"AN ACQUISITION ON THE EFFECTIVENESS OF BRAIN-BASED LEARNING STRATEGIES IN ENHANCING THE ACADEMIC ACHIEVEMENT OF SCHOOLSTUDENT"

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Abstract— The present review means to figure out the adequacy of mind put together learning procedures with respect to logical innovativeness among the understudies of school standard. The agent has taken on exploratory technique with pretest - posttest nonequivalent gathering plan. Irregular examining strategy was utilized for test choice. Approx 210 school standard understudies from two locale of Kerala state were chosen for the trial study. Verbal trial of logical innovativeness and example records in view of Brain Based learning systems created by the examiner were the apparatuses utilized in the review. The verbal trial of logical innovativeness was utilized as both pre-test and post-test to quantify the logical inventiveness of school standard understudies when the analysis. The trial bunch was shown through BBL procedures based on illustration records ready by the specialist and the benchmark group was shown through action arranged technique. Toward the finish of the educational stage, the post-test was regulated to the two gatherings. Factual procedures utilized for information investigation were t-test and ANCOVA. Significant finding of the review is that cerebrum based learning procedures is successful in improving logical imagination among the understudies of school students.

Keywords: Brain Based Learning, Scientific creativity. Brain learning principles, effectiveness.

1. INTRODUCTION

Science has a significant impact in the existences of people. Science instruction makes the people proficient to evaluate and fathom logical data and pursue legitimate choices. There is a nearby relationship among inventiveness and science learning. Logical imagination is inventiveness in the area of science. Critical thinking, shaping theories, planning trials and specialized development require logical

imagination .Scientific inventiveness is characterized as, a sort of scholarly quality or capacity creating or possibly delivering a specific item that is unique and has social or individual worth, planned in view of a specific reason, utilizing given data . It manages the surprising and unique greatness in the area of science or logical efficiency. In request to sustain imaginative reasoning in understudies, they ought to be engaged with significant and testing learning exercises in a mindful and empowering learning climate. Mind Based Learning is a student focused and instructor worked with system that uses students mental enrichments .BBL depends on cerebrum/mind learning standards [1].

They are:a) Brain is an equal processor b) Learning draws in the whole physiology c) Search for significance is natural d)Search for importance happens through designing e)Emotions are basic to designing f) Brain all the while sees and makes parts and wholes g) Learning includes both engaged and fringe consideration h) Learning includes cognizant and oblivious cycles. I) Brain has two kinds of memory-a spatial memory framework and repetition learning framework. j) The cerebrum gets it and recollects best when realities and abilities are implanted in regular spatial memory. k) Learning is upgraded by challenge and restrained by dangers. l) Each mind is interesting. Grounded on these standards, have upheld three focal parts, for fruitful educating: They are a) Relaxed Alertness: a perspective that provides food minds inclination for challenge and its quest for importance. In the event that students are to be in a condition of loosened up sharpness educators ought to furnish an air with low danger and huge test b) Orchestrated Immersion: students ought to be submerged in suitable opportunities for growth c) Active Processing: Creating ideal ways of merging learning [2] [3].

Greatest student support and accomplishment require the fuse of the commitment of feelings, sustenance, enhanced climate, music, development, significance conveying and the shortfall of intimidation. BBL strategy considers how the mind normally learns best, what is normal to our cerebrum and what conditions and encounters mean for cerebrum. Mind based learning includes commitment in procedures in view of standards got from comprehension of cerebrum . All learning is associated with mind here and there. Be that as it may, cerebrum based approach is learning as per how the mind is normally intended to learn [8].

Showing without a consciousness of how the mind learns resembles planning a glove without any feeling of what a hand resembles Its shape, how it moves [4].

2. REQUIREMENT AND IMPORTANCE OF THE ACQUISITION

Understudies' imagination in learning science is significant as they are future researchers and expected asset of any country. It is essential to invigorate innovative reasoning right from the early long periods of life. Imaginative researchers are valued as a result of the uniqueness in their thoughts and developments. The general public, being specialized and logical requirements a lot of experimentally tempered and gifted people who may successfully add to its improvement . Science schooling in India, even at its best creates ability however doesn't energize imaginativeness and innovativeness . Current techniques for showing in science schooling ought to go through a shift so imitativeness and inventiveness is empowered. Cerebrum Based Learning is a technique that can carry oddity into the study halls to achieve this objective. So this study endeavors to see if cerebrum based learning system, a methodology that depends on the regular learning of the mind, is compelling in upgrading logical imagination among understudies [5] [6] [7] [8].

3. OBJECTIVE OF RESEARCH

To think about the adequacy of mind based learning systems and movement arranged technique on logical inventiveness among trial and control bunch.

