, writing skills test and scoring rubric for critical thinking and analytic scoring rubric for writing) were used for data collection. Results revealed that the traditional method used to teach writing is not as effective as the 6+1 trait writing model that developed critical thinking and writing achievement. The experimental group outdid their counterparts in the control group in critical thinking and writing performance test scores.

**Keywords:** critical thinking skill, writing achievement, 6+1 trait writing model

## 1. Introduction

Learning how to write and writing to learn are mutually dependent though some educators differentiate between them: as students learn to write, they concentrate on learning how to use every trait of written language. While writing to learn provides a prospect for students to use writing as a tool for expanding comprehension and learning subject matter (Harvey & Daniels, 2010; Tatum, 2010; Lane, 2008). The ability to write well is essential in and out classrooms. Writing is an indispensable skill for all students (National Commission on Writing, 2003). Moreover, the lack of critical thinking skills employed within the classroom impressively weakens the students' opportunity for higher-level learning (Irfaner, 2006).

Unfortunately, most students do not get the proper instruction in writing to be prepared for the workplace. Teaching writing is teacher-controlled in which teachers concentrate on teaching grammar. The traditional instruction is typically a form of assessment rather than training (Pollington et al., 2001). Furthermore, students are taught memorization rather than being trained to develop critical thinking skills which results in a profound understanding and a wealthier knowledge. Asking applicable questions and deduce and comprehend information is commanding and imperative for students (Irfaner, 2006). The writing challenges continue with students till they reach college. Without the basic writing skills needed for success, students face difficulties at writing as they reach college. Researchers proved that most students leave high school academically unqualified for college (Greene & Foster, 2003). The roots of writing difficulties may lie in the absence of writing instruction or not being applied properly. A number of studies shed light on the reasons behind writing problems as follows: work sheets and prompts do not lead to thoughtful writing. They only serve one purpose which is writing to satisfy the teacher. The total time students spend in writing tasks is not enough. Therefore, there is a need to double the amount of time for writing tasks (Graham & Perin, 2007a and 2007b). Additionally, teachers are faced by local and national demands. The absence of integrated system of standards, curriculum and instruction increases the writing challenges that teachers have to overcome (National Commission on Writing, 2003 and 2004).

According to Dinevski and Plenkovic (2002), developing writing skills affects the students' critical thinking skills positively at the university level since writing is a development of thinking that involves five phases: prewriting, drafting, revising, editing, and publishing where students are trained to brainstorm, gather data, write first drafts, edit, and write final draft. Students are required to reflect on the writing process as an approach of

thinking. The 6+1 trait writing model help promote writing skills and reassure precise thinking (Garrison, Anderson, & Archer, 2001; Graham & Perin, 2007a, 2007b; Culham, 2003). The traits represent the crucial components of writing: ideas, organization, word choice, sentence fluency, conventions, and presentation. In their study, Graham and Perin (2007a, 2007b) examine classroom schemes and practices that increase the writing value. They reached a number of recommendations that include teaching students how to examine examples for effective writing; coaching plans for designing, rereading and reviewing; using cooperative writing schemes and approaches; and conveying precise goals for each writing topic. In another study conducted by Jarmer et al., (2000) the researchers studied the link between teachers' beliefs about good writing and strategies used for developing writing. It was concluded that instructors who give the priority for developing conventions assess their students according to the use of convention, whereas instructors who give the priority for developing creativity assess their students according to originality of the writing. Although the priority differs, the researchers determined that schools approved using a model of teaching writing, as the 6+1 model. Bellamy (2000) studied the trait model effects on the development of teachers. It was initiated that after a short workshop, teachers were able to use the model. Teachers also conveyed that their students were able to implement the traits. Moreover, Coe et al., (2011) proved that using the trait in the assessments help to classify students with troubles at writing. Additional studies observed the effectiveness of the trait model on students writing development. The results showed that through training students on the measures of quality writing incorporated in the trait model, students demonstrate progression in writing (Jarmer et al., 2000; Bellamy, 2000).

