



Efficacy Of Self- Regulated Learning Approach In Science At Secondary Level

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ABSTRACT

Self regulation is an integrated learning process, consisting of the development of a set of constructive behaviours that affect one's learning. These processes are planned and adopted to support the pursuit of personal goals in changing scenario of learning environment. The present investigation examines the effectiveness of self regulated learning approach in enhancing academic achievement of secondary learners. It is made use of homogenous sample of 30 VIII STD students from RMS.MMS Karaikudi, Sivagangai District. Data analysis involved the use of mean, SD, 't' test, and correlation to investigate the difference between means. From the statistical findings it is found that self regulated learning approach enhances academic achievement of secondary learners and gender has no influence over it. Hence it is concluded that the self regulated learning approach has a significant in enhancing academic achievement of secondary learners.

Key word : Science, School, Students

Introduction

National Curriculum Framework (NCF-2005) states that science is a dynamic, expanding body of knowledge, covering ever new domains of experience. The universal laws of science are always regarded as provisional, subject to modification in the light of new observations, experiments and analysis. To understand the world of science the following steps are important. That are observations, looking for regularities, and patterns, making hypothesis, devising qualitative models, deducing their consequences, verification of theories through observations and controlled experiments, and thus arriving at principles, theories and laws governing the natural world. A good science education should be true to the child, true to life, and true to science. At upper primary stage the child should be engaged in learning the principles of science through familiar experiences, working with hands to design simple technological units and modules and continue to learn more about the environment and health through understanding activities and surveys. Hence in order to incorporate all these activities it is essential to develop various innovative approaches like self regulated learning approach.

Self Regulated Learning

Self-regulation refers to the use of processes that activate and sustain thoughts, behaviours, and affects in order to attain goals (Schunk & Zimmerman, 1997). In other words, it refers to taking charge of our own learning by coordinating the thinking skills. Self-regulation has three components:

- Self-observation. Deliberate attention to specific aspects of one's own behaviors.
- Self-judgment. Comparing one's current progress toward a goal with a standard.
- Self-reaction. Making evaluative responses to judgments of one's own performance.

Self regulation is an integrated learning process, consisting of the development of a set of constructive behaviours that

affect one's learning. These processes are planned and adopted to support the pursuit of personal goals in changing learning environments. A common set of self-regulation strategies exists, as well as individual set of skills that each student must develop personally to be successful in life. Self regulation promotes individuals active learning processes and sustains attention in classroom.

Significance Of The Study

Today's learners have to be competent to face the different challenges in their learning. Students at almost any age are capable of taking change of their own learning. The students who possess learning to learn skills, executive skills, are more likely to learn effectively. It means that it is crucial to transfer as much responsibility for learning to the students themselves. A more structured and supportive approach is desirable for this transfer and by carefully examining the components of self-regulated learning, we can develop more effective strategies for helping students to improve their skills and academic achievement.

Objectives Of The Study

The following are the objectives of the study;

- To develop self regulated learning approach in science.
- To find out the effectiveness of self regulated learning approach in enhancing academic achievement in science among secondary learners.
- To find out the influence of gender in academic achievement of students in science through self regulated learning approach.

Hypothesis Of The Study

The following are the hypothesis of the study;

- There is no significant difference between pre and post test scores of students in academic achievement.
- There is no significant difference between pre and post test scores of the boys and girls students in academic achievement.
- There is no significant difference between pre and post test scores of the boys and girls students in academic achievement through self regulated learning approach.

Development Of Self Regulated Learning Approach

The development of self regulated learning approach has the following steps;

- Selection of the topic and target population
- Writing behavioural objectives
- Development of the tool for criterion referenced test.
- Designing, writing and sequencing of learning activities
- Designing, developing and sequencing of multimedia
- Writing an instructional guide regarding self regulated learning approach and evaluation
- Try out the approach
- Printing of validated package

Methodology

The Investigator used the experimental method for the present investigation in which the single group experimental design was employed to find out the effectiveness of self regulated learning approach in enhancing academic achievement of secondary students in science.

