BRAIN-BASED INSTRUCTIONAL STRATEGIES: BRINGING PARADIGM SHIFT IN TEACHING LEARNING PROCESS

Dr. Anita Sharma*

Abstract

The main focus of entire teaching learning process has been on improving the quality of educational process. The objective has been tried to achieve by researches on development of many new teaching strategies. The success of all these teaching strategies is often evaluated on the basis of the students' achievement when taught by any particular strategies. Brain based instructional strategies is pioneer to the area of educational development wherein it caters to the needs of diverse learners by utilizing the available resources. This paper reveals the empirical results of the research conducted on VII class science students who were taught with the Brain based instructional strategies. Consequently the students taught with these strategies improved their achievement in science as well as self esteem.

Key Words: Brain Based Instructional Strategies, Orchestrated Immersion, Relaxed alertness, Active Processing, Achievement in science.

* Assistant Professor, D.A.V College of Education, Amritsar

Introduction

In the era of globalization, everybody wants to leap ahead in all the areas to lead successful life. Parental expectations are so high that every parent wants their child to be a doctor or engineer. Such parental expectations have burdened the children to score good in their academic subjects. This has led to a paradigm shift in researches conducted in the field of education. Most of the educational researches now focus on the ways of teaching that can enhance the academic achievement of the students using the best available resources. Researches have been conducted to use a number of new teaching learning approaches in order to improve the performance of the learners. Learning as we know is a psychological phenomenon; no two learners in a class are alike. Every learner is distinct from another with respect to the physical and mental features, every one of those are having their own ways of learning styles. Classroom environment which is heterogeneous and contextual where students with different learning styles are found some of them are burdened with parental expectations and build low self-esteem which in turn results into faking student behavior. In such a scenario best of teaching practices cannot yield the desired output. There is a need to change the teaching strategies to improve student learning. Learning will become more enthusiastic when the learning is in their preferred style which therefore can improve the learners' performance and improve the self-esteem of students. According to Jensen, an educator should expose learners to a variety of styles. He also indicates that to build a successful brain-based learning style approach one should1) Provide a variety of approaches; and 2) Offer choices. In brief, the framework of all learning styles and formats if available with teacher, is the most valuable asset to help her determining whether her teaching approach/methodology covers all learners Modern technology has advanced to an extent that one can have the glimpse of the functioning of human brain. This research can be in turn helpful in educational field. Information such as functioning of human brain can be helpful in improving the performance of the learners in different situations. A number of teaching techniques have been developed as an outcome of the researches in areas such as

- Mastery learning
- Multiple intelligences
- Cooperative learning
- Practical simulations
- Experiential learning

- Problem-based learning
- Movement education.

Brain based instructional strategies involves all such researches in all these disciplines had lead to formation of an interdisciplinary approach termed as Neuro-education. It challenges the current teaching practices used in the classrooms and calls for a reality check on traditional beliefs about the teaching-learning process, especially by relating it to developmental principles of brain. Through brain based instructional principles teachers can apply the scientific information about brain to the educational context in order to adjust teaching practices that can improve teaching as well as learning. Giving hands on interactive learning to students is found to be helpful in increasing retention. Prigge, 2002 has suggested some of the strategies which can actually improve the students achievement. The strategies suggested are as follows:

• Teaching students about their brain
• Discussing about the Proper sleep hours required for better retention
• Telling importance of water and glucose for human brain.
• Making students aware about different learning styles.
• Establishing positive and interactive atmosphere
• Integrating media in classroom teaching
• Encouraging students ideas about learning
• Using movement and music
• Utilizing first and last minutes of teaching involving students

The researchers of neuroscience and education have developed an eclectic approach wherein they have utilized the educational psychology principles and neuroscientific principles to develop brain based instructional strategies. Neuro-education has categoeised brain based instrcuitonal strategies into three domains which are as under:

1) **Orchestrated immersion:** The main focus of orchestrated immersion is to make the gist of the subject meaningful and vivid in learners' minds. If learners grasp the gist through various sense organs, retention level of the provided information will be increased. Immersion uses different strategies such as using music, visualization techniques etc for maximum involvement of the learners. It helps in establishing patterns and associations in pupils' brains. (Maternaa,2000).

2) **Relaxed Alertness:** The relaxed alertness implements such strategies that keep in mind the comfort level to be given to pupils for better learning. It focuses on the environment to be provided. The environment should be such that it is meaningful as well as challenging to the learners. However challenge should be put forward in a way that students should not feel threatened. (Caine & Caine, 1995). Learners need to feel secure and relaxed so that they can take up risks to undertake that challenge. This domain is helpful in changing the thinking and learning styles of learners through establishing associations between the old and new knowledge.

3) **Active Processing:** Active processing is the theoretical organization and internalization of the meaningful information by learners (Caine & Caine, 2002), it include such teaching strategies that focus on memorizing the content by active and conscious involvement of the learner. Using mnemonics, chunking etc. are the best strategies. Apart from these, efforts made by learner in making creative aids for better learning are also part of active processing domain. As Materna (2000) states, the brain struggles to form meaningful patterns from experiences as it processes information.

