



**The Effect of Utilizing Concept Maps on Enhancing EFL  
Student-Teachers' Writing performance**

By

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**Introduction:**

Writing is one of the most significant skills for the success of a university student.

Writing is a highly complex act that involves brainstorming, preparing, outlining, organizing, drafting, and revising cognitive and metacognitive practices. Writing is considered to be the most dynamic and demanding skill to learn. According to Richards and Renandya (2005), "this difficulty for EFL students lies not only in generating and organizing ideas, but also in turning these ideas into readable texts."

According to Myles (2002), composing, creating, and evaluating ideas, academic writing involves a deliberate effort and a lot of practice. The product of complicated cognitive operations is any piece of writing. According to Seow (2002), writing includes four key phases: preparing (prewriting), drafting (writing), revising (drafting) and editing, in addition to three other external mandatory stages, like:

Responding, (sharing), evaluating and post writing suggested by the teacher.

Pre-writing supports and plays an important role in writing construction, as well

as allowing authors to brainstorm, coordinate ideas and determine the text structure (Lin et al,2004). In the classroom, the pre-writing stage is known in the classroom as any activity that motivates students to write, encourages their thoughts to get started and brings them away from facing a blank page to creating ideas and gathering ideas for writing (Seow2002).

The significance of the prewriting stage has been explained by Kroll (2001) and asserts the value of spending a lot of class time at this stage because many novice or inexperienced writers fear facing the blank page because they know nothing about how and where to start. Despite the importance of this stage in providing a foundation for effective writing in second or foreign language learning, Essay writing, which forms an issue for many ESL/EFL students worldwide, is a major challenge for many English student

teachers at the Faculty of Education in Egypt, according to Ahmed (2010). However, most of the Egyptian studies performed at university level in the field of essay writing are quantitative. Therefore, the problem of the current research is about exploring Egyptian study at university level.

Writing is a major skill that gives high priority to most EFL programs at Egyptian universities, many students face severe difficulties in producing standard essays in different genres and rhetorical patterns. Obviously, Egyptian students have real problem in writing. Different research studies have verified their problems in writing; e.g. Amer (2003) and Alsabagh (2012).

**The pilot study indicated the following:**

There are really a lot of problems in writing for the target student-teachers in the

English department at the faculty of education, Tanta University.

The most urgent issues are the following:

1-Due to the absence of ideas in the target subject, the inability to write full and detailed essays. Most of them write very short paragraphs with a few sentences and very short essays with a few paragraphs. The number of terms and the average number of sentences and paragraphs are relatively limited; therefore, there are no opportunities for regular use of words in their repertoire of vocabulary and use of expressions in their repertoire of functional language that can strengthen words and expressions that help to hold them in their memory and remember them easily when they need to use them.

2-Inability to shift seamlessly from one sentence to the next and from one paragraph

to the next, since the relationship between sentences and between paragraphs cannot be understood.

3-Inability in their writing to achieve harmony, coherence, and sound creation of ideas.

4-Unable to achieve a logical series of thoughts.

5-Inability in an essay to maintain the main concept and also provide primary and secondary supporting material.

6-Inability to compose essays free of linguistic mistakes (e.g., grammar, word choice, spelling, and punctuation).

The researcher reviewed the literature to find a workable solution in an effort to solve those problems. Concept mapping seemed to work well, particularly because it is specifically relevant to the prewriting stage in which there were problems for the target students. Concept mapping has been used as a learning and teaching method. In different ways, it is believed to help. According to Novak and Cañas (2006), concept mapping "helps learners learn, researchers generate new knowledge, organizational management administrators, writers to write, and evaluators to evaluate learning."

More importantly, Lee (2013) confirms that the structural format of concept maps can assist the cognitive processing channels of students that enhance key idea concepts and help the organization of recall ideas. The concept map tools also allow writers to create and organize their ideas in the pre-writing stage. Thus, pre-writing training in the use of concept maps helps learners develop their ideas in the pre-writing stage" (Sturm & Rankin-Erickson, 2002).

