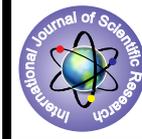


## Effect Of Stimulus Variation Techniques On Enhancing Students Achievement



### Education

**KEYWORDS :** attention, achievement, stimulus variation, experimentation phases

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### ABSTRACT

*The present article highlights the stimulus variation techniques on enhancing the students achievement. In this study stimulus variation is the independent variable and students achievement is the dependent variable. Based on some advantages of experimental research, the study has adopted single group experimental design for the present investigation. This study consists of seven experimentation phases. 30 X – standard students were taken as a sample. Two tools were developed and validated to assess the stimulus variation and students achievement. The tools were administered throughout the experimental period of 6 weeks. The data for stimulus variation and achievement on pre and post-tests were collected and computed for statistical analysis. The findings revealed that there was significant mean difference between the pre-test and post-test scores of the experimental group and there was an enhancing student's attention as well as in their academic achievement due to the application of stimulus variation techniques*

### INTRODUCTION

The imperative character of education for individual enhancement and social development is now accepted globally. The root meaning of education is 'bringing up' or 'leading up', making manifest inherent potentialities. In technical terms, education, however, refers to the process by which society through its different instructions deliberately transmits its cultural heritage to its young – its accumulated values, knowledge and skills from one generation to another which could be done by mere teaching. This very fact makes the teaching a more technical and professional job. Teaching is a complex process, which is not merely lecture loaded with a mass of information, but consists of multitudes of purposeful tasks and skills. Effective teaching, therefore is more than communication, transmission of facts, installing of values but it also requires interaction between students and teachers as well as among students themselves. Classrooms are set up for sharing teachers' ideas with a young and growing minds which are followed by abilities and aptitudes and helping the child learn, interact with the immediate surroundings, by making use of various strategies. There are various skills that a teacher could use in order to synthesize the effective teaching and learning process.

In the classroom situation, attention is a selective process. So teacher should attempt to select stimuli based on behavioural functions (Saravanakumar, 2008). Attention is considered as a cognitive stimuli. This stimuli involves the neuro function related to attention. Attention functions under neural network. Attention and memory mechanism are closely related. Hence the teachers should follow mediators of learning method. In this situation he / she has to face many constraints on attention. If the teacher is able to minimize the constraints he / she could develop attention and enhance achievement among learners through stimulation variation techniques.

Bereta, Giordano & Daniel (2005) stated that the quality of images transmitted with colour facsimile is sufficient for many communication tasks of people working in the various colour areas. Watia (2006) studied the processing of information under verbal and non-verbal concerning object colours, using post graduate students with experimental method.

Toscini, Guides & Primo (2007) studied that have a cognitive recognition is governed by a "Focus on attention process that concentrates on the visual data subject of task – relevant type only". Further stated that model based approach combines attraction, which concentrates on the transformation of visual data having relevance for the matching.

According to Bhagoliwal and Peter (2008) found more effective

teachers were characterized by a fairly higher level of differentiation and integration in their cognitive and perceptual functioning. The above studies highlights that there is a pertinent need to identify and implement various components of stimulus variation on enhancing students achievement.

### IMPORTANCE OF STIMULUS VARIATION IN TEACHING AND LEARNING

The skill of variability as it relates to the teacher's manner is specifically concerned with the variation, exquisite display and execution of voice, gesture and movement in the teaching arena. More generally, it refers to the teacher's animation, enthusiasm and the ability to convince the students. In the classroom situation experienced that variation in mode of broad casting ideas to the students in terms of inflection, gesture, mobility, flexibility and expression forms a very important part of a teacher's personality which pupils mark as the teacher's overview, energy, confidence and competence. (Strayer, 2003). This perception of the students plays a vital role in focusing, sustaining and alerting their attention towards objectives, thereby making teaching productive, efficient and interesting. Based on the conceptual analysis of determinants of stimulus variation that facilitate attention are intensity speaking styles, writing styles, contrast, time variation, sensors, integrations, attractive speaking, softness, hardness, stimulation, recognition, colour, movement, eye movement, scene changes and isolation. Stimulus variation is normally a variation and application of systematic techniques in the three main areas:

1. Personal teaching styles
2. Media and materials of instructions
3. Teacher – student interaction

The main objectives of stimulus variation are to make teaching skills more professional and demanding. The impact of stimulus variation is concerned basically with;

- Arousing students' attention and further sustain it.
- Motivating learning through new exploration and investigation.
- Building positive feelings towards teacher and school.
- Catering to individual sensory preferences and facilitating learning.
- Promoting learning by involving students.
- Promoting educational entertainment.