The 6+1 trait model is based on a set of rubrics that assess different characteristics of a written work which in turn develop critical thinking. As proven in a number of studies (e.g., Olbrych, 2001, Culham, 2003) instructional methods that are taken from 6+1 traits develop students' writing skills. The 6+1 model shifts the focus from traditional instruction to developing writing skills and providing feedback on the student's writing. It provides students with criteria for developing writing skills as well as critical thinking by providing a clear explanation of why students received the score they did (Culham, 2003). The current study leading target is to give proof for efficiency and the influence of the 6+1 traits model on improving critical thinking and writing skills of EFL students.

*1.1 The Context of the Problem*

The lack of critical thinking skills employed within the classroom notably weakens the students' opportunity for higher-level learning (Irfaner, 2006). Moreover, without the basic writing skills needed for success, students face difficulties at writing as they reach college. Unfortunately, most students do not get the proper instruction in writing. A number of studies (e.g., Culham, 2003; Graham & Perin, 2007a, 2007b; Coe et al., 2011) assures the efficacy of using the 6+1 trait writing model in developing writing and critical thinking skills. Culham (2003) report that the 6+1 trait model provides learners with criteria for developing writing skills and critical thinking by providing a clarification of why students received the score they did. Hence, it is assumed that using the 6+1 trait writing model can improve students' critical thinking and writing skills.

With regard to the significant of developing students' critical thinking skills which are the base towards higher-level teaching and learning and the difficulties that the students face at writing, the current study principal goal is to provide evidence for efficiency of the 6+1 writing trait model in improving ESP university students' critical thinking skills and writing.

*1.2 Statement of the Problem*

ESP university students need help in developing their ability to think critically. Furthermore, they show poor writing skills. Therefore, the researchers suggest that using the 6+1 traits model might develop students' critical thinking and writing skills.

*1.3 Questions*

The study tries to answer the following questions:

1). What are the critical thinking skills suitable for ESP university students?

2). What are the writing skills suitable for ESP university students?

3). What are the characteristics of the 6+1 trait writing model that helps developing critical thinking and writing skills?

4). What is the effect of using the 6+1 trait writing model in developing ESP critical thinking skills?

5). What is the effect of using the 6+1 trait writing model in developing ESP writing skills?

*1.4 Significance*

The study attempts to accomplish the following:

1). Training students on new strategies for developing critical thinking skills.

2). Helping students to learn new strategies for developing writing skills.

3). Raising the awareness of English language curricula developers to the importance of using the 6+1 trait writing model.

*1.5 Hypotheses*

Based on the questions of the study, the following hypotheses were formulated:

1). There is statistically significant difference between the mean score of experimental group and the control group on the post- administration of critical thinking test favoring the experimental one.

2). There is statistically significant difference between the mean score of the experimental group on the pre- and post- administration of critical thinking test favoring the post administration scores.

3). There is statistically significant difference between the mean score of the experimental group and the control group on the post administration of the writing test favoring the experimental one.

4). There is statistically significant difference between the mean score of the experimental group on the pre- and post- administration of the writing test favoring the post administration scores.

*1.6 Delimitations*

1). A sample of the first year students at faculty of pharmacy from Horus University.

2). Four critical thinking skills (explanation, inference, evaluation and self-regulation).

3). Seven writing skills (ideas, organization, voice, word choice, sentence fluency, conventions, and presentation).

*1.7 Review of Literature*

The 6+1 trait model is a supplementary means designed to help in theorizing and evaluating the structures of adequate writing. It is not a replacement of the writing curriculum, but rather it is used with the existing curriculum to offer lecturers as well as learners a structure for feedback, increase writing abilities, and guide them in evaluating their writing. It integrates evaluation with the teaching process for realizing the six traits of decent writing: ideas, organization, voice, word choice, sentence fluency, conventions, in addition to presentation that was added later (Culham 2003). In the 6+1 trait writing model, teachers are provided with a variety of activities to employ students in practicing the traits in planning and evaluating their writing. The 6+1 trait writing model main focus is on using rubrics to provide students with feedback through self-assessment, peer assessment, and teacher feedback at different phases of the writing process (Marzano, 2003). Spandel (2005) defined the 6+1 model as a technique of instruction that fits efficiently into the writing process and makes students' writing comprehensible through providing students with a tool for revision. The 6+1 trait writing model operationally defined as a method that provides students with traits of adequate writing that include: ideas, organization, voice, word choice, sentence fluency, conventions and presentation and that purposely gives students the opportunity to develop critical thinking and writing achievement.