### **Context of the problem**

As a demonstrator at the Faculty of Education, and a supervisor of teaching practice, the researcher discovered that students in the English department face EFL writing challenges. Many student teachers are unable to express themselves in writing in a simple, well-organized and detailed way.

The researcher studied the course requirements, the course books of second year student teachers at the Faculty of Education, Tanta University, and finally performed a pilot study to investigate the writing performance limitations of EFL students. In essay-writing, many student teachers have difficulties. It has been found

that many student teachers are unable to express themselves in writing in a simple, well-organized and detailed way.

### **Statement of the problem**

In an attempt to solve these problems, this study explores the impact of multimedia concept maps and attempts to examine their effects on second-year English department students at the Faculty of Education to enhance writing performance.

### **Research questions:**

This study attempts answering the following questions:

1. What is the effect of using multimedia concept maps on enhancing EFL student-teachers' writing content of performance?

Sub questions:

- 1.1 How far can multimedia concept maps help the target EFL student-teacher develop the cognitive features of content (the writing content contains relevant ideas that pertain to the topic of the essay)?
- 1.2 How far can multimedia concept maps help the target EFL student-teacher develop rhetorical features of content (achieving unity, coherence and cohesion)?
- 1.3 How far can multimedia concept maps help the target EFL student-teacher develop the surface features of content (writing an appropriate introduction, an appropriate body, and an appropriate conclusion for the essay)?

### **Research Hypotheses**

1. There is a significant difference in mean scores of the participants on the writing test in relation to the overall writing content between the pre and posttests in favor of the post test.
2. In relation to cognitive characteristics of material between the pre and posttests in favor of the post test, there are statistically discrepancies in mean scores of the participants on the writing test.
3. There are statistically differences in mean scores of the participants on the writing test in relation to rhetorical

features of content between the pre and posttests in favor of the post test.

4. There are statistically differences in mean scores of the participants on the writing test in relation to surface features of content between the pre and posttests in favor of the post test.

### **Significance of the study**

The current study derives its significance from the value of EFL classroom writing skills, as the significance of the current study lies in:

1. Drawing the instructors' attention to the usefulness of using multimedia concept maps on enhancing writing performance of student-teachers.
2. the structural format of concept maps can assist the cognitive processing channels of students that enhance the concepts of the main idea and help organize reminders.
3. Multimedia concept maps provide for a more engaging student experience; and better capitalize on functionality available in modern personal computers.
4. This research may also be important to promote the enhancement of "traditional" computer-based concept mapping tools with interactive multimedia; sound, video, and animated images that provide representational capabilities similar to mechanisms of representation of human information to enhance the representation of EFL college students.
5. It can, using concept maps, provide teachers with specific teaching situations.
6. It can provide a theoretical basis for the creation of good concept maps for researchers.

## **Method**

### **Design of the study**

The present study adopted the Mixed design, employing pre and post one group design. This group is chosen randomly from the second-year students of English department of the faculty of Education, Tanta university. This group received instruction through Multimedia concept maps.

### **Participants**

The participants of the current study consisted of 35 students in the second year in English Department at Tanta Faculty of Education, they are selected at randomly and assigned to one group. They are English major students studying writing for two terms through the year. The second-year writing course focuses on the writing elements that constitute a good paragraph.

### **Instruments of the study**

The following tools are prepared and used by the researcher :

1-A pre/post writing test will be administered to evaluate the effectiveness of concept maps in enhancing essay writing content of English Major Students. (See Appendix A, B)

2-Rubric for writing content which included cognitive, rhetorical, and surface features of content. (See Appendix C)

