A Study on Science Achievement With Reference to Science Attitude, Locus of Control and Problem Solving Skill Among High School Students

KEYWORDS

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Introduction :
Knowledge is the eye of desire and can become the pilot of the soul (Will Durant). We are aware that the rate of new information is doubling every six months. Science helps us in acquiring knowledge and hence it has become an integral part of the world's culture. The 98th Indian science congress was celebrated at Chennai on 03-01-2011. The main aim of the congress is promote the quality of education and research, and the year 2012 is to be celebrated as the year of scientific research. A sound grounding in science is a pre-requisite for scientific research which inturn depends on many skills like solving problems creatively, thinking critically and rationally, working co-operatively in-teams, using technology effectively and valuing life-long learning.

Need for the study:
To achieve better in science a student should have a positive attitude towards science. Science attitude is defined as the curiosity, open-minded intellectual honesty, prejudice, careful judgment, acceptance of failure. Attitude toward science was closely related to achievement in science (George.2000). A significant relationship was found, with a mean correlation from 0.16 to 0.70 between students' attitudes towards science and their achievement .(Willson,1983; Weinburg 1995)

Problem solving skill is essential not only in answering logic problems and puzzles in exams, but also helps to determine the direction of one's career and to make better decisions on a day to day life. Problem solving includes integration of concepts and skills to get over the unusual situation (Stomas 1994). Problem solving skills help the student to improve science operation skill.(Burns 1985)

As every one knows, generally in an educational. Setting knowledge flows from the teacher to the student. This type of environment sometimes could cause students to withdraw. It is a necessity that students take more of an active consideration whether each student has an external or internal locus of control. Knowing the location control of students will aid in planning the type or amount of reinforcements used in the class (Wiked 2002).

So the investigator decided to find the effect of science attitude, problem solving skills and locus of control on science achievement among high school students.

Objective of the study:
- To find out the science achievement among high school students.
- To find out the science attitude among high school students.
- To find the problem solving skill among high school students.
- To find out the locus of control among high school students.
- To find out the relation between science achievement and science attitude.
- To find out the relation between science achievement and problems solving skill.
- To find out the relation between science achievement and locus of control

Hypotheses of the study:
- The science achievement among high school students is average.
- The science attitude among high school students is average.
- The problem solving skill among high school students is average.
- The locus of control among high school students is normal.
- There is no relation between science achievement and science attitude.
- There is no relation between science achievement and problem solving skill.
- There is no relation between achievement and locus of control.

Methodology :
The present investigation is designed as a descriptive survey research. The research consists of 50 ix std high school girl students of a government aided school in Madurai and their medium of study is Tamil. To measure the scientific attitude of students scientific attitude scale by P.Agrewal and for problem solving skill, problem-solving ability test by I.N.dubey, and locus of control by Julian Rolter (1966) are use as tools for the study. The investigator developed the tool for science achievement which consists of 50 objective type questions from testing the validity and reliability out of 200 questions from ix std science text book. Percentage analysis, spearman's correlation analysis are used.

Results and discussion :
The mean, standard decoration are calculated for science achievement, science attitude, problem solving skill and locus of control.

Table - I

Content no. of students	Science Achievement	Science Attitude	Problem Solving skill	Locus & Control
N	50	50	50	50
Mean	32.5	52.08	6.70	7.84
Std. Deviation	6.606	8.209	1.992	2.452

The mean of science achievement is above average - The mean of science attitude is average. The mean of P.S. skill shows it is below average. The mean of locus of control shows it is normal.

The relation between science achievement and science attitude.

Table - II

			SC. attitude	SC. achievement
Spearman's rho	Science achievement	Correlation coefficient	1.00	0.232
		Sig(2-talled)		0.104
		N	50	50
	Science attitude	Correlation coefficient	0.232	1.000
		Sig(2-talled)	0.104	
		N	50	50

Correlation coefficient is 0.232 and the significance value for two talled test 0.104. Since the significent value less than the correlation coefficient we reject null hypothesis and infer that the science achievement is released to science attitude.

Relation between science achievement and problem - solving skill.

Table - III

			Science achievement	problem solving skill
Spearman's rho	Science achievement	correlation coefficient	1.000	0.188
		Sig-(2 -tailed)		0.191
		N	50	50
	Problem solving	Correlation Coefficient	**0.188**	
		Sig-(2tailed)	**0.191**	**1.000**
		N	**50**	**50**

The correlation coefficient is 0.188. The significant value at 0.05 level is 0.191. Since the significance value is greater than correlation coefficient null hypothi s is accepted and there is no relation between problem solving skill and science achievement.

Relation between science achievement and locus of control

Table - IV

			Science achievement	locus of control
spearman's rho	science achievement	correlation coefficient	1.000	-.276
		Sig(2tailed)		0.056
		N	50	50
	Locus of control	correlation coefficient	-0.276	1.000
		Sig(2 tailed)	0.052	
		N	50	50

The correlation coefficient is - 02.76. The significant value at 0.05 level is 0.052. The significant value is greater than the correlation coefficient We accept null hypothesis and there is no relation between locus of control and science achievement of students.

Conclusion :

Science achievement of IX std students is found to be slightly above average. (65%)

Science attitude of IX std students is found to be average. (52.08%)

Problem solving skill of IX std students is found to be below average. (33.5%)

Locus of control of IX std students is found be normal. The average is 7.84 which shows they are internally controlled.

There is positive correlation between science achievement and science attitude of IX std students.

There is no relation between science achievement and problem solving skill of IX std students.

There is no relation between science achievement and locus of control of IX Std students.

The Correlation coefficient of problem solving skill is positive (0.188) but slightly less than the significant value. An article published in Times of India Jan2, 2013 issue showed an analysis done by a private sector that only less than 40% of VIII std students can perform simple addition and subtraction and even less can do division. If problem solving skill is promoted then science achievement will be increased.

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