The Northwest Regional Educational Laboratories (NWREL), (1999) identified six traits of good writing. The objective was to improve a writing course that went further than syntax and general rating. They assured that 6+1 trait writing model assistances learners improve vision, depth and insight to their texts. Through concentrating on the traits, learners realize what writers do to accomplish a good writing product. Furthermore, relying on a rubric for evaluation directs learners to think critically and develop their writing skills. Spandel (2005) reported that the 6+1 trait writing model is functioning in building confident writers. Students learn to find out the clues of good writing and then apply it to their own writing tasks. Higgins, Miller, and Wegmann (2006) acknowledged the traits model assists students in the revision process. Moreover, the writing model helps learners' writings to be meaningful. Graham and Perin (2007a, 2007b) revealed that learners' writing skills do not grow over time or having aspiration but it grow through planned training. The 6+1 trait method suggests tactical training in the different traits of writing. This tactical training is integrated in mini-lessons instruction and applied during individual conferencing.

*1.8 Critical Thinking Skills*

Critical thinking is an intellectual process of examining, analyzing and evaluating the presented information

(Paul & Elder, 2014). It includes avoiding generalizations, deducting conclusions, evaluation, analyzing and reasoning dialogically (Nosich, 1995). As for Facione and Gittens (2013), critical thinkers not only have skills like self-evaluation but also have ranges skills as being flexible, self-assured, and being involved in continued critical thinking. Critical thinking also includes attitudes, characters and traits of mind (Paul & Elder, 2014). Halpern (1998) quantified those critical thinking dispositions as participating in difficult assignments, using spontaneous activities, being flexible, relying on self-correction, and being aware of social truths that ought to be overwhelmed. Duron, Limbach, and Waugh (2006) defined critical thinking as the capability to intellectually conceptualize, examine, investigate and weigh gathered data. It is operationally defined as the students' ability to process and evaluate information presented using the 6+1 trait model.

Regular tests attempts to test students' ability to memorize the information they have been taught (Khan, 2011). Memorizing data is an essential element; however, it measures the amount of thinking while critical thinking is the quality of thinking as it uses logical reasoning (Case & Daniels, n.d.). Taking into consideration the relationship between the information given and the students' capability to comprehend the information is a major element of developing teaching techniques (Dewey & Bento, 2009; Lucariello, 2012). Critical thinking is indispensable skill that all students need to develop. Students who are unable to develop these skills fail to achieve higher academic grades (Lambert & Cuper, 2008; Quitadamo et al., 2008). It is imperative for students as it teaches them to use thinking process reasonably (Snyder & Snyder, 2008; Scholastic, 2011). Memorization is beneficial in certain cases within the classroom when students study terminology for example, while in enormous scopes it is fundamental to promote self-directed thought through the students' own analysis of the data presented that allows them to draw conclusions which in turn invoke their deduction, reasoning, and critical thinking skills (Snyder & Snyder, 2008). It is through writing, students will be mindful with their understating of the theories, ideas, facts and data presented which will allow questions to be lectured directly (Lucas, 2010). Instead of being passive receptors, students are given the chance to interpret, deduce, analyze and evaluate the information presented (University of Illinois, 2011).

Critical thinking is a mental process that is exemplified through writing in which students can show the ability of reasonable and deductive thinking. According to Slavin (2012), it is employed for logical thinking and problem solving in order to reach coherent deduction. A helpful technique to guarantee the development of critical thinking skills within the classroom is to authorize students to practice writing. A topic written from the student's point of view allows for immediate feedback and correction (Bartlett & Morrow, 2001; Divoll & Browning, 2010; Hulsizer & Woolf, n. d.).

Concerning the importance of developing skills of the university students as a mean for improving their learning process and preparing them for the workplace, the drive of the current study is to increase students' critical thinking skills and writing through implementing the 6+1 trait model that is based on seven traits which students have to apply in their writing.