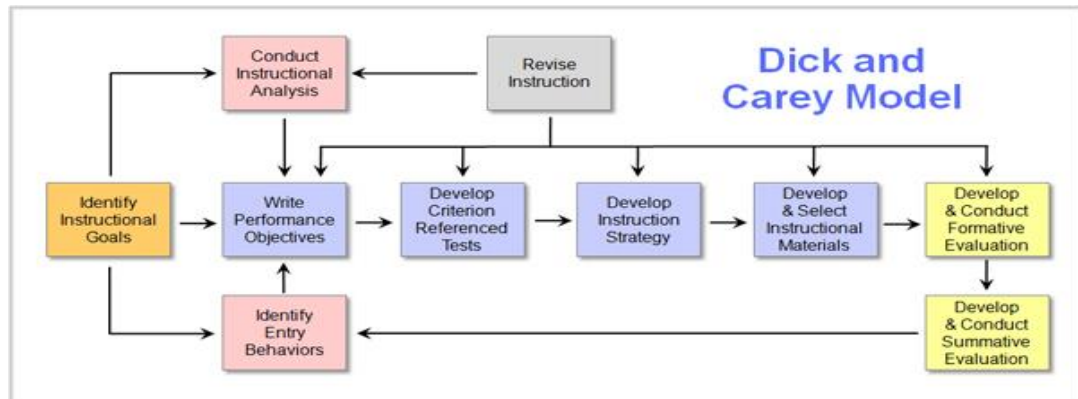
3-Reflection and observation sheets about the effectiveness of concept maps. (See Appendix E)

### **Designing the program**

The researcher designed the program using multimedia concept maps in order to develop EFL perspective teachers in an attempt to design a solid and efficient program, following the guidelines of The Dick & Cary Model for instructional design.

The following figure demonstrates the key steps in the design of an instructional program to be followed.





### Experimentation

The experiment lasted for 12 weeks (one session of two hours) every week. The first session for introducing the suggested program for the participants and conducting the pretests, whereas the last one was utilized for a conclusion of the program and conducting the post test. The program implementation covered 10 sessions in 10 weeks.

Before the actual use of concept maps in the essay writing lessons as a pre writing strategy, the teacher will describe concept maps to the students; they will be told that they are going to learn about the strategy of concept maps which is one of the strategies of writing. It will be described for them as a strategy that could be used to categorize information in a graphic form through drawing, and a strategy that could help them in prewriting activities. They will be showed a number of multimedia concept map samples to make sure that they are fully aware of how these maps look like. Finally, they will be asked to draw concept map for selected topic. The following lines will illustrate the stages of the implementation.

### **I Orientation and Introduction to Multimedia concept maps:**

One or two sessions were dedicated at the beginning of the program for orienting students to what concept maps mean. Orientation sessions were followed by a number of mini lessons about how-to-use concept maps, and theoretical presentation together with practical workshops getting students to apply the aspect taught.

### **II In-Class Writing Workshops:**

The teacher explained different examples of multimedia concept maps. Also, the teacher will divide students into groups then getting them, in writing and collaboratively, to brainstorm as many ideas on the assigned topic then select and organize these idea . Then, the teacher asks each student to draw his concept map individually (to monitor each student's performance). Then, each student's concept map is shared with other students and opened for suggestions/ peer editing., each student will be asked to put these ideas of concept map in actual essay.

After that, each student wrote a draft for the essay. After the stage of writing draft, coming the stage of revising, in which students revised the final essay, finally, teacher evaluated their essays in the evaluation stage.

All these stages appeared in a worksheet:

- Brainstorming
- concept map:
- Revising:
- Evaluating:

### **Results:**

The results of this study will be presented here as related to the directed hypotheses of the study:

#### **Hypothesis1:**

There is a substantial difference between the pre and posttests in favor of the posttest in the mean scores of the participants on the writing test at (0.01) in relation to the general writing content of results. The t-test was used to compare the pre- and

post-application of the writing output test for paired samples (cognitive features of content, rhetorical features of content, surface features of content). For the review of the scores, the SPSS statistics software (version 21) was used.

