IOSR Journal of Research & Method in Education (IOSR-JRME)
e-ISSN: 2320–7388,p-ISSN: 2320–737X Volume 5, Issue 5 Ver. II (Sep. - Oct. 2015), PP 39-47
www.iosrjournals.org

An Investigation into the Relationship between Scientific Attitudes of VIII Class Urdu Medium Minority Students and Their Achievement in Science

*Sri.Shaik Liyakhath Ali,
Lecturer, Govt.DIET, Mettugadda, Mahabubnagar, Telangana State, INDIA.

Abstract: *In this study the investigator tries to understand measure and identify the relationship between scientific attitude and achievement level of science in VIII class Urdu medium minority students. It also proposes to study the influence of some of the personal and demographic variables and identify the causes for variations in scientific attitude and the level of attainment they reach in science education with different family backgrounds. By studying these factors it may be possible to improve the standards in science education by adopting innovations in Science Teaching and suggest remedial measures so as to bring uniformity in science education at secondary level Urdu medium students on par with other media pupil.*

I. Introduction

Education is an essential human virtue. Man becomes man through education. There are generally two aspects of human life. One is biological and the other is social, cultural or spiritual. Man conceived in terms of his biological existence alone is not better than an animal. His biological existence is secured through food, shelter and reproduction. But human life can never be reduced to its biological existence. His life can only be glorified through education and it is only the cultural and social aspect of human life which signifies his supreme position and thus constitutes the noblest work of God.

According to Gunner Myrdal, Education has an "independent" as well as "instrument" value, ie., the purpose of education, must be to rationalize attitude as well as to impart knowledge and skills. Education for national development should include education, for self reliance, personal development, social development, productive capacity, social integration and political understanding. Keeping in view these observations, we can say that until the intellectuals of India are able to conceive of their nation's unique, original and dynamic cultural theme in the context of contemporary scientific and technological civilization, no reforms of any type is possible.

Science Education:

Today the world is facing three major problems of population increase, pollution and poverty. The developmental efforts of the developing countries, such as India are being nullified by increasing population and increasing poverty. Although science and technology have improved a lot, still large number of human beings facing some of the worst problems of humanity today such as mentioned above have either been brought about or aggravated science and technology. Science educating being an important component of the education system should contribute in the solution of the problems of the country by developing desirable understandings, skills, abilities and attitudes.

Science education is important to the society for its all-round progress. It provides the public with sufficient knowledge for a successful living and develops scientific attitudes and scientific method. Science education should be strengthened so as to develop in the child well defined abilities and values, such as the spirit of enquiry, creativity, objectivity, the courage to question and on aesthetic sensitivity.

The Development Of The Scientific Attitude In Students:

For many science educators the importance of the science attitude is so obvious that no argument is required to support its inclusion among these things which a school science course should aim to develop in students. The tendency to be accurate, intellectually honest, open minded, objective and to demand reliable empirical evidence before making decisions may be most clearly seen in the problem solving activity of scientists. For the education policies commission (1966) possession of scientific attitude is not only the mark of a scientifically minded person, but also the sign of a rational one. As we consider the future responsibilities of citizens we will probably agree that helping children to become more cooperative, more responsible, more open minded and at the same time more critical minded is certainly worth the effort. By adopting scientific attitude and transferring these to situations in everyday life, students can be expected to be more tolerant of others points of view and to be more successful in living and working alongside other people.

Nature Of Achievement:

Differences are found among individuals which is a universal phenomenon. Individual differences exist among the pupils. They differ in their age, ability, personality, attitudes, aptitudes, interest, capacities etc. some are interested in different types of activities like music, drawing etc. and some more are interested in games and sports. Some may have mechanical aptitudes and some other may possess aptitude in teaching. Similarly some students may possess positive attitude towards education and some many not. A few others may have favorable attitudes toward science and develop interest in science education and there by develop scientific attitude and yet others may not possess all this. There is a general feeling that students who are interested in science pay much attention towards science subject and develop scientific attitude. There is a general consensus that the achievement in science of pupils and scientific attitude possessed by them are closely associated. A large number of variables to be useful in prediction of academic performance.

Among such predictors intelligence was found to be the most common and significant factor. Apart from it, home environment, school environment, study habits, adjustment, attitudes towards education etc., are identified as significant contributors to academic achievement. Gender, age, locality, parental education, parental economic status, parental occupational status etc., are also found to have decisive influence on the academic achievement. The relationship between a predictor variables and the creation is assessed by means of correlation analysis.

Scientific Attitude And Its Relation To Achievement In Science.

Considerable research work has been done with regard to the relationship of school variables and pupils' attitude towards science. Garden (1975) has provided an over view of many aspects of attitudes towards science of high schools pupils. Simpson (1977) stated that there was an important inter relationship between attitudes and achievement.