*1.9 Measuring Critical Thinking*

Students lack of the ability to think critically means lacking the ability to deal with situations in which those skills are prerequisite. Students are taught to memorize information for tests in order to move forward to the next level (Case & Daniels, n. d.; Reeder, 2011). Higher test scores are significant achievement that teachers seek, unfortunately those scores show how well students are able to narrate the information given. Learning to become critical thinker is requisite for students. Forming opinions and deductions by asking open-ended questions will, in turn, reinforce students' ability and autonomy. (Carr, 1990; Rolling, 2008). Understanding how to measure the work presented is critical for developing the object lesson. Accordingly, among the ways to assess the student's development is asking relatable and applicable questions that motivate students answer using their critical thinking skills. In order for tutors to know if their students are developing the required skills, it is vital to have measure techniques (Cotter & Tally, 2009). Using appropriate measuring techniques are indispensable to assess the student's critical thinking skills. Techniques in which these skills can be measured include students asking insightful questions, explaining their reasoning, constructing thoughts and views on paper through meaningful writing tasks (Alpert, 2011).

*1.10 Writing Skills*

Writing skills are crucial section of language learning (Graham and Hebert 2010), and to learn and think critically (Shanahan 2004). Writing is an indispensable skill for success in a great number of works as well as for academic growth. However, unlike other language skills, writing skills are the least section inside the course syllabus, training and practice (National Commission on Writing 2004). Some cognitive developmental approaches to writing instruction focus on using drills with general classroom as well as with learners who have

difficulties in writing (Harris & Graham 1996). The 6+1 model can be incorporated with the writing instruction strategies to offer framework to these detached strategies (Culham 2003). The professional development of teacher quality is essential component in lecturing improved learning for all students since it helps teachers learn and implement effective approaches (Darling-Hammond, 1999).

A number of studies shed light on classroom approaches that develop students writing. For example, according to findings of their experimental studies, Graham and Perin (2007a, 2007b) recommended involving students in cooperative use of writing schemes which include using models of good writing that involve training students on evaluating, editing and putting precise goals for writing tasks. These features are base mechanisms of the 6+1 writing traits. Coe et al., (2011) confirmed that writing trait assessment is beneficial to recognize students who have troubles on writing and need additional writing training.

Kozlow and Bellamy (2004) studied the effects of specialized development for teachers using the trait model and the influence of that training on students' writing. It was found that after a short workshop, teachers were able to use the model effectively. It was also informed that their students were able to apply the traits that they have been trained on efficiently. Nauman, Stirling, and Borthwick (2011) tested the association between teachers' attitudes and opinions about good writing and their assessment. The researchers determined that although teachers concerns were different, there was agreement among schools in putting weight on the trait model.

*1.11 Measuring Writing Achievement*

Among the techniques of measuring students writing achievement are: the descriptive writing rubric and student portfolio which is a collection of student's work used to demonstrate growth in writing. Loveland (2005) clarified that rubrics are evaluation instrument for writing tasks. Rubrics lead to better-quality writing by students since rubrics support them with accurate measures for their writing tasks. Culham and Wheeler (2003) constructed a rubric assessed by the lecturer that contained the seven good qualities of writing. Schamber & Mahoney (2006) reported that by training students to evaluate their texts using the rubrics, their critical thinking skills were positively developed. The rubric offers clear visions of what a well-developed writing demands. According to Anderson (2005), assessing students writing is the key to improve their writing skills. The researcher confirmed that teacher feedback and evaluation of learners' final work are significant elements of writing development process.

*1.12 The 6+1 Trait Writing Model for Developing Critical Thinking and Writing skills*

Teachers' performance may be the most critical factor in lecturing better-quality education for all students. The 6+1 model gives a high value to performs, resources and activities that teachers can practice to improve their students' writing achievement. Likewise, just as developing writing skills achieved through training, promoting critical thinking works the same way (Beyer, 2008). Providing students with tasks that requires using thinking skills afford the practice needed to construct their proficiency. Furthermore, ensuring the positive classroom atmosphere encourages students to think out loud without fear (Slavin, 2012).