Table (1) The “t” values for the pre-post of the experimental group on the overall writing content test

<b>Dependent variable</b>	<b>Administration</b>	<b>N</b>	<b>Mean</b>	<b>St.D</b>	<b>T</b>	<b>df</b>	<b>Significance</b>
<b>Total writing content</b>	<b>Pre-</b>	<b>34</b>	<b>15.00</b>	<b>1.81</b>	<b>23.10</b>	<b>33</b>	<b>0.01</b>
	<b>Post-</b>	<b>34</b>	<b>48.11</b>	<b>8.75</b>			

Table (1) shows that there is a statistically significant difference at 0.01 level between the mean scores of the experimental group students in the pre-and post-application of the writing content test (cognitive features of content, rhetorical features of content, surface features of content) in favor of the post test. consequently, hypothesis one is supported as there were significant difference at level (0.01) between the mean scores of the experimental group students in the pre-and post-application of the writing content test (cognitive features of content, rhetorical features of content, surface features of content) in favor of post-application of the writing content test.

**The following diagram illustrates these result**

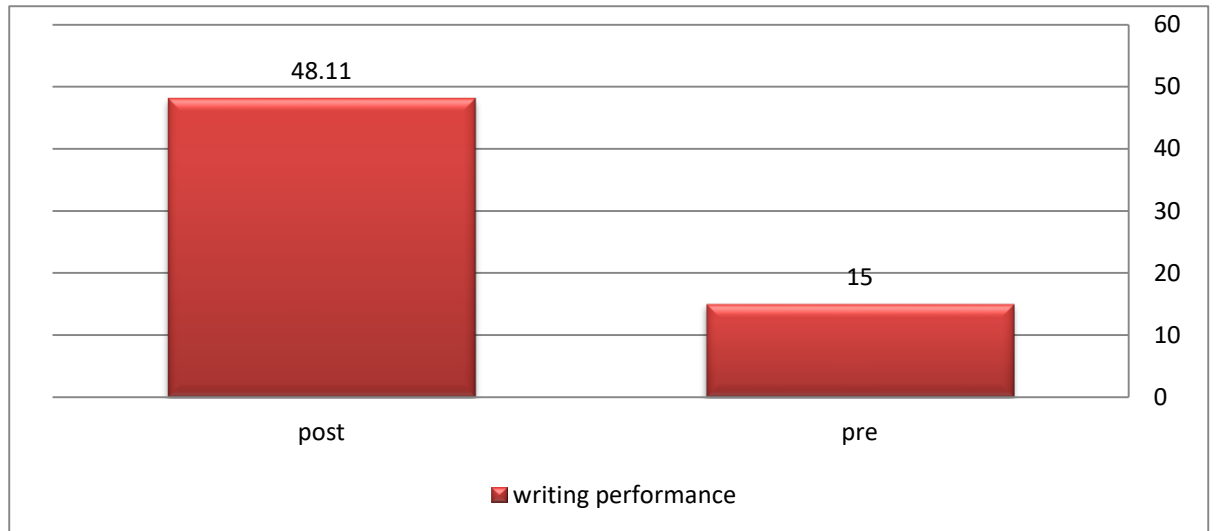


Fig. (1): The pre-post differences of the writing content test

As shown above in fig (1), there are differences between the mean scores of the experimental group pupils in the pre-and post-application of writing content test in favor of the post-application of the test.

### Hypothesis (2):

There will be a substantial difference between the mean scores of the treatment group students at (0.01) level in the pre-and post-application of the students' cognitive features of writing content test in favor of post-application of the students' cognitive features of writing content test.

Table (2) The “t” values for the pre-post of the experimental group on the students' cognitive features of writing content test.

Dependent variable	Administration	N	Mean	St.D	T	df	Significance
students' cognitive features	Pre-	34	2.50	0.78	21.42	33	0.01
	Post-	34	7.17	1.11			

Table (٧) indicates that there is a statistically significant difference at 0.01 level between the mean scores of the experimental group students in the pre-and post-application of the students' cognitive features of writing content test in favor of the post test.

As a result, hypothesis two is supported and then there will be a significant difference at level (0.01) between the mean scores of the experimental group students in the pre-and post-application of the students' cognitive features of writing content test in favor of post-application of the students' cognitive features of writing content test.

In fig (2), there are differences between the mean scores of the experimental group pupils in the pre-and post-application of students' cognitive features of writing content in favor of the post-application of the test.