Enhancing attention through stimulus variation provides greater opportunity to the learner to take part in the process of learning activity in all the stages. Instead of making the learner simply reproduce the textual materials with or without understanding, the effect of stimulus variation on enhancing attention will encourage learner to think and understand the subject mat-

ter. This technique may increase interest and involvement in the learner.

### SIGNIFICANCE OF THE STUDY

In our systems of examination where cramming and rote learning are encouraged, strategies like stimulus variation on enhancing students achievement will be useful in making learners think originally, positively and critically apply their minds. Instead of making the learner simply reproduce the textual materials with or without understanding, the stimulus variation effectively encourage the learners to think and understand the subject matter.

'Stimulus variation' refers to the most practical application of a variety of stimuli in the classroom in order to propel the interpersonal relationship between the teacher and the students (Lewald & Guski, 2003). Through stimulus variation in the teaching learning system, there can be variably greater effectiveness in the whole process. Students vary greatly in the way they approach the classroom environment and the degree to which they apply their intellectual talents. This is the function of an important principle that governs meaningful communication in the classroom situation. Both the teacher and the students generally treat each other in a way that they wish or expect to be treated. Research on interpersonal perception and behaviour has already clearly demonstrated an interactive effect: "Personal attitudes tend to produce reciprocal attitudes in others" (Johns, 1972; Altman & Taylor, 1973).

Variation and variety have always been associated with enjoyable learning and good teaching. Good teaching implies to maximum assimilation of what has been taught and what has been expected out of it – the positive change of behavior. Therefore, stimulus variation refers to the process of change and evaluation in the teaching system, practical, application of a variety of stimuli in the classroom environment. In order to gain a real understanding of the subject it is most important that students most acquire skills in the subjects (Saravanakumar & Mohan, 2007). It's only then that the experimental as well as theoretical aspects of subjects. In the classroom situation, it is found that students, know and understand the concept but are unable to comprehend the concepts in a holistic way. This is no doubt, it's the importance. It surely involves the active participation of the concerned teacher to probe into this aspect of study very deeply.

### OBJECTIVES

- i) To identify the factors related to stimulus variation on enhancing students' attention
- ii) To implement stimulus variation techniques in classroom teaching
- iii) To find the effectiveness of stimulus variation techniques on students' attention and their achievement.

### EXPERIMENTAL PHASES OF RESEARCH

In this study the researcher adopted single group pre-test – post-test experimental design.

#### Phase I : Selection of the sample

Results of students performance in tests and examinations is not satisfactory. Hence, there is an immediate need to evolve new innovative strategies and techniques to teach the science. The researcher selected X – 'A' section on his sample. Since the investigator selected this sample purposefully. Sampling technique could not be involved in the study.

#### Phase II :

The investigator adopted the stimulus variation techniques enhancing students achievement in science to the X standard 'A' section, students of Alagappa Model Higher Secondary School, Karaikudi. All the 30 X standard 'A' section students are selected for the study.

#### Phase III :

Students were given pre-test – The question paper was for a duration of 2 hours. The question paper was with two parts, part

A and part B. Part A had the objective types such as choose the best answer, fill in the blanks and match for the 40% and part 'B' comprises of descriptive type for 60%.

#### Phase IV :

Stimulus variation techniques were attempted and experimental session would be carried out for 6 weeks. The session was conducted for 6 weeks with lessons selected in science. Lessons were taught to the students using the 16 factors of the stimulus variation techniques.

#### Phase V :

Conducting the post-test to the group. Post-test was conducted using the similar pattern of the pre-test in all respects to all the students.

Phase VI : The non-parametric technique was used to determine the effect of the treatment.

Phase VII : Testing hypothesis and interpreting the results.

Phase VIII : Identifying Educational Implications and providing suggestion for further study.

Phase IX : Conclusion

### VALIDATION OF TOOLS

#### VALIDITY

Copies of pre-test and post-test were given to experienced teachers and they were asked to examine whether the test items covered; contents of the subject. They were of the opinion that the test fully covered the content. Thus content validity of pre-test and post-test was established based on panel judgement.