Dinevski and Plenkovic (2002) assure that students' critical thinking skills can be promoted through writing. Among the significant application of critical thinking skills is writing as it involves collecting, questioning, producing and evaluating (Kupperman & Wallace, 1998). Dixon et al., (2005) emphasize that through writing tasks students can prompt their critical thinking, and that writing is manifestation of critical thinking processes. A number of studies (e.g., Facione & Facione, 2007; Moore, 2004; Paul & Elder, 2006) suggest that developing critical thinking is the central goal of all educational organizations. According to Moore (2004), developing critical thinkers is central to improved teaching. Olson (1984,) suggests that developing students' critical thinking qualify them to become better writers and vice-versa.

The correlation between using the 6+1 trait model and developing critical thinking and writing skills was proved by a number of studies (e.g., Corden, 2003; Schamber and Mahoney, 2006; Higgins, Miller, and Wegmann, 2006). The scheme behind the technique is that students are trained to write like actual writers, thus the six traits of writing in addition to presentation that was added later become common vocabulary (NWREL, 1999). Using the 6+1 traits as a technique for training students leads to enhancement of their writing skills, increasing of their scores and developing critical thinking as well as making confident writers. Schamber and Mahoney (2006) confirmed that by training students to assess their writing using the rubrics, their critical thinking skills are developed. It provides adequate clarification of what effective writing demands. Corden (2003) and Higgins, Miller, Wegmann (2006) determined that the model helps students to improve skills required to be critical thinkers and in turn be successful writers.

The 6+1 trait writing model supports teachers with tools and measures for training and assessing students

through concentrating on the seven qualities that distinguish good writing (Culham, 2003). The methodology of assessment in the 6+1 model is consistent with Popham's (2003) five measures of operative assessments that considered the most significant aspects of good writing: significance, teach-ability, describe-ability, report-ability, and non-intrusiveness. A number of feedback features as being constant throughout the learning process, focused on the content and united with assessment were acknowledged by Marzano. The application of the 6+1 traits model achieves all those features as it helps students to use many types of revisions through the writing process (Marzano, 2003). The main emphasis of the model is to provide operational feedback to students and to improve their self-assessment skills in order to be able to make enhancements in their writings. A number of studies (e.g., Jarmer et al, 2000; Culham, 2005; Coe et al, 2011) studied the effectiveness of the 6+1 traits model on students' performance. The results of these studies revealed that using the 6+1 writing traits model improves students' critical thinking, writing proficiency and scoring on the writing examination.

The mentioned studies confirm that the 6+1 trait writing model is effective in developing students' critical thinking and in turn leads to the development of their writing skills. Additionally, the seven traits of good writing that are the base of the 6+1 model enable students to have a clear vision of what effective writing demands that require students to think critically while assessing their writing according to these traits. Hence, developing students' critical thinking skills is essential for developing their teaching process; there is a need to examine the effect of implementing the 6+1 model on ESP university students in order to be well-equipped for the workplace. Moreover, there is a need to investigate how the model should be implemented.

## 2. Methodology

### 2.1 Participants

A feasible sample of students at faculty of pharmacy from Horus University was selected. Students were assigned randomly to an experimental group (N =35), and a control one. Students' age ranged from seventeen to eighteen years. The researchers selected that university for some reasons:

1). The instructress of the experimental group was the researcher herself.

2). The researcher received support and facilities as she works at Horus University.

### 2.2 Design

Adopting the quasi-experimental scheme, the experimental and control group were pre-tested on the critical thinking and writing skills. The experimental group was taught through 6+1 trait writing model, while the control group received the regular teaching. Both the experimental and control groups were post-tested in writing skills and critical thinking to conclude any probable enhancement.

### 2.3 Instruments

For accomplishing the targets of the study, the researchers constructed the following instruments:

1). Critical thinking checklist.

2). Critical thinking test.

3). Rating scale rubric for scoring critical thinking.

4). Writing skills checklist.

5). Writing skills test.

6). Analytic scoring rubric for writing skills.

