



Faculty of Education  
Dept. of Curriculum and  
Instructional Technology

## **Utilizing a Brain- Based Learning Strategy to Develop Secondary Stage Students' EFL Critical Writing and Self – Regulation**

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By

**Mohammed Rasmy Mohammed**

An EFL teacher  
(1445 -2024)

Supervised by

**Dr. Hussein El Ghamry Mohammed**

Professor of Curriculum, Instruction and  
Educational Technology Dept. Faculty of  
Education, Suez Canal University

**Dr. Ahmed Abdel Salam Harb**

Lecturer of curriculum, instruction and  
Educational Technology Dept. Faculty  
of Education, Zagazig University



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By  
**Mohammed Rasmy Mohammed Elsayed**

Supervisors

**Dr. Hussein El Ghamry Mohammed      Dr. Ahmed Abdel Salam Harb**

### **ABSTRACT**

The present study aimed at investigating the effect of a brain- based learning strategy on developing some first grade secondary stage students' EFL critical writing skills and self-regulation. The study adopted the quasi-experimental design. Participants of the study were (sixty) first year, secondary institute students from Sharqiat Mubasher secondary institute for girls, Al Ibrahemia, Al Sharqia Governorate, Egypt. They were divided into a control group (n=30) and an experimental (n=30).The experimental group was taught the prescribed EFL student book (New Hello! English for secondary schools year 1) through the brain- based learning strategy, whereas, the control group was taught the same book using regular instruction. To achieve the aim of the study, the researcher designed a questionnaire for determining the target critical writing skills and a scale for determining the most important self- regulation dimensions. Based on these critical writing skills and self- regulation dimensions, a pre-post critical writing test and a scale were designed. Then, the data were treated statistically. The findings of the study revealed that the brain- based learning strategy had a positive effect on developing first year secondary institute students' EFL critical writing skills and self- regulation.

Keywords: Brain- based Learning Strategy– Critical Writing Skills – Self- Regulation.

## **Introduction**

Learning a language necessitates mastering the four key competencies. One of these abilities that learners should have is critical writing. Students can convey their thoughts, feelings, views, and points of view through it. Despite their importance, critical writing abilities are now often disregarded in both instruction and testing. As a result, students must acquire both general and advanced writing skills, such as critical writing.

Critical writing instruction is one of the most important contemporary topics in the field of English language education and learning. It is crucial to learning a second or foreign language and has long been seen as a barrier for language teachers (Abdelrahim & Abdelrahim 2020).

According to Katuwal (2023), critical writing requires a variety of abilities, including coherence, cohesiveness, right grammar usage, appropriate vocabulary selection and usage, appropriate text punctuation, and accurate spelling.

According to Montaner-Villalba (2019), critical writing is the capacity to use available data, past knowledge, experience, and world knowledge to analyze facts, create and arrange ideas, draw analogies, uphold beliefs, resolve conflicts, and evaluate arguments when writing. He also clarifies that student writers are supposed to gain the capacity to as part of the process-oriented assignment think critically.

McMahan et al. (2016) claimed the purpose of critical writing is to express feelings, entertaining, informing, and persuading readers. The messages must be worded in an understandable and thorough manner.

Alvi & Gillies (2023) stated that self-regulation abilities enable students to concentrate better, become more organized, review material to ensure retention, and apply them to succeed at all learning stages.

Graham & Harris (2019) defined critical writing as a writing method in which high-level thinking skills such as critical thinking are used. The goal of critical writing is to provide commentary on another author's work by employing various writing techniques.

Cambron (2017) clarified that self-regulation has been described as an active, positive process in which students set learning objectives and then make an effort to monitor, control, and regulate their thinking, motivation, and behaviour while being constrained by their objectives and the surrounding context.

Graham (2022) stated that as writing is a complicated process based on mental processes, it might be presumed that one of the educational components regarded to be effective development of students' self-regulation skills is writing. Writing demands a thorough self-regulation.

To Jensen & McConchie (2020), Brain -based learning is the engagement of strategies based on the principles derived from an understanding of the brain to enhance students' achievement.

According to Bonomo (2017), Brain-based learning is a way of thinking about the learning process. It is not a treatment, nor is it the solution to all our problems.

It is not a program, creed, or a guideline for teachers. It is, however, a set of concepts and a base for knowledge and skills by which learners can make better decisions about the learning process.

Marchlik (2016) clarified that brain-based learning is a current theory of learning that has its own principles and implications that help teachers teach effectively. Such principles and implications are derived from recent brain research on the human brain and its amazing structure.

### **Context of the problem:**

The researcher, as an EFL teacher, observed that first year secondary stage students have poor points in most of critical writing skills and self- regulation dimensions. The researcher reviewed the previous studies related to the research dependent variables that showed the deficiency of the students' levels in the targeted skills. Besides, interviews were conducted with EFL teachers in some secondary institutes. They reported that most students lack critical writing skills and self-regulation dimensions.

