EFFECT OF BRAIN BASED LEARNING STRATEGY IN ECONOMICS AMONG STUDENTS AT HIGHER SECONDARY LEVEL

SIJI JOHN
Research Scholar, Mahatma Gandhi University, Kottayam
& Assistant Professor, St. Joseph College of Teacher Education for Women, Kochi

ABSTRACT

Learning is the central focus of education. Brain based learning environment provides significant cognitive advantages for students and teachers in contrast with traditional learning situations. Both teachers and students have a lot to gain by moving away from the traditional educational paradigms and student centred class rooms. The present study focussed on the brain based earning strategy which is one of the important components in the teaching learning process. It plays a significant role in the achievement and retaining ability of the students. Knowing how the brain works best allows educators to create an environment that gives the student a higher probability of success in learning. The study was intended to test the effectiveness of brain based learning strategy in teaching Economics at higher secondary level. The findings of study would be useful for teachers and pupils as a method of teaching and learning their academic excellence.

INTRODUCTION

Education today, more than ever before, must see clearly the dual objective: education for living and educating for making a living. Besides going information education also helps to develop social adjustment to the environment and have a control over it. So a well-organized and purposeful education is inevitable for human progress and social development progress of a nation depends up on the education system of the country. The quality of education is determined by various factors like aim and objective of teaching, well planned curriculum, innovative teaching methods, effective use of technology and healthy classroom climate. Quality of education can be defined it as by who and how students are taught rather than by what students learn.

Recent developments in neuroscience have enabled scientists to understand and see inside the brain. Brain researchers are now more able than ever before to understand how the brain works, what affects the brain, and what implications these discoveries have for education. Neuroscience is an exploding scientific field bursting forth with new information that could transform the classrooms of the future.

The process of education is never ending. Besides going information education also helps to develop social adjustment to the environment and have a control over it. So a well-organized and purposeful education is inevitable for human progress and social development progress of a nation depends up on the education system of the country. The quality of education is determined by various factors like aim and objective of teaching, well planned curriculum, innovative teaching methods, effective use of technology and healthy classroom climate.

NEED AND SIGNIFICANCE OF THE STUDY

Brain-based learning is motivated by the general belief that learning can be accelerated and improved if educators base how and what they teach on the science of learning, rather than on past educational practices, established conventions, or assumptions about the learning process. For example, it was commonly believed that intelligence is a fixed characteristic that remains largely unchanged throughout a person's life. However, recent discoveries in cognitive science have revealed that the human brain physically changes when it learns, and that after practicing certain skills it becomes increasingly easier to continue learning and improving those skills. This finding—that learning effectively improves brain functioning, resiliency, and working intelligence—has potentially far-reaching implications for how schools can design their academic programs and how teachers could structure educational experiences in the classroom.

A great deal of the scientific research and academic dialogue related to brain-based learning has been focused on *neuroplasticity*—the concept that neural connections in the brain change, remap, and reorganize themselves when people learn new concepts, have new experiences, or practice certain skills over time. Scientists have also determined, for example, that the brain can perform several activities at once; that the same information can be stored in multiple areas of the brain; that learning functions can be affected by diet, exercise, stress, and other conditions; that meaning is more important than information when the brain is learning something new; and that certain emotional states can facilitate or impede learning—among many other findings.

Ramakrishnan (2015) examined the Effect of Brain-Based Learning Strategy on Academic Achievement and Creativity among Secondary School Students. The sample consisted of 156 students of standard IX from three types of schools namely, Government, Government aided and Corporation schools in Coimbatore. The results of the study have proved that Brain-Based Learning Strategy was more effective than conventional method of teaching on the academic achievement and creativity of secondary school students. It is found that students enjoy learning through Brain-Based Learning Strategy so teachers should incorporate new strategy in terms of techniques, methods and materials in the teaching learning process.