#### RELIABILITY

By applying test – retest method the reliability of the pre-test tool was found to be 0.74. It was found to be significant. The reliability of the post-test tool was found to be 0.91. So the post-test was also considered to be reliable.

### DATA GATHERING PROCEDURE

The investigator used the achievement test to collect data in the pre-test and post-test. Pre-test was conducted to the students on previous knowledge of the lessons selected for the study. Experimental treatment in the form of additional coaching was given to the group. Post-test was conducted to determine the effectiveness of the experimental treatment.

### ANALYSIS OF DATA

The scores of students of the experimental group was tabulated. Appropriate statistical techniques were applied to identify the effect of stimulus variation on enhancing students' attention. Appropriate non-parametric statistical techniques are used for data analysis.

**TABLE 1**  
**MEAN, SD SCORES OF PRE-TEST OF THE EXPERIMENTAL GROUP**

SCORE	MEAN (M)	SD ( $\sigma$ )
Pre-test	65.10	18.89

Students were administered the tool on stimulus variation on enhancing students attention. Each student was asked to respond to a question of yes/no type. If yes, they were asked to further report to a three point scale like less, adequate and appropriate and they were graded on 1, 2, 3 respectively for each item. This procedure was repeated for 30 days regularly. Their responses were consolidated and presented in the table. Chi-square analysis was done to identify whether students differ in their performance on the effect of stimulus variation on enhancing students attention.

**TABLE 2**  
**MEAN, SD VALUES OF PRE-TEST AND POS-TEST SCORES OF THE EXPERIMENTAL GROUP**

SCORE	MEAN (M)	SD ( $\sigma$ )
Pre-test	65.10	18.89
Post-test	72.96	20.21

In the post-test the performance was greater than that of the pre-test. The test of significant difference was applied to prove effect of attention on students' achievement. Teaching through the information processing approach and stimulus variation strategies by the researcher improved the learning ability of the students. This hypothesis was tested statistically by the application of Mann-Whitney 'U' test and Wilcoxon's matched pairs signed rank test.

#### FINDINGS OF THE STUDY

The use of effectiveness of stimulus variation technique on enhancing students' attention in the teaching process positively influence and improve the students' achievement. The statistical analysis like chi-square analysis, Mann-Whitney 'U' test and Wilcoxon's matched pairs signed rank test between pre-test and post-test performance of students confirm the following findings.

- 1) There is significant difference between pre-test and post-test performance of the students in the experimental group.
- 2) Students who had been taught through effective stimulus variation on enhancing attention technique perform better in their achievement.
- 3) The obtained  $\chi^2$  value was 240.64. It is greater than the theoretical value of  $\chi^2$  at 0.5 level of significance. This implies that students differ in their performance on the effect of stimulus variation strategies on enhancing students attention.

- 4) The obtained value of Mann-Whitney 'U' test ( $Z$ ) = 6.65 is greater than table value. Hence it is found that there is significant mean difference between the pre-test and post-test scores.
- 5) The obtained value of Wilcoxon's matched pairs signed rank test ( $z$ ) value = 19.85 is also greater than the theoretical value of 2.38. Hence it is also proved that the performance in the post-test is significantly greater than the pre-test scores.

#### RESULTS AND CONCLUSIONS

- 1) Stimulus variation techniques have produced tangible effect.
- 2) Stimulus variation provides better opportunity to the learners to take part in the process of learning activity.
- 3) Stimulus variation offers greater opportunity for active participation in teaching and learning for both the teacher and students.
- 4) In this technique, teacher did not just deliver subject matter to the learner in the conventional way. Rather he/she has to design, conduct and monitor the educational activities that facilitate the stimulus variation on enhancing students' attention using a variety of factors.
- 5) Teaching is a challenge and a precision job. It needs persistence, consistency, perseverance and dynamism. However, it is as difficult as it is noble and graceful. Teaching is meant for learners and it is the concern of the teacher. Thus, stimulus variation has to be taken up by the teacher seriously. If adequate attention is paid on developing stimulus variation, the development of human resources will ultimately result in the prosperity of the nation. The development of human resources is possible only when there is an activation of the stimulus variation strategies to enhance learning.

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