### **Statement of the problem:**

The problem of the study could be identified in the weak performance of the first year secondary institute students in EFL critical writing and self- regulation skills. Consequently, the current study aimed at investigating how far a brain-based learning strategy could develop EFL first year secondary institute students' critical writing, skills and improve their self- regulation.

Accordingly, the current study attempted to answer the following main question:

**What is the effect of a Brain- Based learning strategy on developing secondary stage students' EFL critical writing skills and self-regulation?**

This main question is sub -divided into the following sub-questions:

- 1- What are the EFL critical writing skills required for first year secondary stage students?
- 2- What are the self- regulation skills targeted for EFL first grade secondary stage students?
- 3- What are the features of a brain- based learning strategy to develop EFL critical writing skills and self- regulation ?
- 4- How far is the strategy effective in developing critical writing ?
- 5- How far is the strategy effective in developing self- regulation ?

### **Purpose of the study:**

The current study aims at investigating the effect of a strategy based on brain based learning on developing EFL critical writing skills and self-regulation of secondary stage students.

### **Significance of the study :**

This study may be helpful to:

- 1.EFL secondary stage students in:
  - .Improving their critical writing skills.
  - .Improving their self- regulation skills.
  - .Increasing students' critical thinking to develop their English in general and critical writing and self-regulation skills in particular.

2.EFL teachers: it might provide them with systematic and practical procedures to develop their methods of teaching critical writing and self-regulation skills through:

- .Preparing a suitable instrument to measure EFL critical writing skills.
- .Preparing a suitable instrument to measure EFL self-regulation dimensions.

3.Supervisors.

.They may use this strategy to set training courses for EFL teachers.

4.Curriculum designers.

.They may consider this strategy on designing students' textbooks.

5.EFL researchers.

It may guide other researchers to conduct further studies on developing EFL skills through using the program activities other than critical writing and self- regulation.

### **.The study instruments:**

- A critical writing skills questionnaire as a pre-requisite.
- A critical writing skills test.
- A critical writing rubric for scoring the test.
- A self-regulation scale.

### **Delimitations of the study:**

The study will be delimited to:

.Two groups of participants from Al- Azhar first year secondary stage from Sharqiat Mubasher secondary Institute for girls, Al Ibrahimeya administration, Sharkia governorate, will be selected to represent the experimental and the control group.

.Some EFL critical writing skills, which are suitable for EFL first year secondary, stage students and validated by jury members.

.Some EFL self –regulation skills that are suitable for first year secondary stage students and validated by jury members.

### **Procedures of the study**

To achieve the study aims, the following Procedures were administered:

- 1- Reviewing the literature and the previous studies related to the brain- based learning strategy, critical writing skills and self- regulation.
- 2- Designing the critical writing skills questionnaire and self- regulation scale, then presenting them to jurors to verify their validity.



- 3- Identifying the most required critical writing skills and self- regulation dimensions according to the jury's panel opinions .
- 4-Designing the final version of the critical writing skills test and self- regulation scale for implementation.
- 5-Submitting the test and the scale to the jurors to verify their validity and suitability .
- 6-Modifying the test and the scale according to the juror’s opinions in their final form .
- 7-Pre-administering the test and the scale to the study groups .
- 8-Designing the study material.
- 9-Implementing the brain- based learning strategy material to the experimental group, at the same time, teaching the control group via the regular method of teaching .
- 10-post- administering the test and the scale to the two groups.
- 11-Comparing the results of both administrations.
- 12-Analysing the results statistically .
- 13-Interpreting the results in light of the research hypotheses.
- 14- Presenting conclusion, recommendations and suggestions for further research.

### **Definition of terms:**

#### **Critical Writing**

Writing critically entails persuading others by clearly and persuasively stating your conclusions. It is the outcome of a continuous process that involved reading, writing, researching, taking notes, and reflecting. In other words, you don't take anything at face value (Ataç, 2015).

In the current study, critical writing is a form of writing in which the first year secondary stage students are able to present their reasoning and evidence in a clear, well-structured manner to give opinion, provide a reasonable evidence to support point of view, make comparisons, provide causes and effects, make a prediction and give appropriate solutions for a problem .

#### **Self- Regulation**

Alvi & Gillies (2023) examined self-regulated learning in terms of processes including identifying goals, strategic planning, selecting and using strategies, self-monitoring and self-assessment skills, learning and remembering information and academic skills.

In the current study self- regulation can be defined as a constructivist method in which students set goals and take charge of their own ideas and behaviours.