**The following diagram illustrates these results:**

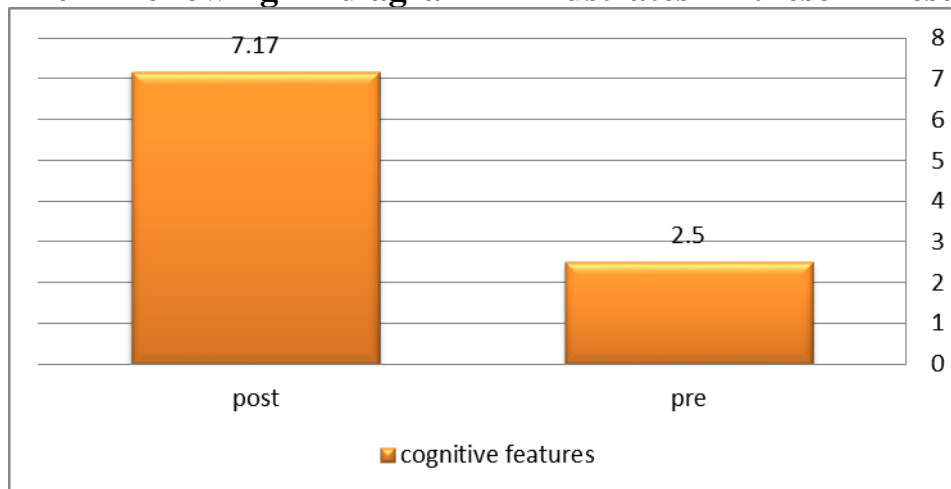


Fig. (2): The pre-post differences of the students' cognitive features of writing content test.

### **Hypothesis (3):**

There will be a substantial difference between the mean scores of the experimental group students at (0.01) level in the pre-and post-application of the students' rhetorical features of writing

content test in favor of post-application of the students' rhetorical features of writing content test.

Table (۳) The “**t**” values for the pre-post of the experimental group on the students' rhetorical features of writing content test.

Dependent variable	Administration	N	Mean	St.D	T	Df	Significance
students' rhetorical features	Pre-	34	6.26	0.66	23.77	33	0.01
	Post-	34	20.02	3.41			

Table (۳) shows that there is a statistically significant difference at 0.01 level between the mean scores of the experimental group students in the pre-and post-application of the students' rhetorical features of writing performance test in favor of the post test.

As a result, hypothesis **three** is supported and then there is a substantial difference at level (0.01) between the mean scores of the experimental group students in the pre-and post-application of the students' rhetorical features of writing performance test in favor of post-application of the students' rhetorical features of writing performance test.

In fig (3), there are differences between the mean scores of the experimental group pupils in the pre-and post-application of students' rhetorical features of writing performance test in favor of the post–application of the test.

The following diagram illustrates these results:

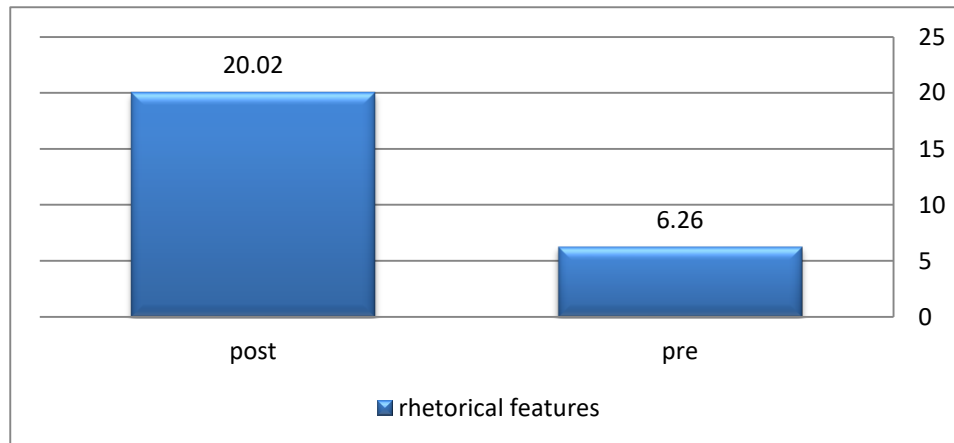


Fig. (3): The pre-post differences of the students' rhetorical features of writing performance test

#### Hypothesis (4):

There will be a substantial difference between the mean scores of the experimental group students at (0.01) level in the pre-and post-application of the students' use of surface features of writing performance test in favor of post-application of the students' use of surface features of writing performance test.