Problem To Be Investigated (Statement Of The Problem):

The present study is undertaken to identify the relationship between the scientific attitude and achievement in science of VIII class Urdu medium Minority student. It is also proposed to study the influence of some of the personal and demographic variables of children on their scientific attitude and Achievement in Science by studying these factors it may be possible to improve the standards in science education at secondary level. Different groups of children with different backgrounds may vary both in their scientific attitudes and the level of attainment they reach in science education. It is proposed to identify the causes for these variations and suggest remedial measures so as to bring uniformity in science education, at secondary level.

Significance Of The Problem:

Science is one of those human activities that man has created to gratify certain human needs and desires. Disinterrupted curiosity has been the great motive behind the scientific research. The "search of truth" becomes the dominant motive in the prosecution of science.

Science takes its place side by side with other subjects as an essential element of one's education. It affords knowledge of certain facts and laws and an insight into the domain of science. Besides these, the teaching of science imparts, training in the 'Scientific Method' and develops 'Scientific Attitude' which are very valuable and at the same time are transferable to other situations in life.

Science and scientific attitudes have now become compulsory in the school curriculum because of its multifarious value to the individual as well as the society.

Naturally teachers employ conventional methods in teaching science which develop unfavorable or negative attitudes among students. It is therefore; imperative that in teaching science at schools stage positive or favorable attitudes is to be developed by making use of innovative teaching strategies in the classroom. In the view of rapid expansion of scientific knowledge, inculcation of scientific attitudes among pupils are required. The success or failure in science achievement depends on how best the students inculcate scientific attitudes. The scientific attitudes and achievement level in science are influenced by number of factors. It is therefore essential to detect these factors; so that we can lead the students attain maximum achievement level in science. Therefore the present investigation is more helpful for identifying the Achievement level in Science of VIII class Urdu medium students and their scientific attitudes.

Objectives of the Study:

The purpose of this study is to focus on the relationship between scientific attitudes and achievement level in science. This study may also find to what extent achievement level in science and scientific attitudes depend upon personal and demographic factors so as to plan for improving standard of science education.

The Main Objectives Of The Study Are As Follows:

1. To measure and understand the scientific attitudes of IX class students.
2. To find out the influence of personal and demographic variables on scientific attitudes and achievement level in science. And thereby to identify the individual differences among the students in the field of scientific attitudes and achievement level in science.
3. To identify the correlation between the scientific attitudes and achievement level in science.

Hypotheses:

On the basis of the above objectives the following hypotheses are formulated. The hypotheses are set up in a null form as this form of hypotheses is akin to the legal principal that a man is innocent until he is guilty (Guilford and Fruchter 1978, Garrets and Woodworth, 1966).

1. Male and female students would not differ significantly in their scientific attitudes.
2. There would not be any significant difference in the scientific attitude of rural and urban students.
3. There would not be any significant difference in the scientific attitudes of private and government schools students.
4. There would not be any significant difference in the scientific attitudes of students of different age groups.
5. There would not be any significant difference in the scientific attitudes of the students, whose fathers possessing different educational status.
6. The occupational status of the father would not significantly influence the scientific attitudes of the school going children.
7. The income of the father would not bring any significant change in the scientific attitudes of their children.
8. The literacy index of family would not significantly influence the scientific attitudes of VIII class Urdu medium students.
9. Male and female students would not differ significantly in their science achievement.
10. There would not be any significant difference among rural and urban students' science achievement.
11. There would not be any significant difference in science achievement of students of different age groups.
12. The educational status of the father would not significantly influence the science achievement of the school going children.
13. The occupational status of the father would not significantly influence the science achievement of the school going children.
14. The income of the father would not bring any significant change in the science achievement of their children..
15. There would not be any significant difference in the science achievement of Urdu medium minority students whose family literacy index is different.
16. The management of schools would not bring any significant change in the science achievement of VIII class Urdu medium minority children.
17. There would not be significant correlation between scientific attitudes and achievement level in science of VIII class Urdu medium Minority students.

Variables Studied:

The dependant variables in this study are scientific attitudes and achievement level in science.

The independent variables are gender, age, locality, management of the schools, and literacy index of the family, father's educational, occupational and income status.

Sample: 441 VIII class Urdu medium Minority students from 6 division of Mahabubnagar district were selected by random sampling.

Tool Employed:

The scientific attitude scale (based on Likert's method) developed by late professor Venkat Rami Reddy (SVU) was adopted for measuring scientific attitudes. It consists of 42 items. Out of which 40 items are meant for measuring scientific attitudes of the secondary school students and the remaining two specific items one meant for the establishment of validity of the tool. Out of 40 items there are 20 positive items and remaining 20 items are negative.

