Faculty of Education
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The Effect of A Brain – Based Learning Program on Developing Primary Stage Students' English Language Critical Reading Skills

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Abstract

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Abstract: The aim of the present study was to investigate the effect of a brain – based learning program on developing the primary stage students' English language critical reading skills. Based on reviewing literatures and related studies, the researcher investigated the literatures of critical reading (CR) and brain-based learning (BBL). The participants of the present study were randomly nominated; they were 36 of the fifth primary stage students in El-Fayroz School in Cairo. The instruments for collecting data were: a checklist; a pre-posttest; a scoring scale rubric, an e-survey and an e-portfolio. The program included 2 units and three short stories; it was designed and conducted through BBL strategies. The proposed program used in the present study has achieved observable development in the participants' CR skills. This was reflected in the high scores of the participants of the experimental group. This indicated that the proposed program was successful on developing CR skills of the 5th primary stage students. According to the obtained results, the study presented several recommendations and suggestions that can help on developing other educational aspects.

Key words: brain-based learning, critical reading skills, using technology in class.

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Background & Problem

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1. Introduction:

Mastering English language is not only vital to communication and interaction, but it is also indispensable in dealing with information technology (IT) computers internet academic search dealing with tourists and developing oneself in various ways.

Critical reading (CR) has been defined in many ways since it first became the object of intense educational and psychological research. Cognitive scientists turned their unique spotlight on reading and showed that meaning does not come without the involvement and engagement of the reader. Nourie (2009) described what happens during reading comprehension as making a mental picture of the text. It is a process of representing and interpreting the text information in the memory.

CR is not constrained to the ability to recognize the words on the page. It includes the ability to comprehend and assess the meaning of a written passage, as well as the ability to compare it to other passages the student has read. Thus, it is the essential core of the critical thinking.

Pardede (2007) defined CR as a skill highly necessitated in both academic and everyday lives. A critical reader is able to define bias and prejudice, determine the opinions and illogical conclusions and form an opinion concerning a text. CR includes basically critical thinking, so they can be defined as the process of understanding, questioning, and assessing a text, which is carried out actively and consciously, in order to assess the accuracy and validity of a writer's ideas. As a skill, CR could be developed through learning and practices.

Khan (2014) stated that CR is an active approach to reading that involves an in-depth (top to bottom) examination of the text, memorization and understanding of the text. Furthermore, CR process involves critical thinking, so the text is broken down into its components and examined critically in order to accomplish a significant comprehension of the text. The active critical reader invests sufficient effort to understand the text and pose important details to memory.

CR is the process which involves responding to a text rather than producing it. It can be said that CR involves making sense of the text rather than understanding the language of the text at the word level, sentence level

and whole text level. It connects the message of the text to our knowledge of the world.

"CR offers students the ways that make them more assertive and more confident readers. A critical reader needs to "question the voices behind a text, who is represented and who is not, and what positions texts are assuming" (Stevens & Bean, 2007). Such a reader should then be able to "construct a reading that may actively resist and challenge the preferred reading of a text".

CR requires the student to not only take the author's words into account but also the meaning behind the author's words. It teaches students to analyze and question what they have read and to compare it to their own understanding as well as to other things they may have read. In this way, students are engaged in an active communication with the author. When the student's perceptions and opinions are given value in this way, they gain more respect for learning and more respect for themselves. (Zinkgraf, 2003)

Many approaches and methods have been developed to teach CR skills. Brain-based learning (BBL) theory is one of them; it is a way in which emphasis is placed on meeting the students' needs and in obtaining opportunities for self-expression. BBL has emerged into modern classrooms creating new practices teaching, learning and CR. Many studies related brain researches to best practices in the classroom for learning. BBL matches best practices to students' abilities on outdated curriculum. Opalek (2006) stated that educators of the twenty-first century should apply brain research in classrooms to develop and construct vital curricula, which connect to the student needs relating teaching to abilities and cultural backgrounds.

Neuroscience has clarified important information about the brain and how it learns. There was an unprecedented revolution about the human brain, including how it processes, interprets and stores information. The new BBL theory requires that we now shift our focus to the learning process. This information can be used to facilitate learning. (Sousa, 2011).

Brain-based learning theory (BBLT) has been known as a combination of brain science and common sense. Caine and Caine (٢٠٠٩) developed twelve principles that apply what we know about the function of the brain to teaching and learning. These principles were derived from an exploration of many disciplines and are viewed as a framework for thinking about teaching methodology. The principles are:

- The brain is a complex adaptive system.

