



Short Communication

Igniting Students' Potential through Viable Instructional Strategies- A Roadmap for Excellence in Education

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Abstract

The emerging educational horizons in the 21st century world have opened up new vistas of education especially in our country. The global era that we are passing now has undoubtedly its own imperatives on all aspects of education. The schools and colleges are demanding environments because so many different personalities gather together in a confined area where they are expected to interact according to established rules of accepted emotional and social behavior. The purpose of teaching is to increase the capacity to develop new configurations of knowledge grounds to the teacher as well as the students. Each learner has a different process and may not proceed linearly through the teaching learning process, instead makes loops or zigzag. Only an effective teaching methodology can create such loops in the cognitive domain of students. The teaching methodology should be strong enough to craft numerous neural connections which can ensure learning assimilations. It is far more important that students explain their thinking to teachers than teachers explain their thinking. In this research the investigator has used Brain-based Learning as innovative teaching methodology. The Brain-based learning is an interdisciplinary answer to the question of, "What is the most effective way of the brain's learning mechanism?" Brain-based learning is an effective teaching technique that represents abstract or complex content matter in to simple and meaningful scaffolds and it has the potential to delay the learning plateau since it provides great scope for interaction among and between students and teachers. The present research focuses on the 'Effect of Brain-Based Learning on Academic Achievement in Biology, Stress and Study Habits of VIII Standard Students'. The study carried out with the following objectives; i) to develop instructional material based on the principles of brain-based learning'. ii) To compare experimental and control groups on pre-test scores of a) Academic Achievement b) Stress c) Study Habits.iii) To compare experimental and control groups on post-test scores of a) Academic Achievement b) Stress c) Study Habits. The present study has formulated the following null hypotheses: 1). There is no significant difference between experimental and control groups on pre-test scores of a) Academic Achievement b) Stress c) Study Habits of students .2) There is no significant difference between the experimental and control groups on post-test scores of a) Academic Achievement b) Stress c) Study Habits of students. The study reveals that brain-based learning is a constructive, domain specific strategy to holistic education. It has the potential to stimulate the optimal learning among students in very relaxed and enriched learning environment. The article discusses on the major effects of Brain-based Learning on the academic achievement, stress and study habits of students and the implications of these research outcomes to the benefits of students and teachers as major stakeholders.

Keywords: Brain-based Learning, academic achievement, stress, study habits.

Introduction

The emerging educational horizons in the 21st century world have opened up new vistas of education especially in our country. The impact of ICT has made visible inroads into the processes of human life; its educational implications are going to be far-reaching indeed. The global era that we are passing now has undoubtedly its own imperatives on all aspects of education. The schools and colleges are demanding environments because so many different personalities gather together in a confined area where they are expected to interact according to established rules of accepted emotional and social behaviour. The purpose of teaching is to increase the capacity to develop new

configurations of knowledge grounds to the teacher as well as the students.

Each learner has a different process and may not proceed linearly through the teaching learning process, instead makes loops or zigzag¹. The responsible teacher should understand this and leaves scope for such numerous loops. Only an effective teaching methodology can create such loops in the cognitive domain of students. The teaching methodology should be strong enough to craft numerous neural connections which can ensure learning assimilations². It is far more important that students explain their thinking to teachers than teachers explain their thinking.

Brain-Based Learning: Brain-based learning is an interdisciplinary answer to the question of, "What is the most effective way of the brain's learning mechanism?" Brain-based learning is an effective³ teaching technique that represents abstract or complex content matter in to simple and meaningful scaffolds and it has the potential to delay the learning plateau since it provides great scope for interaction among and between students and teachers⁴. This neurobiological intervention is an answer to many of the classroom and learner related problems. So it provides an immense scope to the educators to revamp the classroom transactions in a better and effective manner⁵.

This teaching learning methodology provides myriad ways to approach to many of the classroom issues. This approach, which gives attention to both breadth and depth and moreover it is a useful antidote to the over generalized curricula and stereotyped classrooms. It has got a dexterous tools effect to promote classroom discussion fostering higher order cognitive abilities and subject matter, in a very canonical way. The innovative teaching strategies will open forum to discover unexpected things about the subject matter and students, makes learning more enjoyable and ongoing.

Title of the Study: A Study of the Effect of Brain-Based Learning on Academic Achievement in Biology, Stress and Study Habits of VIII Standard Students

Objectives of the Study: The present study has been undertaken with the following specific objectives: To develop instructional material based on the principles of brain-based learning. To compare experimental and control groups on pre-test scores of, Academic Achievement, Stress, Study Habits, To compare experimental and control groups on post-test scores of, Academic Achievement, Stress, study habits.