The information about personal and demographic variable was collected through a carefully planned personal data sheet developed by investigator which is incorporated in the beginning of the attitude scale.

In order to assess the achievement levels in science of VIII class Urdu medium minority students an achievement test in science of VIII class syllabus with 160 test items which includes both physical and biological science were selected. The test items have been given to subject experts for giving their valuable suggestions. Based on their suggestions few changes have been made. The achievement test has been administered to 120 students selected from local mandals of Mahaubbnagar, Hanwada, and Jadcherla. Keeping

in mind the variables like gender, locality, Managements for pilot studies. The test papers have been evaluated after obtaining scores; the difficulty index and discriminatory index have been calculated. The test items have been arranged in descending order based on their respective scores obtained in achievement test. The test items were deleted based on the top 27% and bottom 27% of arranged scores. That is neglecting first and third quartile as per item analysis procedure.

The split half reliability score is 0.9982 the sample reliability is 0.999. As per the above obtained values of reliability we can say that the tool is standardized. Thus 74 test items were selected for the final construction of achievement test.

Both the tools were translated into Urdu medium with the help of subject experts.

Collection Of Data (Procedure):

For the purpose of collecting data required for the investigation the investigator visited 20 different high schools situated in different localities selected with simple random sampling lottery method without replacement for the study. The sample of the students (15 students) from each school selected by simple random lottery method without replacement adopted. These selected students were explained the purpose of research and requested to respond to the self explanatory attitude scale. They were also asked to fill up the personal data sheet. Care has been taken to avoid copying.

Scoring The Responses:

For the purpose of scoring numerical weights were assigned to each of the five categories of responses, VIZ, strongly agree, agree, undecided, disagree and strongly disagree as suggested by Likert (1932).

The grand total on the entire scale were obtained by adding the weights on all the statements. The information provided by the respondents in the personal data sheet and their achievement level in science also tabulated.

Statistical Treatment Of The Data:

The total scores obtained by each of 441 subjects on all variables were computed. The data were carefully analyzed by employing appropriate statistical techniques.

To estimate the achievement level in science among VIII Urdu medium minority class students and the scientific attitudes possessed by them, the scores are formulated into frequency distributions and all the descriptive statistics such as Mean, Median, Mode, Range, Quartile Deviations, Standard Deviation and‘t’ technique (Critical Ratio) were employed appropriately to find out the influence of intervening variables on the two dependent variables. Conventional levels of significance VIZ, 0.01 and 0.05 were used to test the levels of significance of the above statistics. To study the relationship between the dependent variables Karl Pearson’s product moment co-efficient of correlation was employed. The obtained numerical results were also graphically represented wherever necessary.

II. Analysis And Discussions

Establishing, Instruments validity

At the end of attitude scale two specific items were asked. The first item was “I prefer to think about any aspect like a Scientist” and the second question was “Do you like science or Social?” The alternative responses to each one of these items are yes/no. The mean reasons on the scale of those who checked yes/no responses are tested significant by using‘t’ test.

Table – I

Mean and SDS of students who preferred to think like scientists and that those who did not and the results of‘t’ test.

	Number (N)	Means(M)	SDS	‘t’ value
Students who preferred to think like scientists	362	130.7238	9.6556	0.013677* Significant at 0.05 levels.
Students who did not prefer to think like scientists	79	126.4684	13.5966	

Note: @ Indicates not significant

* Indicates significant at 0.05 level.

** Indicates significant at 0.01 level.

These notations are followed throughout the study.

From the above table, it is seen that the‘t’ value is significant at 0.05 level. Therefore it could be concluded that the scale is measuring the scientific attitudes of students.

Table – 2

Mean and SDS of students who preferred science & those who preferred social and the results of 't' test:

	Number (N)	Means(M)	SDS	't' value
Students who preferred science.	334	130.718	14.31	0.0244*
Students who preferred Social.	97	127.278	12.82	Significant at 0.05 level..

From the above table, it is seen that 't' value is significant at 0.05 level. Therefore it could be concluded that the scale is measuring the scientific attitudes of the students. Thus it could be concluded that the instrument is valid and reliable.

Description Of The Distribution Of Scores:

Table – 3

Frequency distribution of scientific attitude and science achievement scores of VIII grade children.

Dependent Variable	N	Mean	Median	Mode	Range	Quartile Deviation	S.D.	Empirical relationship (Probable error)	Skewness	Kurtosis
Scientific Attitude	441	130	129	124	144	7	14.1	7	-0.32	6.56
Science Achievement	441	30.099	27	27	63	8	10.9	8	0.83	0.42

It can be observed from the above table that the frequency distribution of scientific attitude and science achievement scores are following normality with little divergences.

