



WHOLE BRAIN TEACHING FOR CHEMISTRY TEACHING

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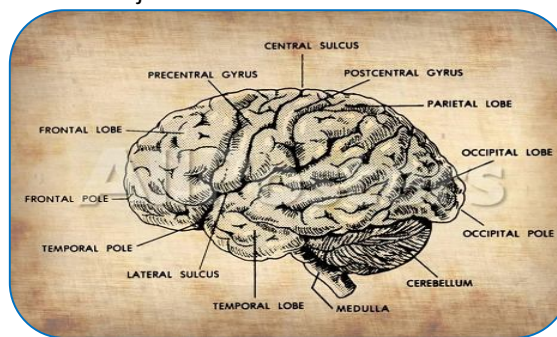
ABSTRACT :

The present study is undertaken to check the efficiency of a new teaching strategy and its classroom applications. Whole Brain Teaching make students stay in the classroom and allow the teacher to teach and all students to learn. Whole Brain Teaching also helps to build a sense of community and a family feeling for students and teachers alike. Whole Brain Teaching is one of the fastest growing education reform movements around the world. It creates a more engaged learning environment for the students in classrooms. Whole Brain Teaching is a method in which lessons engage students in seeing, hearing, doing, speaking, feeling etc. While they are having a lot of fun, it provides techniques for focusing student attention, building class room community, focused skills and task instructions and differentiated instruction through gestures, student sharing, listening, laughter and fun. Whole Brain Teaching is very suitable for overcoming some classroom limitations like availability of trained teachers and teaching atmosphere, and it can be implemented as an excellent classroom teaching strategy. The present study was conducted on 84 secondary school students. 42 students were taught through Whole Brain Teaching and remaining was with Activity Oriented Method of teaching. The study reveals that Whole Brain Teaching Strategy is more effective than Activity Oriented Method of Teaching.

KEYWORDS : *Whole Brain Teaching.*

INTRODUCTION

Many of the strategies and techniques of teaching are designed to keep students on task and to help them master core knowledge. Such methods should seek to encourage the learner to become cognitively engaged in developing understanding of the topic being taught. This point of view can be justified from the constructivist and socio-constructivist perspective on learning which has become one of the most influential theories of learning in recent years. The potential of Whole Brain Teaching, in contrast to the more traditional passive and individualist approach, can be derived and justified from these ideas. The socio-constructivist perspective on learning is usually attributed to the Russian psychologist Lev Vygotsky. A student can get a good knowledge not only by reading the fulfillment of knowledge can only be achieved by practice (Biffle, 2013). Students will get ample exposure to ideas and critical thinking in addition to marketable skills and training. This is the kind of adaptive, student-focused approach to education that will make the need to address short-term deficiencies. Over the last several years, teachers have focused on these areas because



most of the educators identified them as their core teaching problems. Whole Brain Teaching (WBT) classroom have some solutions to these issues by adopting a set of techniques.

Whole Brain Teaching (WBT) classrooms are full of task-focused laughter. Humour and games are used to increase the number of times students repeat core information and practice basic skills (Biffle, Vanderfin & Rekstad, 1999). When students have been taught to teach their neighbours what the instructor has presented, creative thinking is initiated by simply having students answer a question posed by the instructor.

When students are talking to each other about the instructor's question, without being given the answer in advance, they are automatically inventing material that is new, and creative. The answer is coming from them and their neighbour, not their teacher (Biffle, 1999). Additional levels of Whole Brain creative thinking are developed by adding gestures specific to a variety of complex thinking tasks. The cognitive benefits on a child's brain are tremendous (Medina, 2014). Education methodologies used engaging activity to help children develop focus, order, internal discipline and sequencing abilities (Richards, 2005). It is a classroom instruction and strategy that uses a variety of techniques which incorporates gestures and sounds to stimulate the learner to think and learn.

WHOLE BRAIN TEACHING

The existing problems in traditional classrooms can be removed by some new instructional strategies, developed and practiced in the western countries. Whole Brain Teaching (WBT) is one among them. Whole Brain teaching (WBT) technique is developed and introduced by Biffle, Vanderfin and Rekstad at Crafton Hills College, Yucaipa, California (1999).

A significant quantity of modern brain research demonstrates that we learn best by seeing, saying, hearing and doing and feeling. When we see information, we employ the visual cortex near the rear of the brain; when we say and hear information, the language centers; Broca's area and Wernicke's area in the brain's left hemisphere are active. When we engage in a physical learning activity, we employ the motor cortex, our most reliable memory storage area, located in a band across the top, center of the brain. Whole Brain Teaching (WBT) produces classrooms that are full of orderly fun. Students follow our rules because they make our rules fun to follow. Students teach their neighbors because they delight in playing teacher (Biffle, 2013). Students work hard with their classmates to gain a few minutes of free time.

SOURCES OF WHOLE BRAIN TEACHING (THE BIG SEVEN OF WBT)

Following are the important sources of Whole Brain Teaching.