Validity of the instruments was confirmed through jury validation. Alpha Cronbach was used to measure the amount of internal consistency for the critical thinking and writing skills test. The value of alpha coefficient for the critical thinking test was 0.709, which means that the test is reliable. The value of alpha coefficient of the writing skills test was 0.738, which indicates a high value of the test reliability.

### 2.4 The Treatment: 6+1 Trait Writing Model for Developing EFL Students Critical Thinking and Writing Skills

Objectives

Based on the literature and related studies review, writing and critical thinking skills checklist, a training program was constructed to increase students' critical thinking and writing skills. The program aims at improving the following skills:

1). Developing ESP university students' critical thinking skills.

2). Developing ESP university students' writing skills.

3). Promoting study skills for lifelong learning (e.g., communication and autonomy).

*2.5 Description, Duration and Content*

The program was designed based on the 6+1 traits model for the experimental group. The 6+1 traits employed in the present study are: ideas, organization, voice, word choice, sentence fluency, conventions and presentations. The program consisted of eight topics that were distributed over ten sessions (six sessions for paragraph writing and four sessions for essay writing. Students have been taught six types of paragraph development which are: a paragraph developed by definition, comparison, contrast, classification and analysis, cause and effect and paragraph developed by argument and recommendation. Moreover, they have been taught two types of essays that are descriptive and cause and effect essay. Each session was 105 minutes alongside one semester. The application of the program lasted for 11 weeks (October, November and December) during the academic year 2017/2018 from 1/10/2017 till 21/12/2017.

*2.6 Evaluation*

Students were told that they will be evaluated according to their contribution and participation in paragraph and essay writing. Students were allowed to evaluate their writings, given comments and suggestions and encouraged to note down any difficulties they face.

## 3. Results and Discussion

It was hypothesized that there is statistically significant difference between the mean score of experimental group and the control group on the post- administration of critical thinking test favoring the experimental one. t-test was used to compare the differences between the mean scores of students in the critical thinking test in the experimental and control group as shown in Table 1.

Table 1. Comparing the critical thinking skills of the control and experimental group on the post test

|  | Groups | Test | Mean | SD | t value | Sig. |
|---|---|---|---|---|---|---|
| Critical Thinking Skills | Experiment | Pre-test | 19.18 | 5.76 | 9.100 | 0.001 |
|  |  | Post-test | 30.10 | 2.82 |  |  |
|  | Control | Pre-test | 18.84 | 2.93 | 2.907 | 0.489 |
|  |  | Post-test | 24.07 | 4.09 |  |  |

Results in Table 1 shows that the higher mean score is for the post administration of the experimental group post-test. The increase in students' level in the experimental group could be interpreted that students were trained to use the 6+1 trait writing model that helped students to think critically. As confirmed by Cotter and Tally (2009) and Alpert (2011), in order for students' critical thinking skill to be improved, it should be assessed through writing tasks that encourage them to construct and evaluate ideas. Thus, using the rubrics that included in the trait model as well as the samples of students writings to clarify and illustrate the writing traits strengthened and improved their ability to think critically. The model helped students promote and develop their critical thinking skills which in turn reflected on their writing skills. The obtained result goes in line with Dinevski and Plenkovic (2002) and Dixon et al., (2005) who assured that writing is the manifestation of critical thinking skills practices. Accordingly, writing is a medium through which students can improve their critical thinking.

It was hypothesized that there is statistically significant difference between the mean score of the experimental group on the pre- and post- administration of the critical thinking test favoring the post administration scores. t-test was used to compare the differences between the mean scores of students in the critical thinking pre and post-test in the experimental group as shown in Table 2.