4. HYPOTHESES OF THE ACQUISITION

1. There is no huge distinction between the mean pre test scores of logical imagination among trial and control bunch understudies.

2.There is huge distinction between the mean post test scores of logical imagination among trial and control

bunch understudies.

2. Brain based learning techniques is more powerful than movement situated strategy in improving logical imagination among standard IX understudies [9] [10] [11] [12].

5. RESEARCH METHODOLOGY

For leading the current review, the specialist embraced exploratory technique and utilized pre test-post test non comparable gathering design. Almost 210 standard IX understudies from three optional schools of Kerala state comprised the example of the review. Test was chosen through straightforward irregular inspecting procedure. The verbal trial of logical inventiveness was utilized as both pre-test and post-test to gauge the logical imagination of standard IX understudies when the trial. The exploratory gathering was shown through illustration records ready by the specialist in view of BBL systems and the benchmark group was shown through action arranged strategy. Toward the finish of the informative stage, the post-test was managed to the two gatherings. The scores in this way acquired were then broke down by utilizing measurable procedures and the examination of the gatherings was finished to decide the relative viability of BBL systems and movement situated technique [13] [14] .

6. TOOLS USED IN THE STUDY

1. Verbal test of scientific creativity.

2. Lesson transcripts and learning materials on the basis of BBL (Developed by the investigator).

7. STATISTICAL TECHNIQUES USED

Both descriptive and inferential statistical procedures such as Mean, Standard deviation, t-test, ANCOVA were employed toanalyze the data [15] [16] [17].

8. ANALYSIS OF DATA AND INTERPRETATION

A. Comparison of Means of the Pre-Test scientific Creativity Scores of the Experimental Group and Control Group

Hypothesis 1: There is no significant difference between mean pre-test scientific creativity scores of students in the experimentaland control group

To find out whether there is any significant difference between the experimental group and the control group in their pre-test scores, the mean and standard deviation of the pre-test scores of students in the two groups were obtained and the t-value was found out. The data and results of the test of significance of difference between means are given in Table I

TABLE I

THE PRE-TEST CREATIVITY SCORES OF STUDENTS IN THE EXPERIMENTAL AND CONTROL GROUPS

Group	No. of students	Mean	Standard Deviation	t-value
Control	205	63.61	11.21	
Experimental	205	60.97	9.14	1.82

Table I shows that the t-value is 1.82 which is not significant at 0.01 level. This shows that there is no significant difference between the means of the pre-test scores of the students in the experimental and control groups. That means the two groups do not differ significantly with respect to their scientific creativity scores. Hence the hypothesis, there is no significant difference between mean pre-test scientific creativity scores of students in the experimental and control group is accepted [18] [19].

B. Comparison of Means of Post-test Scientific Creativity Scores of the Experimental.

Hypothesis 2: There is significant difference between mean post-test scientific creativity scores of students in the experimentaland control group

   The mean and standard deviation of the post-test scores of the students in the experimental group and the control group were obtained and t value was found out. The data and results of the test of significance are given in Table II.

TABLE II

THE TEST OF SIGNIFICANCE OF THE DIFFERENCE BETWEEN THE MEAN POSTSTEST SCORES OF THE STUDENTS

Group	No. of students	Mean	Standard Deviation	t-value
Control	205	75.67	11.42	24.99*
Experimental	205	121.70	14.46	

Significant at 0.01 level

   The t-value obtained is 24.99 which is significant at 0.01 level, indicating that there is significant difference between the means of the post-test scores of the students in experimental and control groups. This means that the two groups differ significantly in the post-test. Since the mean score of the experimental group is higher than that of the control group, the experimental group is considered superior to the control group. Hence the hypothesis, there is significant difference between the mean post test scores of scientific creativity between experimental and control group students is accepted.

C. Comparison of the Effectiveness of BBL Strategies and Activity Oriented Method on the Scientific Creativity of Experimentaland Control Group Students by using ANCOVA.

   After administering the Brain Based Learning strategies to the experimental group and administering the activity oriented method to the control group, it was found in the comparison of the post-test scores that, the experimental group was better than the control group in their scientific creativity scores. Hence, it can be summarized that the Brain Based Learning strategies is more effective than the activity oriented method of

teaching.

But it cannot be conclusively said that both the groups differ significantly by simply comparing the post-test scores of the groups. So it became necessary that the scores be analysed using the technique of Analysis of Covariance (ANCOVA) to determine the effectiveness of the Brain Based Learning strategies over the activity oriented method for enhancing the scientific creativity of the students [20 [21].