Varghese and Pandya (2016) in their study the effectiveness of brain-based- learning of students of secondary level on their academic achievement in biology, study habits and stress focused on effectiveness of brain-based learning on academic achievement, study habits and stress of students at the secondary level . A Quasi- Experimental method and factorial design- the pre-test, post-test was used. The researcher asserted brain- based learning as self-perpetuating neurocognitive approaches towards, unadulterated joys of learning which results in 'learning celebrations'. Further, the researcher found that brain-based learning is effective in improving the academic achievement in Biology, reducing the stress levels of students and thereby enables better study habits among students. They advocated the academicians and educators to familiarize this approach across the globe for the betterment of the learner.

It is hoped that a study of this type will be useful for curriculum planners to develop suitable curriculum including syllabus, text books, resource material, learning supplements etc. The innovative models can be used by teaching and learning community to make the process of learning more effective and meaningful by activating the total functioning of brain through suitable student oriented learning activities. Effective thinking strategies like brain based allow students to acquire the necessary knowledge and apply it appropriately. Hence the investigator finds out the effectiveness brain Based Learning strategy for enhancing achievements in Economics. The study of this type will be helpful to teachers in developing effective teaching and learning methods for their students.

STATEMENT OF THE PROBLEM

Brain Based learning is a comprehensive approach to instruction based on how current research in neuroscience suggests how the brain learns naturally. It is based on the structure and function of the brain. The present study aims to check whether this strategy will help the students to enhance the learning skills of students. Hence the topic is entitled as EFFECT OF BRAIN BASED LEARNING STRATEGIES IN ECONOMICS AMONG STUDENTS AT HIGHER SECONDARY LEVEL.

DEFINITION OF KEY TERMS

BRAIN-BASED LEARNING

According to Jensen (2014), "Brain-Based Learning is all about: knowing how our brain works, then using that to foster better student outcomes". In this study, the term 'Brain-Based Learning' refers to an instructional approach of using a group of practical strategies that are driven by sound principles derived from brain research.

STRATEGIES

Strategy is a style of thinking; a conscious and deliberate process; an intensive implementation system; the art of ensuring future success. (El- Kadi, 2008).

ECONOMICS

It is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses. (Lionel Robinson).

HIGHER SECONDARY LEVEL

The two year school programme of the students in Kerala state which name standards XI and XII are the Higher Secondary Level. It is usually provided educational instruction for students during the period from ages 15 to 17.

OBJECTIVES OF THE STUDY

The objective of the present study is:

1 To test the effects of Brain Based Learning Strategy on Achievement among students at higher secondary level.

2 To test the effects of Brain Based Learning strategies on Achievement among students at higher secondary level based on the following variables;

Gender and

Type of Institution

METHODOLOGY IN BRIEF

A brief description of the methodology adopted for the study is given below:-

1. Method adopted

The experimental method was found appropriate for the study.

2. Design of the study

The experimental design adopted for the study is the pre-test, post-test non-equivalent group design. The experimental group was taught through Brain Based Learning Strategy. The control group was taught through Conventional Approach of teaching.

3. Sample

The population consisted of secondary school pupils of Kerala following state syllabus. The investigator selected a sample of 60 Higher Secondary school students from Standard XII.

4. Tools Used

The following tools were used for the collection of data from secondary school students:

a) Lesson transcript based on Brain Based Learning Strategy

b) Lesson transcript based on Conventional Approach.

c) Achievement Test in Economics prepared by investigator.

5. Statistical Techniques Used

The following statistical techniques were used for analysing the data collected for the study:

1 Arithmetic Mean.

2 Standard Deviation.
3 t- Test

ANALYSIS AND INTERPRETATION.

The investigator compared the experimental and control groups with respect to achievement in Economics under the category of cognitive domain of instructional objectives. The scores obtained by administering the achievement test were subjected to the test of significance and the result of analysis and interpretation has been presented under the following heads.

1. **Comparison of the Pre-test Achievement scores of pupils in Economics under the Cognitive Domain.**

The pre-test scores obtained by the pupils in both groups were considered into frequency tables and then calculated the arithmetic mean, standard deviation and ‘t’ value in order to get general picture of performance of both groups. The value of various statistics calculated is given table 1.

Table 1
Descriptive statistics for pre-test scores of achievement of Economics under cognitive domain.