### **Brain Based learning**

According to Tang (2017), brain-based learning is a set of principles and a base of knowledge and skills upon which we can make better decisions about the instruction as well as learning processes .

In the current study, BBL is an umbrella term which includes a variety of teaching methods, strategies, activities, techniques that consider the cognitive, emotional kinesthetic aspects of the first year secondary stage students taking into considerations, their experiences, interests and background knowledge as well to develop their EFL critical reading , writing skills and self-esteem.

### **Results of the study:**

Based on the statistical analyses performed on the data, the following results were found: A statistically significant difference was found between the mean scores attained by the experimental and control group participants in the post administration of the EFL critical writing test favoring the experimental group. A statistically significant difference was found between the mean scores attained by the experimental group participants in the pre and post administration of the EFL critical writing test favoring the post -test. A statistically significant difference was found between the mean scores attained by the experimental and control group participants in the post administration of the EFL self- regulation dimensions scale favoring the experimental group .

A statistically significant difference was found between the mean scores attained by the experimental group participants in the pre and post administration of the EFL self- regulation dimensions scale favoring the post-test. The brain-based learning strategy had a positive effect on enhancing students' critical writing skills. The brain- based learning strategy had a positive effect on enhancing students' self- regulation.

### **Summary of the study**

In spite of the importance of EFL critical writing and enhancing self- regulation, they are neglected in general and at the secondary stage in particular. Therefore, the current study was an attempt to develop the EFL critical writing and enhance the self-regulation of first secondary stage students, through brain based learning.

The study emphasized the importance of BBL in foreign language teaching and learning to improve critical writing and enhance self-regulation of EFL learning.

According to the exploratory study that was conducted to determine the level of first year secondary stage students in critical writing skills, the researcher administered a critical writing skills test to thirty students from first year, secondary stage in the second term of academic year 2022- 2023. The students' level of critical writing was not satisfying and needed to be enhanced. Students showed a clear weakness in EFL critical writing skills. While writing, they find it difficult to generate different ideas, organize the beginning, the body and the end of the written work. Moreover, they did not have the ability to select the appropriate vocabulary or apply the correct use of grammar. This made writing a challenge for them. A self-regulation scale was also used as another instrument to determine the degree of being self-regulated while writing. In addition, students showed very low degree in their self-regulation dimensions, as they felt not sure of their ability to accomplish their writing. Students expressed that they never passed such an experience. They also expressed poor self-regulation towards writing.

In order to improve the first grade secondary institute students' critical writing skills and self-regulation, the current study used a brain-based learning strategy .The problem of the current study was determined in the low EFL critical writing skills, as well as the weakness of self-regulation among first grade secondary institute students as reviewed by the pilot study. As a result, the current study sought to answer the following main question "What is the effect of utilizing a brain-based learning strategy on developing secondary stage students' EFL critical writing skills and self-regulation?" The main question led to the development of six sub-questions, as was mentioned in chapter one. Six hypotheses were formulated and tested. The quasi-experimental design was adopted in this study; two similar groups of first grade secondary stage students were selected to represent the experimental and the control groups. The participants of the study were sixty students from first grade secondary institute students at Sharqiat Mubasher Secondary Institute for girls, Sharqia governorate, enrolled in the first term of the academic year (2023/2024). Participants were divided into two groups: control group (n=30) and experimental (n=30). Two instruments were designed and administered to collect data, the EFL critical writing skills test and the EFL self-regulation scale. The results of the present study revealed that the

experimental participants showed a significant improvement on the post administrations of the critical writing skills test and the self- regulation scale, the significant difference found in the post- administration was due to utilizing the brain- based learning strategy.

## **Conclusion**

Based on the statistical analysis of results and their discussions. It could be concluded that the current study sought to investigate the effect of the brain based learning strategy on EFL first-grade secondary institute students' EFL critical writing skills and self- regulation.

According to the findings of this study, it can be concluded that the results are encouraging regarding the effect of the BBL strategy on participants' EFL critical writing skills and self- regulation. It is noticeable that BBL strategy helped students to improve their critical writing skills and self- regulation. Teaching EFL critical writing skills through BBL brings about remarkable learning outcomes. Results of the study proved that the use of the BBL strategy developed the experimental group participants' critical writing skills. Getting instructions from the study material enabled the experimental participants to ask and answer questions about critical writing skills, and then it aided them to understand what they were accomplishing. Secondary institute students become excited to make use of the BBL in their learning, therefore, they were supposed to utilize them in their future teaching practices. BBL helped the students greatly not only in understanding and applying the targeted skills but in planning for their tasks and monitoring their performance as well. This was clear in students' answers and responses to the post writing activities at the end of every session.

Using the brain- based learning strategy has helped to develop a positive relationship between students' self- regulation and their writing performance .