Table 2. Comparing the critical thinking skills of experimental group on the pre and post-test

| Critical Thinking Skills | Test | Mean | SD | t value | Sig. |
|---|---|---|---|---|---|
| Total | Pre-test | 19.18 | 5.76 | 9.100 | 0.001 |
|  | Post-test | 30.10 | 2.82 |  |  |

Results in Table 2 shows that the higher mean score is for the post administration of the experimental group. It is confirmed by Schamber and Mahoney (2006) that by training students to assess their topics using the trait

writing model rubrics, students' critical thinking skills are improved. The traits provided students with ample explanation of what a successful writing requires that in turn helped students to think critically to develop their performance. Writing supported the development of critical thinking skills. The integration of assessment and instruction through using the 6+1 trait writing model constructed students understanding of these strategies and their knowledge of the characteristics of quality writing, and to improve students' skills to think critically and accordingly write more effectively. Using the rubrics, students were trained to develop their critical thinking and the seven traits that characterize quality writing. This result is supported by Bartlett and Morrow (2001) and Divoll and Browning (2010) who assured that practicing writing is supportive activity for enhancement of critical thinking skills.

Third hypothesis states that there is statistically significant difference between the mean score of the experimental group and the control group on the post administration of the writing test favoring the experimental one. t-test was used to compare the differences between the mean scores of students in the writing skills test in the experimental and control group as shown in Table 3.

Table 3. Comparing the writing performance of the control and experimental group on the post test

|  | Groups | Test | Mean | SD | t value | Sig. |
|---|---|---|---|---|---|---|
| Writing Skills | Experiment | Pre-test | 15.94 | 4.93 | 8.902 | 0.001 |
|  |  | Post-test | 26.79 | 2.61 |  |  |
|  | Control | Pre-test | 16.09 | 2.70 | 1.496 | 0.394 |
|  |  | Post-test | 22.90 | 3.89 |  |  |

Results in Table 3 shows that the mean score of the experimental group post-test is higher than that of the control group's mean score. The increase in students' level in the experimental group could be interpreted that students examine writing using rubric that includes a set of traits of good written work. Moreover, engaging students in authentic tasks and assessment process provided them with experiences that helped them deepen their critical thinking and encouraged them to develop writing.

The 6+1 model provides effective feedback to students that help them improve their self-assessment skills which in turn enable them to make enhancements in their drafts. Accordingly, the increase in students' level in the experimental group is a logical result for the application of the 6+1 model that helped them to internalize and use feedback and to generate their own feedback as they worked through their own process of writing. This result is supported by Culham (2003) who assured that using the rubrics included in the 6+1 model clarify the traits of good writing to students.

Students in the experimental group trained on the model and in turn developed their writings. This result goes in line with Graham and Perin (2007a, 2007b) who found that students training on using models of good writing that involve them on assessing, editing or putting goals for writing tasks positively affect their writing skills. Since these are the 6+1 model features, the experiment group students could make use of the model in developing their writings. While the control group students did not receive the same training on traits of good writing. Moreover, they did not trained on assessing their writing using rubrics. Thus they could not develop their writing skills as Coe et al., (2011) proved that assessment is valuable to students in order to develop their writing skills.

It was hypothesized that there is statistically significant difference between the mean score of the experimental group on the pre- and post- administration of the writing test favoring the post administration scores. t-test was used to compare the differences between the mean scores of students in the writing test in the experimental pre and post-test as shown in Table 4.

Table 4. Comparing the writing performance of experimental group on the pre and post-test

|  | Groups | Test | Mean | SD | t value | Sig. |
|---|---|---|---|---|---|---|
| Writing Skills | Experiment | Pre-test | 15.94 | 4.93 | 8.902 | 0.001 |
|  |  | Post-test | 26.79 | 2.61 |  |  |

Results in Table 4 shows that the mean score of the experimental group post-test is higher than that of the control

group's mean score. The increase in students' level in the experimental group could be interpreted that through using the 6+1 model, students were trained to develop, evaluate, revise and edit their writing. It is through training, students comprehend what actual writers do that in turn made them shooting towards the good writing traits. Using the writing rubric to evaluate and judge written works helps students to practice critical thinking and acquire a profound vision in their writing. This result goes in line with Dinevski and Plenkovic (2002) who found that the enhancement of writing is a reflection of the development of critical thinking. This result also supported by Graham and Perin (2007a & 2007b) and Culham (2003) who proved that the 6+1 model helped students developing critical thinking and writing skills. Finally, it was assured by Schamber and Mahoney (2006) that the rubrics taught students to self-evaluate their writing. Therefore, students of the current study developed their critical thinking that positively affected their writing skills.