- 1. Class-Yes.** It activates the prefrontal cortex, the reasoning center of the brain. Think of this area as a light switch that must be turned on, repeatedly by class-Yes, for the rest of the brain to process information.
- 2. Five Classroom Rules.** When rehearsed and used in class, it engages prefrontal cortex, Broca's area, Wernicke's area, the limbic system, hippocampus, visual cortex and motor cortex.
- 3. Teach-Okay** is the most powerful one. Students have their prefrontal cortex engaged, activate Broca's area as they speak, Wernicke's area as they listen, the visual and motor cortex as they see and make gestures. This activity stimulates the hippocampus to form long term memories.
- 4. The Scoreboard** directly stimulates the limbic system's emotions and the amygdala with pleasure (mighty "Oh yeah") and pain (mighty Groan) as students accumulate rewards and penalties.
- 5 Hands and Eyes** focuses all mental activity on seeing and hearing the teachers' lesson.
- 6. Switch** helps students fully develop both their speaking (Broca's area) and their listening (Wernicke's area) abilities.
- 7. Mirror** activates the visual and motor cortex, as well as mirror neurons in other brain areas which are central to.

CLASSROOM RULES

Whole Brain Teaching has five classroom rules. These are rules that will make the teacher's life amazingly easier. They are

1. Follow directions quickly.
2. Raise your hand for permission to speak.
3. Raise your hand for permission to leave your seat.
4. Make smart choices.
5. Keep your dear teacher happy.

THEORETICAL SUPPORT

- Whole brain teaching method is based on the Lev S. Vygotsky's socio-cultural theory. It believed that, every child's cultural development appears twice: first, on the social level that is between people and later on the individual level that is inside the child. The first level which is the social level is constructed during shared activities, where knowledge is constructed by teaching to each other. Then the later part where the child starts to internalized the process it becomes part of the child's cognitive development (Woolfolk, 2008). A theoretical background is provided from a constructivist point of view as a rationale for using Whole Brain Teaching in relation to Vygotsky's Social Learning Theory (Jaramillo, 1996).
- Wenger's (2006) framework of Community of Practice with specific benefits for teachers and students in a Whole Brain Teaching classroom (Li, Grimshaw, Nielsen, Judd, Coyte, & Graham, 2009). It has been sharing ideas and learns through story telling. The concept of this practice has provided useful perspective on knowing and learning. One of the major domains of Wenger's community of practice is the mutual engagement. In mutual engagement there involves a regular interaction and a constant flow of information (Homles & Meyerhoff). This is the basic for making relationships and also it is the basic which makes community of practice possible.

BENEFITS OF WHOLE BRAIN TEACHING

Following are the benefits of WBT for teachers and learners.

Benefits for **Teachers**

- (1) Positive behavior reinforcement.
- (2) Memory retention.
- (3) Student engagement.

Benefits for **Students**

- (1) Motivation.
- (2) Student-centered learning.
- (3) Application of learning.

OBJECTIVE

The main objective of the study was to promote student participation in the classroom activities and demonstrate that by setting up a Whole Brain Teaching strategy to do chemistry classroom sessions, students retain more, better understand knowledge and learn to make decisions when experienced with a Whole Brain Teaching.

PARTICIPANTS

This experiment is contemplated for two secondary school classes of VIII standard with 84 of students in the Chemistry subject. One class was selected for this Whole Brain Teaching experiment. The rest continued doing by the Activity Oriented Method of teaching. The 84 students were divided into two groups of 42 students.

EXPERIMENTAL METHOD:

It consists of two Phases:

Phase-I. The Whole brain Teaching was followed with the group with 42 students and the Activity Oriented Method with the rest.

Phase-II. A written test was done (short questions and numerical calculations) about the contents of this session to verify the effectiveness of the traditional and Whole Brain Teaching methods used.

The whole activities were supervised by the teacher at all times. The steps to follow with the group of students during the learning session were (Petrucci & Harwood, 2003).

ANALYSIS AND INTERPRETATION

This part of the paper highlights the relative use of certain instructional strategies among secondary school students. Details of the analysis are presented in Table-1.

Table 1: Details of Instructional Strategies and Mean Score

No.	Instructional Strategies	Mean Score
1	Whole Brain Teaching Strategy (WBT)	7.8
2	Activity Oriented Method of Teaching	5.1

RESULTS AND CONCLUSIONS

From the final written test, the participants who took part in the whole Brain Teaching experiment obtained a mean score of 7.8/10, compared to one of 5.1/10 obtained by the students who participated in traditional method. This confirms that Whole Brain Teaching facilitated their comprehension and withholding of the knowledge obtained during the chemistry teaching session. Modern brain research shows educators and parents what constitutes the best education for developing children. It is already clear that an education which is rich in variety, visual stimuli, cognitive development, positive reinforcement and creative thinking can help children grow brains better able to face the challenges of future learning. It is clear that Whole Brain Teaching strategy is the best method. The methods and curriculum offer this form of brain-based learning that is crucial to the complete education and full development of modern young minds.

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