Table (4) The “t” values for the pre-post of the experimental group on the students' use of surface features of writing performance test.

Dependent variable	Application	N	Mean	St.D	T	df	Significance
students' use of surface features	Pre-	34	6.23	0.74	15.78	33	0.01
	Post-	34	20.91	5.86			

Table (4) shows that there is a statistically significant difference at 0.01 level between the mean scores of the experimental group students in the pre-and post-application of the students' use of surface features of writing performance test in favor of the post test.

As a result, hypothesis **four** is supported as there was a significant difference at level (0.01) between the mean scores of the experimental group students in the pre-and post-application of the students' use of surface features of writing performance test in favor of post-application of the students' use of surface features of writing performance test.

**The following diagram illustrates these results:**

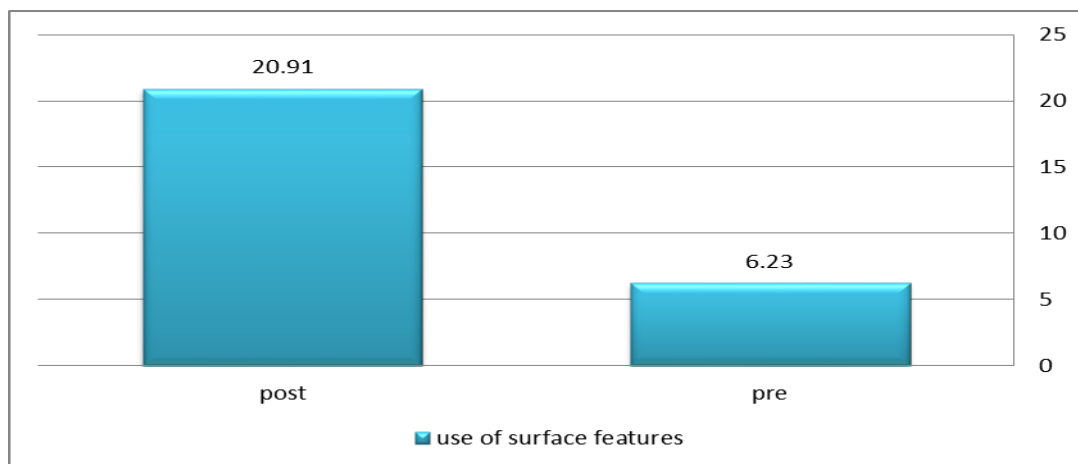


Fig. (4): The pre-post differences of the students' use of surface features of writing performance test

As shown above in fig (4), there are differences between the mean scores of the experimental group pupils in the pre-and post-application of students' use of surface features of writing performance test in favor of the post-application of the test.

**Discussion:**

In relation to research hypotheses of the writing material, the results of the contrast between the results of the pre-post tests are discussed:



**Hypothesis1:**

There is a substantial difference in mean scores of the participants on the writing test in relation to writing content between the pre and posttests in favor of the post test. The hypothesis is accepted.

This outcome correlates to the research findings of Narmean (2015), since it is found that the use of concept map has an impact because the achievement of the experimental group in essay writing is higher than the achievement of the control group in the same subject by the group.

In this study, the performance of the treatment group in the writing post- test is higher than the performance in the writing pre- test. It is also found out that there is a substantial development in the treatment group's scores in organization and content, which suggests that the use of concept mapping approach has contributed positively to improving the potential of the students in essay writing in these fields.