Sample Of The Study

Among forty students, the investigator selected a homogeneous sample of thirty students studying VIII standard in Ramanathan Chettiyar. Municipal Middle School Karaikudi, was selected on the basis of age and the marks obtained by the students in their third midterm test.

Tools

- A self- regulated learning based approach was developed by investigator.
- A parallel form of criterion referenced test was developed and used for pre test and post test.

Statistical Techniques Employed

Pre-test and Post-test scores of the sample group were tabulated and the mean, standard deviation were computed. The investigator used parametric 't' test in order to compare the scores of the sample group on pre-test and post-test. Correlation and 't' test were used to confirm the conclusion.

Data Analysis And Discussion

Hypothesis 1

There is no significant difference between pre and post scores of students in academic achievement.

Table 1: Significance Of Difference Between Pre-test And Post-test Scores Of The Students Through Self Regulated Learning Approach

Sr. No	Achievement Test	No of Sample	Mean	SD	r' value	t' value	Remarks
1	Pre-test	30	55.6	6.54	0.217	12.604	S
2	Post-test	30	80.267	8.54			

(At 0.01% level of significance, df= 28, the table value of 't' is 2.58)

Table 1 about here the mean difference between pre-test and post test scores of total sample was calculated through 't' test. The calculated 't' value 12.604 is significant at 0.01 level. Since there is significant difference between pre-test and post test scores of the students' academic achievement in science, it is inferred that self regulated learning approach significantly enhances academic achievement in science among secondary students.

Hypothesis -2

There is no significant difference between pre-test scores of the boys and girls students in academic achievement.

Table 2: Significance Of Difference Between Pre-test Scores Of Boys And Girls In Academic Achievement In Science Through Self Regulated Learning Approach

Sr. No	Gender	No of Sample	Mean	SD	Calculated 't' value	Remarks
1	Boys	15	53.13	4.18	0.437	NS
2	Girls	15	52.27	6.36		

(At 0.05% level of significance, df= 28, the table value of 't' is 1.96)

From the above table (0.437) it is inferred that there is no significant difference between boys and girls students in pre-test scores. Hence, it is concluded that the group is a homogenous group.

Hypothesis 3

There is no significant difference between post test scores of boys and girls students in academic achievement through self regulated learning approach

Table 3: Significance Of Difference Between Post-Test Scores Of Boys And Girls In Academic Achievement In Science Through Self Regulated Learning Approach

S.No	Gender	No of Sample	Mean	SD	Calculated 't' value	Remarks
1	Boys	15	82	8.246	0.807	NS
2	Girls	15	79.87	6.04		

(At 0.05% level of significance, df= 28, the table value of 't' is 1.96)

It is inferred from the above table that there is no significant difference between boys and girls students in academic achievement in science. Hence it is concluded that self regulated learning approach enhances academic achievement of secondary students without gender influence.

Findings Of The Study

- Self regulated learning approach significantly enhances the academic achievement in science among the secondary learners.
- There is no significant difference between pre-test scores of the boys and girls students in academic achievement in science.
- Gender has no influence on enhancing academic achievement in science through self regulated learning approach.

Conclusion

Self regulated learners regulate their own learning by observing what they are able to do, then comparing this what they have observed to a standard of some kind and making judgments about the quality of this performance, and finally making plans regarding what to do next. Self regulated learning enhances the potential of the students to a good extent. It is a process of self-analysis where the student learns through observing, comparing, and make judgments on his or her performance and finally comes out with plans regarding the next course of action. This integrated learning process shapes the students to proceed towards a kind of desired evolution day by day. The outcome of the present study clearly brings out its efficacy in the fast changing educational scenario where things take different shapes and evolve regularly. It enhances the approach and observation academic arena and particularly the science.

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