Group	Variable	N	Mean	SD	t Value
Control	Pre test	30	4.06	1.89	0 .141
Experimental	Pre test	30	5.01	2.01	

Table 1 shows that the Critical ratio is 0.141 which is not significant in both 0.01 and 0.05 level. This reveals that, there is no significance difference between the means of the pre-test scores of the pupils in control and experimental groups. Hence, it can be concluded that both the groups i.e. the experimental and control groups are homogenous with respect to pre-test achievement scores in Economics under the category of cognitive domain of instructional objectives.

2. Comparison of pre-test and post-test achievement scores of Economics under the cognitive domain of Control Group.

The pre-test and post test scores obtained by the pupils in control group was considered into frequency tables and then calculated the arithmetic mean, standard deviation and t’ value in order to analyse the performance of control group. The value of various statistics calculated are given table 2

Table 2
Descriptive statistics for pre-test and post test scores of achievement of Economics under cognitive domain of Control Group.

Group	Variable	N	Mean	SD	t’ Value
Control group	Pre test	30	5.84	1.82	3.26
	Post test	30	8.01	2.23	

The table 2 reveals that, mean post test score of control group (8.01) is higher than the mean score of pre-test of control group (5.84). Hence, it can be interpreted that, there is significant difference between the pre-test post test scores of control group with respect to achievement in Economics at the secondary school level.

3. Comparison of pre-test and post-test achievement scores of Economics under the cognitive domain of Experimental Group.

The pre-test and post test scores obtained by the pupils in experimental group was considered into frequency tables and then calculated the arithmetic mean, standard deviation and t value in order to analyse the performance of experimental group. The values of various statistics calculated are given in table 3.

Table 3

Descriptive statistics for pre-test and post test scores of achievement of Economics under cognitive domain of experimental group.

Group	Variable	N	Mean	SD	t Value
Experimental	Pre test	30	5.41	1.82	2.82
	Post test	30	19.07	3.25	

Table 3 shows that the values of various statistics of mean, and standard deviation are calculated for the pre-test and post test scores of the experimental group. The mean post test score of experimental group (19.07) is higher than the mean score of pre-test of experimental group (5.41). Hence, it can be interpreted that, the Brain Based Learning Strategy is effective for teaching Economics at the secondary school level.

MAJOR FINDINGS

1 The Present study reveals that the Brain Based Learning is better than the existing approach for learning Economics at Higher Secondary school students.

2 There is no significant difference between the pre-test scores of achievement in Economics. The control group and experimental group are more or less similar with respect to their achievement in Economics.

3 There is significant difference between the post test scores of Control group and Experimental group. The experimental group is more effective than the control group in learning Economics among Higher Secondary School students.

SUGGESTIONS BASED MAJOR FINDINGS

1. Teachers of Economics subjects should adopt the Brain Based learning style in their teaching to improve student's achievement.

2. The curriculum planners should be aware of the merits of Brain Based learning and other innovative teaching styles in order to make teaching and learning more effective and meaningful.

3. The School authorities should take initiative to encourage the teachers and parents

to organize variety of Brain Based Learning Strategies for their students

Educational Implications

The major implications deduced from the findings of the study are the following.

1. Brain Based Learning Strategy is helpful for developing creativity and Critical thinking ability to students.
2. It supports the active participation of the learners in the learning process.
3. It provides the real experience to the learners.

4. It promotes meaning full learning.
5. Brain Based Learning Strategy facilitates higher interaction among pupils.
6. Brain Based Learning Strategy serves as mental tool to help students for understanding information and relationship.
7. It is an important tool for self-learning.
8. Help visual learners to acquire information more easily.
9. Brain Based Learning Strategy improves memory.

CONCLUSION

Brain Based Learning iaa educational theory and approach. Brain Based Learning Strategy come in many multiplicities and has been generally investigated for their effectiveness and usefulness in improving learning outcomes for various students. Brain Based Learning Strategy are some of the most effective learning strategies for students and are applied across the curriculum to enhance learning and understanding of subject matter content. In a variety of formats dependent upon the task, it facilitates students' learning by helping them identify areas of focus within a broad topic, such as a novel or article. In short, Brain Based Learning Strategy create meaningful learning atmosphere and make every child an active learner. Hence it is critically important for the secondary school students to experience learning in a way they can connect classroom practices with the real world.

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