Hypotheses of the Study: The present study has formulated the following null hypotheses, there is no significant difference between experimental and control groups on pre-test scores of, Academic Achievement, Stress, study Habits of students. There is no significant difference between the experimental and control groups on post-test scores of, Academic Achievement, Stress, study Habits of students

Sample: The study was carried out on a sample of 240 students from 4 schools in which two were private-aided 120 students and two were private-unaided 120 students. A three-stage stratified random sampling technique was used to select the sample.

Tools: The following tools were used in the study: Achievement Test in Biology (Researcher-made), Stress Scale, Study Habits Inventory. The researcher has developed lesson plans based on brain-based learning and

lessons plans based on the traditional lecture method as instructional materials.

Material And Methods

Quasi-Experimental of the pre-test, post test quasi-experimental design type, viz. $O_1 X O_2 O_3 C O_4$ method was used in the study. Here, O_1 and O_3 are the pre-test scores; O_2 and O_4 are the post-test scores. X and C denote the experimental and control groups respectively.

Results and Discussion

The first null hypothesis was tested using the t-test. The obtained t-ratio for the pre-test scores on academic achievement of experimental and control groups is 0.64 which is less than 2.58 and hence it is not significant at 0.05 level. Hence there is no significant difference in the pre-test scores on academic achievement of experimental group and control group. The obtained t-ratio for pre-test scores on the stress of experimental and control groups is 0.75 which is less than 1.96 and hence is not significant. Hence there is no significant difference in the pre-test scores on stress of experimental group and control group. The t-ratio found the experimental and control groups on pre-test scores of study habits of students are 1.90 which is less than 1.96 and hence there is no significant difference between the experimental and control groups on pre-test scores of study habits of students.

The obtained t-ratio for the post-test scores of students on academic achievement of experimental and control groups is 29.29 which is greater than 2.58 and hence is significant at 0.01 levels. Hence the Mean post-test score on Academic Achievement of students of the experimental group is significantly greater than that of the control group. The effect size was calculated using Wolf's formula and was found to be 3.8 which may be termed as very high as it is above 0.8. The t-ratio obtained for the post-test scores of students on stress of experimental and control groups is greater than 2.58 ($t = 20.61$) and hence is significant at 0.01 levels. Hence the Mean post-test score on Stress of the experimental group is significantly differs from that of the control group.

The mean score of the experimental group is significantly less than that of the control group. The effect size was found out which is 2.8 which may be termed as a very high as it is above 0.8, hence it is clear that the experimental treatment has got a significant effect on the stress of the same group. The t-ratio obtained for the post-test scores of study habits of students from the experimental and control groups are 27.42 which are greater than 2.58 and hence it is significant at 0.01 level. Hence there is a significant difference between the experimental and control groups on post-test scores of study habits of students. The Mean

Study Habits Score on the post-test of the experimental group is significantly greater than the control group. The effect size was calculated using Wolf's formula and was found to be 32.31 which may be termed as very high as it is above 0.8.

Educational Implications of the Study: The study reveals that brain-based learning is a constructive, domain specific strategy to holistic education. It has the potential to stimulate the optimal learning among students in very relaxed and enriched learning environment. It also caters to the diverse learning needs of the students and provides a better landscape to the education system.

Brain-based learning as an instructional strategy is found to be very effective, hence the teachers and the prospective teachers should be oriented about the theory and practice related to this, and should get assistance for its implementation in the classrooms. The curriculum developers should design the content according to the latest brain research outcomes and leave a scope for the teachers to impart the curriculum according to the principles of Brain-based learning. In-service training and workshops should be organized in order to acquaint the teachers with the new research outcomes of brain-based learning.

The study found that the brain-based learning has got a significant effect in fostering better study habits among the students. It provides scope for students to involve actively in the teaching-learning process, and so learning becomes more meaningful and enjoyable activity.

Moreover, it shows the therapeutic effect of brain-based learning on many classroom discipline and behavioural problems and paving a counselling approach within the classroom itself. Thus, the learning spirit and curiosity which initiates inside the class continues and extends beyond the class room also. Educator should be able to support the use of a particular classroom strategy with a scientific reasoning or studies.

Conclusion

This research study encompasses many implications for educators and curriculum developers. It advocates a shift in the curricular approach. Right from the primary education to higher education strata a strategic approach should be adopted and a caution should be taken while translating the research outcomes in to classrooms. The Educational researches have opened up many pathways to revamp the education system as per the demands of the environment. The outcomes of brain research provide many feasible tools for the academic as well as personal problems of the learners at all levels. So it is a promising approach which

can bring very constructive changes in the academic sector itself.

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