## 4. Discussion

The findings of the study showed that there were statistically significant differences between the experimental group and the control group in favor of the experimental group. This indicates that the 6+1 model had a positive effect on the students' critical thinking skills and writing. The current results agreed with many research findings (e.g., Corden, 2003; Culham, 2005; Higgins, Miller, & Wegmann 2006; Coe et al., 2011) which found that the 6+1 model is effective in developing critical thinking and writing. In the current study, students were required to apply the traits of good writing on the topics that they were asked to write on. Using the 6+1 traits as a technique for training students leads to enhancement of their writing skills, increasing of their scores and developing critical thinking. Schamber and Mahoney (2006) confirmed that by training students to assess their writing using the rubrics, their critical thinking skills are developed. The 6+1 model provided students with sufficient interpretation of what effective writing demands. The high mean score of the experimental group students in critical thinking and writing skills post-test was due to the implementation of the 6+1 model for several reasons: First, students were required to apply the traits of good writing in their assigned topics. One of the methods by which students had to use their critical thinking skills was using the rubrics included in the 6+1 model in order to assess their writing and apply the traits of good writing. Students needed to acquire critical evaluation skills which enabled them to achieve high scores in the post-test. To reach this result, students were encouraged to write, compare, evaluate and assess their writing using criteria of good writing. Through the students' use of these traits, the researcher ensured the students' ability to use critical thinking skills when assessing their writings and deciding what fit with the topic and left what did not. Critical thinking skills in the current study defined as the students' ability to process and evaluate information presented using the 6+1 trait model. Thus, experimental group students showed the ability to evaluate critically the topics they wrote about. Second, emphasis was placed on writing as a process of doing and thinking. In this study, students were asked to brainstorm, gather data, outline, write first drafts, edit, and write second/final draft according to the 6+1 trait writing model. They were required to reflect the traits of writing on their assigned topics. The model of writing helped them to promote higher-level learning, (i.e., analysis, synthesis, and evaluation) and stimulated critical thinking. Third, students were given seven traits of writing which are the bases of the 6+1 model that stimulated critical thinking and in turn manifested in their writing. The seven traits included (ideas, organization, voice, word choice, sentence fluency, conventions, and presentation). The literature about the 6+1 model in relation to critical thinking is consistent with the findings of this study. A number of studies (e.g., Corden, 2003; Schamber & Mahoney, 2006; Higgins, Miller, & Wegmann, 2006) revealed that students considered the 6+1 model as sufficient technique for the growth of critical thinking skills and that the learning activities, rubrics and traits can increase critical thinking as well as writing skills.

## 5. Conclusions

As assured by related studies, 6+1 trait writing model is a mean to improve students' critical thinking and writing skills. Hence, the relation between the model and the increase of critical thinking and writing skills is investigated in this study. According to the findings of this study, the 6+1 trait writing model helped students to enrich their critical thinking that in turn qualified them to become better writers. The 6+1 model provided a variety of activities that involved students in practicing the traits in the formation and evaluating of their writing. This study showed that students' critical thinking skills as well as writing can be developed if they were taught using the 6+1 trait writing model. There were a number of reasons contributed to developing students' critical thinking skills and writing. (1) Students were required to use their critical thinking skills while writing on a given topic. (2) The emphasis was placed on writing as a process of doing and thinking. (3) The writing tasks given to student required them to tap critical thinking skills. Using the 6+1 traits as a technique for training students leads to enhancement of their writing skills, increasing of their scores and developing critical thinking as well as making confident writers. As established by Schamber and Mahoney (2006), students effectively improve their

critical thinking skills through teaching them how to evaluate their writing using the rubrics. As literature about the 6+1 model explained that the main focus of the model is on using rubrics to provide students with feedback at different phases of the writing process. Hence, in the current study the model equipped students with the mechanisms of self-direction. Therefore, with regard to the results of this study, training programs should integrate the 6+1 trait writing model into the language arts curriculum. Moreover, upcoming studies are needed to explore the influence of the 6+1 trait writing model on students' multiple intelligences in different language areas.

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