

EFFECT OF BRAINSTORMING TECHNIQUE ON ACHIEVEMENT IN SCIENCE AND ATTAINMENT OF LIFE SKILLS AT SECONDARY STAGE

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ABSTRACT

This study aims to provide the useful information regarding innovative technique in Teacher Education because education is the process of teaching to an individual so as to draw out the best in him. School education helps in the formation of a sound personality in the child. Today, more and more societal pressures, greater complexity, diversity, rapid changes in the environment and continued deprivation put students at the crossroads of their lives facing an uncertain future in facing the responsibilities of adulthood and to enter the world of work. The present study investigated the effect of brainstorming technique on attainment of life skills and achievement in science in which 200 students were randomly selected studying in secondary classes of Kendriya Vidyalaya schools situated in Kapurthala. The findings of the study were that brainstorming technique is better technique to improve achievement in science and to inculcate life skills among the secondary stage students.

Keywords: Life Skills, Brainstorming Technique, Achievement, Secondary Stage.

"Learning the Treasure Within", the report of the International Commission on Education for the Twenty-first Century, chaired by Delors, and published by UNESCO in 1996 provides new insights into education for the 21st Century. It stresses that each individual must be equipped to seize learning opportunities throughout life, both to broaden her/his knowledge, skills and attitudes, and adapt to a changing, complex and interdependent world. The International Commission on Education for the 21st Century advocates four pillars of education.

- o Learning to know, that is acquiring the instruments of understanding;
- o Learning to do, so as to be able to act creatively in one's environment;
- o Learning to live together, so as to participate in and cooperate with other people in all human activities; and
- o Learning to be, so as to better develop one's personality and to act with ever greater autonomy, judgment and personal responsibility.

Life skills are essentially those abilities that help to promote mental well-being and competence in young people as they face the realities of life. Most development professionals agree that life skills are generally applied in the context of health and social events. Self-awareness, self-esteem and self-confidence are essential tools for understanding one's strengths and weaknesses. Consequently, the individual is able to discern available opportunities and prepare to face possible threats. This leads to the development of a social awareness of the concerns of one's family and society. It also entails being able to establish productive interpersonal relationships with others. Life skills include psychosocial competencies and interpersonal skills

that help people make informed decisions, solve problems, think critically and creatively, communicate effectively, build healthy relationships, empathize with others, and cope with managing their lives in a healthy and productive manner. Essentially, there are two kinds of skills those related to thinking termed as "*thinking skills*"; and skills related to dealing with others termed as "*social skills*".

Brainstorming is the most popular of all CPS (creative problem solving) tools. The results of the post hoc test for Brainstorming show that the tool was also significantly more often used than eight other divergent tools. Considering that the total number of divergent tools is eleven, it is safe to state that Brainstorming was the most popular among the teachers as a divergent tool. Selby (1993) found, showing that there are various styles of creativity that different creativity styles based on the KAI theory existed in American eighth graders. It is possible, therefore, that those teachers' students have different creativity styles, too. Means that some students prefer to generate more adaptive ideas, and others prefer to come up with more innovative ones. Besides, divergent tools are also related to creativity styles.

Stages Involved in Technique of Brainstorming

- Ø Performing warm up
- Ø Getting ideas
- Ø Writing/displaying the four principles of brainstorming on board.
- Ø Writing and presenting ideas (Proposed).
- Ø Frustration must be avoided.
- Ø Boring must be avoided.

Achievement is synonymous with the accomplishment or proficiency of preference. The word achievement implies the act of attaining a desired aim or level. It means all those behavioural changes, which takes

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place; in an individual as a result of learning experience of various kinds. Educationally the word 'achievement' refers to an individual's performance up to a desired level in a particular field. The achievement may be academic, manual, personal or social. The previous research findings of Richards (1990), Bejarano et al (1997) and Rao (2007) who reported significant relationship between achievement and Brainstorming technique.

Our schools and colleges are dominated by two situations as far as classroom teaching is concerned. Firstly, the teacher goes to classroom with lots of theoretical inputs and pedagogical strategies to be transmitted to the students. Secondly, students attend the class and note down the points inattentively with the aim of just passing the examination with flying colours. Keeping in mind the present day conditions, education should be imparted to develop life skills among the students to lead a better life in this competitive world.