These strategies use music for immersing students to the learning environment on their full without creating any fear or burden of learning tasks. us this emerging brain based learning theory can bring Paradigm shift in teaching and learning process. The theory has practical Implications in which teacher can utilize available resources in a best way and can cater to diverse individual needs. Brain based learning strategies has all the Elements which are essential to any effective teaching learning process. It uses the eclectic approach of ICT and available resources in the classroom to enhance the learning outcome of students. This theory has specially emphasized the introductory and closure phase of teachng learning process whereby it alerts the teacher about utilizing both phases for knowledge enhancement. Therefore we can utilize such strategies which are context independent and can provide best outcome under any learning context.

II Literature Review

Mustafa. M. H. (1999) conducted a study on effect of mental stimulation and brain based learning paradigms. More specifically the research adopted conceptual approach for application of artificial neural networks (ANN). The results supported improvement of learning and an increase of synaptic connectivity of the students.

Kathlene(2000)Study involved specific activities such as crossed-lateral movement patterns and detailed online activities that were incorporated into an online learning environment or a distance learning class with face to face interaction for adults. The results revealed that the brain-based activities can be successfully implemented in distance learning course and these activities are helpful to the adult learners.

Kim (2003-04) investigated the effects of the Superbrain Yoga with fifty-six (56) middle school students in Norristown, Pennsylvania. There was a dramatic increase in student participation in and out of the classroom in the study group and seventeen (17) students were moved to a higher academic section. Six out of ten participants of the Superbrain Yoga study students were inducted into the National Junior Honor Society. One student from the study group after the study qualified as gifted.

Arnold and Fonseca (2004) conducted a study on multiple intelligence theory and foreign language learning: a brain based perspective. The study was conducted using frames of teaching based on different learners requirement using multiple intelligence theory and brain based learning. The research resulted in a significant enhancement of learning foreign language by the students taught by specified frames.

Clemons (2005) investigated a research entitled Brain-Based Learning: Possible Implications for Online Instruction. The research described about the brain based learning theory and its implications in higher education. The research also revealed the major suggestions to improve and facilitate the online classes in higher education.

Murphree (2005) conducted a study to see the effects of a brain-based instructional approach

on third grade student achievement in Floyd county schools. Data gathered from the ITBS test year indicated that brain-based instruction has a positive impact on academic achievement.

Duman (2006) conducted a study on the effect of brain-based instruction to improve on students' academic achievement in social studies instruction. The findings of the study suggests that brain-based learning approach appears to be more effective than traditional teaching procedures in terms of enhancing the retainment of gained knowledge.

Herson (2006) did an investigation on brain-compatible research: using brain-based techniques to positively impact student learning. The research was conducted on sixth grade students. Experimental group was given brain based instructions whereas control group was provided conventional strategies. The study revealed that the students who got brain based instructions achieved significantly higher grades as that of the control group students.

Jeri. (2007) conducted a study on increasing student achievement through brain-based strategies. The study was pre-test post-test experimental Cresearch. The results reported that students gained strength on their level of intelligence and hence increased achievement.

III Research Methodology

Pre test post test control group method was used In present investigation. Two groups namely experimental and control group of 45 students each were eqauted on achievement and self esteem and were later subjected to Brain based straetgies and conventional strategies respectively. The design of the study can be discussed under following heads:

1. One way ANOVA was used to find the effect of BBIS strategy on achievement and self-esteem of science students.

2. Two 2x4 factorial design were employed for the present investigation. The first 2x4 factorial design was employed which was computed by ANOVA for the mean gain on

achievement in science scores.

IV MAJOR FINDINGS

1. The students of experimental group taught by BBIS scored more of achievement in science as compared to control group taught by Traditional method.

2. There was a significant gain on mean scores of achievement in science of students with accommodation, convergent and divergent learning styles in experimental group.

3. There was a significant interaction between instructional treatments and learning styles of science students with respect to achievement in science of experimental group.

4. There was a significant gain on mean scores of achievement in science of students belonging to Accommodation And Divergent learning style of experimental group.

5. There was no significant gain on mean scores on achievement in science of students belonging to Assimilation and Convergent learning style of experimental group and control groups.

V CONCLUSION

Brain based instructional strategy has been found to be a useful tool for enhancing the performance of the students in science subject. The researcher found the students motivated and persistent in their learning process. Brain based instructional strategies are helpful in motivating students for bringing new ideas of learning in threat free environment. Students actively participate in the classroom either as a group leader, a performer or a learner. Students themselves start taking initiatives when they are given freedom by altering classroom environment and building rapport. Here the threat free environment of BBL plays a vital role. It is an effective teaching strategy that is found to be helpful in enhancing the level of self esteem of learners with different learning styles. The experiment at a government managed residential school with simple infrastructure and limited resources gave positive results in terms of enhancing learning through brain based learning strategies. Hence

adequate amount of planning and participation by creative teachers with flexible attitude in classroom transaction can lead to enhancement of self esteem and achievement in Indian classrooms. The support of forward looking school administrators can change classroom environments for better science learning. Teacher education courses should also include this innovative approach for future classrooms.

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