In addition, compared to traditional instruction, BBL strategy instruction was more effective in improving the participants' EFL critical writing skills and self- regulation.

It is important to realize that due to the introduction and implementation of the brain- based learning in this study, teaching critical writing as a process encouraged students to become writers. Students learned by being active participants rather than by passively absorbing information. They were asked to be responsible for their writing by choosing their own topics to write about, by

deciding how their topics would be developed and what the finished product would be. The result of the study proved that self- regulation can be enhanced via BBL. Participants were active and enthusiastic during the sessions of implementing the BBL strategy, which encouraged them to write freely. BBL developed the spirit of cooperation and teamwork when writing. The change in the teacher's role from an authoritarian to a discussion organizer, facilitator and a language adviser allowed participants to share more responsibilities for their learning.

### **Recommendations**

Based on the results of the current study and the above mentioned conclusions, the Following recommendations are suggested:

-Brain- based learning strategy should be used as a successful teaching strategy and it is recommended to be implemented in teaching critical writing skills and Enhancing self- regulation in EFL classrooms.

-Applying BBL as an alternative to traditional ways in teaching critical writing.

-Teachers should be trained to utilize different strategies in teaching and testing critical writing.

-Teachers should take into consideration some major characteristics when selecting issues for critical writing skills, such as stimulating students' thinking, and encouraging them to express their opinions, thoughts and ideas.

-Secondary stage EFL teachers should be encouraged to adopt BBL strategy in their classrooms.

-Secondary stage EFL teachers should be trained to use BBL strategy on teaching English at secondary stage.

-EFL teachers should encourage all elements and mechanics of BBL Strategy.

-Additionally, teachers ought to give their pupils plenty of opportunity to write on a regular basis. Collaboration is highly valued and encouraged at every step of the process, especially during the revising and editing phases.

-Supportive feedback should be offered through BBL, not only to help students identify their weakness in developing writing skills and ways of enhancing self-regulation during writing.

-Instructors must assist and encourage their students as they take first steps, reassure them that errors are normal on first drafts, and remind them that the early writing process is meant to convey ideas.

-Since the sub- skills in writing can be acquired gradually, students require frequent opportunities to practise them. Writing frequently improves fluency. As a result, giving writing instruction enough time is essential.

-Student-writers should choose their own topics of writing that are of interest to them and their lives.

-It is advised to adopt an audience beyond the teacher, such as classmates, schoolmates, and family members, since an interested audience is beneficial and successful.

-The students' audiences should be real and interested in reading what the writers have to say (peers, friends from other classes, family members and so on).

-EFL Curriculum designers should pay attention to the effect of BBL strategy on developing English language in general and EFL critical writing skills and self-regulation in particular.

-BBL strategy should be integrated into the teaching strategies proposed in the teacher's book.

-Critical writing skills should be given more interest to be enhanced from the start of learning a foreign language at secondary stage.

-BBL strategy should be used as an effective way of controlling learning Processes that would support language-learning chances in general and critical writing skills and self- regulation in particular.

-To improve students' self- regulation, EFL teachers must employ BBL Strategy in the classroom.

#### Suggestions for Further Research

In the light of the study results, and out of its delimitations, the following research areas may be suggested:

1- Brain- based learning strategy in relation to other language skills.

2- Brain- based learning strategy in relation to disabled students' various language skills.

3- Brain- based learning strategy in relation to multiple intelligences.

4- Brain- based learning strategy in relation to reading skills.

5- Investigating the effectiveness of using BBL strategy in enhancing creative writing skills.

## Implications of the study

The findings of the present study raised a number of pedagogical implications as follows:

- 1-The current study concluded some EFL writing skills targeted for secondary students. These can be particularly cared for later.
- 2-The study also includes a secondary stage EFL writing test that students can use at a later time .
- 3-The study material presented many activities to develop the secondary stage students' EFL writing skills, which can be validated in the institute.
- 4-As the study showed that BBL could develop EFL first secondary stage students' critical writing and enhance self- regulation, it could be considered a support for EFL researchers who are interested in the field of critical writing.
- 5-The study's findings and results demonstrated that BBL strategy improved the critical writing skills and self- regulation of first-year secondary learners.
- 6-Teachers should avoid serving as the central element of the learning process, giving students freedom to manage their own education, be responsible for their own activities and actively participate in the writing process boosted their self-regulation.
- 7-The brain-based learning strategy provided first-year secondary students with the chance to write carefully, which helped them develop their self- regulation and EFL critical writing skills.
- 8- The Brain- based learning strategy encourages students to engage in writing texts in a Cooperative and active way.
- 9-The data gathered may be crucial for EFL teachers whose goals are to improve students' critical writing and self- regulation.
- 10-The brain-based learning strategy gave curriculum designers new ideas and practices for teaching critical writing as well as self- regulation.

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