- The brain is a social organ.

- The search for meaning occurs through patterning.

- Emotions are critical to patterning.

- Every brain simultaneously perceives and creates parts and wholes.

- Learning involves both focused attention and peripheral attention.

- Learning always involves conscious and unconscious processes.

- We have at least two ways of organizing memory.

- Complex learning is enhanced by challenge and inhibited by threat.

- Every brain is uniquely organized.

According to the latest research in BBL, the traditional way of teaching that based on memorization is no longer the effective and successful method in the classrooms. Teaching CR should be changed as students' learning styles evolve with the new challenges in the twenty-first century. Critical thinking and analyzing the text in CR must generate and demonstrate connections among brain researches to scaffold student learning. (Sousa, 2011).

Teaching CR to develop the student’s learning can be accomplished by adapting current curricula to best practices of brain research. Closing the gap between traditional teaching and BBL is the ultimate goal for educators to reach the needs of students in CR. Research of BBL empowers a student with personal goals, real-world connections and authentic assessments which have been non-existent or significantly lacking in traditional classrooms. Developing CR is a necessity to establish life-long learning habits for children with diverse backgrounds in the twenty-first century. (Biller, 2002).

To promote better CR and learning among diverse students, curricula need to be adapted to meet individual learning styles according to current brain research in education. This practice directly relates to the research on which BBL is based. Best practices such as leveled CR programs, authentic assessments and teaching multiple intelligences in BBL can create a better learning environment than the traditional classrooms of the past thirty years. Traditional methods such as rote learning and memorization are ineffective

with today's students with unique backgrounds and learning styles in the changing times of the twenty-first century according to brain research. Brain research has evolved in the past ten years to bring the most effective pedagogy and educational teaching methodologies for changing patterns of student learning (Sousa, 2006).

BBL research aims to create positive results in CR classrooms. Primary teachers must evolve best practices for the teaching CR and change curricula until student's performance is developed. Creating an ideal literacy environment based upon BBL and research can develop CR performance in a primary classroom. Moreover, student's collaboration in activities such as brainstorming during groups or faculty meetings supports further development on a larger scale than only one classroom's focus on BBL research. Developing CR in the classroom in the light of BBL should be adopted through reviewing and sharing the best practices of brain research in the classroom among colleagues, accessing and implementing better practices with brain research, involving the parents and the administration in the learning process. (Opalek, 2006).

Caine and Caine (2006) concluded that using the human brain means using the brain's infinite capacity to make connections and understanding what conditions maximize this process. They put Three Conditions for learning which are:

- Relaxed alertness, which is the optimal state of mind. It should consist of low threat and high challenge.

-Orchestrated immersion, this condition required student to be involved in multiple, complex, authentic experience.

-Active processing, this conditions required experience as the basis for making meaning.

Opalek (2006) put types of learning include ideas derived from research based on the brain, such as:

- Practical simulation.
- Cooperative learning.
- Experimental learning.
- Movement education.
- Whole brain learning.
- Natural learning.

In the educational field, BBL theory can propose the following:

- In the area of the curriculum: teachers should design learning centered on the student's interest and make learning in the context. (Contextual learning).

- In the field of education: teachers should let students learn in a team (collaboration learning). Also, teachers have to manage learning process about real problems (authentic learning) and encourage students to learn from the sessions outside the classroom and outside the school buildings.

- In the area of assessment: where all students are learning, the evaluation should allow them to understand the learning styles, allowing them to control and develop their learning processes (authentic assessment).

BBL will be applied in the classroom as follows:

- Face to face learning activities:

It incorporates activities that occur in the classroom and incorporates the interaction between students and the teacher, and students among each other. They are part of the authentic learning.

Authentic learning is an educational approach that allows students to explore, discuss, and meaningfully construct concepts and relationships in contexts that involve real-world problems and projects that are relevant to the learner (Bransford, Ellegrino, & Donovan, 2012).

Authentic instruction will take on a much different form than traditional methods of teaching. The researchers suggest that authentic learning has several key characteristics.

- Learning is centered on authentic tasks that are of interest to the learners.
- Students are engaged in investigation and inquiry.
- Learning, frequently, is interdisciplinary.
- Learning is closely connected to the world beyond the walls of the classroom.
- Students become engaged in complex tasks and higher-request thinking skills, such as analyzing, synthesizing, designing, planning, controlling and assessing information.
- Students produce a product that can be shared with the world outside the classroom.
- Learning is student driven with teachers, parents, and outside experts all assisting in the learning process.