**Hypothesis (2):**

There will be a substantial difference between the mean scores of the treatment group students in the pre-and post-application of the students' cognitive features of writing content test in favor of post-application of the students' cognitive features of writing content test. The hypothesis is accepted, as it is found out that using concept map has a noticeable effect on cognitive features of the writing content.

In this study, the treatment group achieved higher cognitive characteristics in the post-test writing material. The achievement of the treatment group in presenting valid ideas relating to the subject of the post-test essay was substantially greater than that of their pre-test achievement, as it was found that the participants in this research were able to provide a sufficient number of ideas to achieve the completeness and comprehensiveness of the post-test essay.

This outcome corresponds to Narmean's research findings (2015). As for the outcome, the technique of idea mapping has

greatly influenced the achievement of students because it has enabled both poor and strong students to write academically.

**Hypothesis (3):**

There will be a substantial difference between the mean scores of the experimental group students in the pre-and post-application of the students' rhetorical features of writing content test in favor of post-application of the students' rhetorical features of writing content test.

The hypothesis is accepted, as it is found out that using concept map has a noticeable effect rhetorical features of the writing content. This result corresponds to the Al-Shaer research findings (2014). The findings highlight the efficacy of idea mapping strategy training in improving the performance of students in harmony, coherence, organization and thought.

In this analysis, the treatment group achieved higher rhetorical characteristics in the post-test writing material. The achievement of the treatment group is greater in achieving post-test paragraph unity of the essay than that of their pre-test achievement, as it is found that the participants in this study were able to achieve unity of thinking in each paragraph by presenting only one concept in each paragraph, expressing the key idea of the paragraph in a succinct subject phrase, and expressing clear ideas .

It is also found that by using a development pattern that most fits the idea listed in each paragraph in the post-test, the participants in this study have been able to develop ideas appropriately. The participants in this study achieved post-test coherence and cohesion. By applying a logical sequence of ideas using an appropriate order, the participants of this study achieved coherence, and they achieved cohesion by linking sentences using appropriate cohesion devices such as using transitional terms and phrases, repeating keywords, reference pronouns, etc.

**Hypothesis (4):**

There will be a substantial difference between the mean scores of the experimental group students in the pre-and post-application of the students' use of surface features of writing performance test in favor of post-application of the students' use of surface features of writing performance test.

The hypothesis is accepted, as it is found out that using concept map has a significant effect on the writing content's surface characteristics. This outcome correlates to the Ambreen & Rahman research findings (2018). The findings showed that by using the idea mapping technique, the participants improved their writing skills. They learned how to systematically compose. In their prose, they became more structured, achieving continuity and coherence and achieving completeness of the essay structure.

In this analysis, the treatment group achieved higher surface characteristics in the post-test writing material. The achievement of the treatment group in the ability to achieve completeness of the essay structure of the post-test essay substantially higher than that of their pre-test achievement, as it is found that the participants in this study were able to use a number of terms that represent a strong repertoire of vocabulary and produce a relevant number of phrases in each paragraph to support making ideas clear in the post-test.

It is also found out that the participants in this study were able to produce a sufficient number of paragraphs to cover all characteristics of the topic discussed, and achieve completeness of the essay structure by using an appropriate introduction, an appropriate body, and an appropriate concluding paragraph in the post-test.

**Conclusion**

The study concluded that there was an obvious development in the writing performance on the post test of the sample as their writing performance in the post test was higher than their writing

performance in the pre-test. Therefore, the program was effective in developing writing performance.

### **Recommendations**

The following recommendations were given based on the results:

- 1) Multi-media concept map is suggested to enhance writing performance.
- 2) Concept maps are recommended to develop student's other language skills.
- 3) EFL teachers must be well trained on how to use various types of concept maps in their English class rooms for developing students writing performance.
- 4) Teachers should be conscious of the significance of giving feedback on students' writings.
- 5) Syllabus designers should take into their consideration the use of concept map strategy when developing EFL courses.
- 6) Evaluating students' writings should depend upon on rubrics. Thus, students become aware of their weakness and strength points, and their progress in writing.

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