Hypothesis 3 - Brain based learning strategies is more effective than activity oriented method in enhancing scientific creativityamong standard IX students

The scores of scientific creativity of students of the experimental group and the control group were subjected to Analysis of Covariance. The sum squares, mean square variances and F ratios for the pre-test and post-test scores of the experimental group and the control group were computed and Table III presents the details of the analysis.

TABLE III

PRE-TEST AND POST-TEST SCORES OF STUDENTS IN THE EXPERIMENTAL AND CONTROL GROUPS

Source of Variation	df	SSx	SSy	MSx	Msy
Among Means	1	348.48	105938.05	348.84	105938.05
Within Groups	198	20710.70	33599.11	104.60	169.7
Total	199	21059.18	139537.16		

Fx = 3.33   From table F for df 1/198

Fy = 624.29

F at 0.05 level =3.90

F at 0.01 level = 6.81

The F ratios for the two sets of scores were tested for significance. Since the table value of F for df 1/198 is 3.90 at 0.05 level and 6.81 at 0.01 level, the obtained Fx (Fx = 3.33) value is not significant. The obtained Fx value shows that the random assignment of subjects to the two groups was quite successful. The Fy

obtained (Fy = 624.49) is significant at 0.01 level as it is above the table value at 0.01 level. The analysis of variance of the _y' means indicate that there exists significant difference between experimental group and control group.

For correcting the final y-scores for the difference in the pre-test scores, the adjusted sum of squares and adjusted mean square variances for post-test scores were computed and F ratio was calculated and given in Table IV [22] [23] [24] [25] [26].

TABLE IV

THE PRE-TEST AND POST-TEST SCORES OF STUDENTS IN THE EXPERIMENTAL AND CONTROLGROUPS

Source of Variation	df	SSx	SSy	SSxy	SSyx	MSyx	SDyx
Among Means	1	348.48	105938.05	-6075.96	112914.73	112914.73	10.80
Within Groups	197	20710.70	33599.11	14824.23	22988.28	116.69	
Total	198	21059.18	139537.16	8748.27	135903.00		

Fy.x = 967.63

From Table F for df 1/197

F at 0.05 level = 3.90 F at 0.01 level = 6.81

Since the obtained F ratio (Fy.x = 967.63) is higher than Table value at 0.01 level, it is significant at 0.01 level. The significantF ratio for the adjusted post-test scores shows that the two final mean scores of the experimental and control group differ significantly after they have been adjusted for differences in the pre-test scores. The adjusted means for the post-test scores of students in the experimental and control groups were computed using correlation and regression and given in Table V.

TABLE V

THE POST-TEST SCORES OF STUDENTS IN THE EXPERIMENTAL

Groups	N	Mx	My	My.x (adjusted)
Experimental Group	205	60.97	121.70	122.64
Control Group	205	63.61	75.67	74.73
General Means		62.29	98.69	98.69

$t = 31.37$

From Table D, for df 197

t at 0.05 level = 1.98

t at 0.01 level = 2.61

Adjusted means for the post-test scores were tested for significance for df 197. The‗t' value obtained is 31.37. The ‗t' value for df 197 is 1.98 at 0.05 level and 2.61 at 0.01 level. The obtained ‗t' value is significant (t = 31.37, p<0.01) since it is greater than the table value at 0.01 level. The ‗t' value shows that the two means differ significantly. It means that the experimental group and control group differ significantly. As the adjusted mean score for the experimental group is higher than that of the control group, the experimental group can be said to be superior to control group. So the hypothesis, Brain Based Learning strategies is more effective than activity oriented method in enhancing scientific creativity among standard IX students is accepted. Thus, it can be concluded that Brain Based Learning Strategies is more effective in enhancing the scientific creativity of standard IX students compared to activity oriented method [27] [28] [29] [30].

9. CONCLUSION

This study concluded that Brain-based learning strategies have significant effect on students' academic achievement.It very well may be closed from the review that BBL approach, which depends on the regular learning of cerebrum, is profitable in upgrading the logical imagination of standard IX understudies. It is obvious that making a cordial, safe, tranquil and caring study hall is imperative for a fruitful opportunity for growth. Commonplace showing strategies continued in our schools disregard ideas given by neuroscience scientists about mind's normal learning methods. Any dedicated and ingenious instructor can change over the homeroom in to a mind based setting. By the obtaining of a superior impression of this training, instructors can utilize the discoveries to set up homerooms that will include the personalities of understudies, bettering their logical inventiveness. Educators should do smart examination and become satisfied with the configuration to

find success. At the point when cerebrum based learning is successfully executed in the homeroom each kid is acquired.

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