OBJECTIVES

- 1) To study the achievement of groups taught through brainstorming technique and without brainstorming technique.
- 2) To study the effect of brainstorming technique on attainment of life skills.
- 3) To study presence of life skills among secondary school students.

METHODS

SAMPLE

To start with the experiment two KV (CBSE) schools were randomly selected from Kapurthala. 100 students were taken from each school. The intact section of 50 students of class IX were taken as experimental group and another intact section of 50 students from the same class were taken as control

group. Control group were taught through conventional method and experimental group were taught through Brainstorming technique.

PROCEDURE

A sample of 200 students were selected from two KV schools of RCF, Kapurthala. 50 students from each school were treated as experimental group and 50 students from each school were treated as control group. Control group were taught by conventional method and experimental group were taught by brainstorming technique. Where the independent variable is Brainstorming technique and the dependent variables are achievement and the Life Skills.

Phase I: The Achievement Test was administered on the experimental group and control group as pre test.

Phase II: Experimental group was taught through brainstorming technique by the investigator. Control group was taught by the investigator through conventional method.

Phase III: The Achievement Test and Scale of Life Skills were administered on the experimental group and control group as post test. t-test was employed in the present investigation. Descriptive techniques such as mean, median, standard deviation were employed to understand the nature of data and t-test was employed on gain scores and scores of SOLS.

MEASURE

In the present study lesson plans based on brainstorming technique developed by investigator, Scale of life skill prepared by Kauts and Gupta and Achievement test for science prepared by investigator.

RESULT AND DISCUSSION

In order to analyze the t-Ratio, the obtained gain scores were subjected to t-test. The results have been presented in the Table 2 below:

Table 1: Summary of t-test on the achievement gain scores of experimental and control group

Groups	N	M	σ	D	σ_d	t-Ratio
Experimental	100	15.221	6.8571	15.736	1.0499	17.43**
Control	100	2.525	2.9149			

****Significant at the 0.01 level of confidence.**

It can be observed from the table 1 that t-ratio for the means of two groups viz.; experimental group and control group on the achievement gain scores in Science was found to be significant at the 0.01 level of confidence. This indicates that two groups differ significantly on the mean achievement gain scores in Science. **Thus, the result does not support the first hypothesis namely, "There is no significant difference on the achievement of students in experimental and control group."** Further from the Table 2 it is revealed that

experimental group i.e. students taught by investigator using Brainstorming technique have yielded higher achievement gain score in Science than the control group i.e. students taught by the conventional method

Significance of Difference between Control and Experimental Group on the Scores of Scale of Life Skills

In order to analyze the t-Ratio, the obtained scores of SOLS were subjected to t test. The results have been presented in the Table 2 given below:

Table2 : Summary of t test on the sols scores of experimental and control group

Groups	N	M	σ	D	σ_o	t-Ratio
Experimental	100	55.76	7.008	12.20	1.004	11.29**
Control	100	43.53	7.976			

****Significant at the 0.01 level of confidence.**

From table 2, it has been observed that t-ratio for the means of two groups viz.; experimental group and control group on the scores of life skills was found to be significant at the 0.01 level of confidence. Therefore, this indicates that two groups differ significantly on the mean of scores of life skills. **Thus, the result does not support the second hypothesis namely, "There is no significant difference on the attainment of life skills among students in experimental and control group."** Further from the Table 2, it is revealed that experimental group i.e. students taught by investigator using Brainstorming technique have attained better life skills than the control group i.e. students taught by the conventional method.

CONCLUSION

1. Brainstorming technique yielded higher achievement gain scores than conventional method
2. Experimental group yielded much better scores of life skills than control group.

EDUCATIONAL IMPLICATIONS

In the present investigation, it is found that students achieved higher when taught by brainstorming technique as compared to conventional method. It has got implications for the teachers. It helps in developing creating new ideas and developing critical thinking among students. The study helps to know the attainment of Life Skills among the students by using brainstorming technique.

It gives the direction to teachers that they should prefer using brainstorming technique for teaching science which helps to solve the learning problems of students in science subject.

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