The Influence Of Personal And Demographic Variables:

To study the influence of various personal and demographic variables on scientific attitudes and Science achievement of VIII class Urdu Medium Minority students't' test and analysis of variance ('F' ratio) were applied appropriately to test the hypotheses already formulated and the results were discussed in the following pages. There are eight variables under the category as already referred. Each one of them was considered separately to see whether they influence significantly the scientific attitudes and science achievement level of VIII class students. The data and the results of the test of the significance are presented in table No.IV and V respectively.

Table – IV

Data and results showing the test of significance difference between mean scores of scientific attitudes of VIII class Urdu medium students based on relevant sub sample of interfering variables.

Dependent Variable	Interfering Demographic Variables	Sub Groups Compared	Number	Means Value	S.D.	Critical Ratio/'F' ratio	Remarks at	
							0.05 Level	0.01 level
Scientific Attitudes	Sex	Male	106	130.19	14.92	't' value @0.74425	Not Significant	Not Significant
		Female	335	129.87	13.85			
	Age	13-14 Years	416	129.96	14.23	'F' value @1.000233	Not Significant	Not Significant
			19	131.42	12.45			
		16 & Above Years	06	125.17	7.33			
	Locality	Rural	180	126.72	14.05	't' value @0.000059	Not Significant	Not Significant
		Urban	261	132.19	13.71			
	Educational Status of father	Professional Courses & PG's	11	126.25	12.9413	'F' Value @56.16	Not Significant	Not Significant
		Bachelor Degrees	32	137.48	16.33			
		10^{th} to 12^{th}	196	129.90	12.7718			
		Below 10^{th}	164	128.96	14.59			
		Illiterates	39	129.58	15.49			
	Occupational Status of father	Secured Job	33	130.90	5.25	'F' value @-109.067	Not significant	Not significant
		Self Empl/Agri/Gen -Merchant	343	129.59	14.02			
		Labor	63	131.45	14.03			
	Income status of father	Rs.50,000 & below	285	128.95	12.98	't' value @ 0.0349	Not Significant	Not Significant
		Above Rs.50,000	156	131.80	12.80			
	Management	Government	421	129.78	14.229	't' value @ 0.1087	Not Significant	Not significant
		Private	20	133.85	10.544			
	Literacy Index	1-4 yrs	14	41.042	16.365	@ F value -207.199	Not significant	Not significant
		5-8 Yrs	176	40.199	15.172			
		9-12Yrs	234	40.572	14.306			
		13 & above	17	44.479	14.070			

Note: - @ Indicates not significant, *Indicates Significant at 0.05 level.
** Indicates Significant at 0.01 levels.

Table – IV reveals that the critical ratio obtained for the groups based on student's gender, locality, Management of the schools and fathers' income status are not significant. The obtained't' value is less than table value even at 0.05 level. The 'F' ratio value obtained for the group based on age, literacy index of family, father's educational and occupational status are not significant at even at 0.05 levels.

In the similar manner to check whether there exists any significant difference in the mean scores of science achievement of VIII class Urdu medium pupils based on relevant sub samples of't' test and ANOVA are used. The data and results of the test of significance are presented in table V.

Table – V

Data and results of the test of significant difference between mean scores of science achievement of VIII class Urdu medium students based on relevant sub samples of interfering variables.

Dependent Variable	Interfering Demographic Variables	Sub Groups Compared	Number	Means Value	S.D.	Critical Ratio/'F' ratio	Remarks at	
							0.05 Level	0.01 level
Science Achievement	**Sex**	**Male**	**106**	**31.15**	**11.25**	**'t' value @ 0.2708**	**Not Significant**	**Not Significant**
		Female	**335**	**29.77**	**10.78**			
	Age	**13-14 Years**	**416**	**30.24**	**11.003**	**'F' value @-95.67**	**Not Significant**	**Not Significant**
		15 years	**19**	**26.45**	**8.89**			
		16 & Above Years	**06**	**30**	**54.29**			
	Locality	**Rural**	**180**	**30.35**	**10.80**	**'t' value @0.6828**	**Not Significant**	**Not Significant**
		Urban	**261**	**29.92**	**10.97**			
	Educational Status of father	**Professional Courses & PG's**	**11**	**26.46**	**9.005**	**'F' Value @-109.067**	**Not Significant**	**Not Significant**
		Bachelor Degrees	**32**	**32.44**	**13.15**			
		10^{th} to 12^{th}	**196**	**29.18**	**10.38**			
		Below 10^{th}	**164**	**30.28**	**10.15**			
		Illiterates	**39**	**31.44**	**13.92**			
	Occupational Status of father	**Secured Job**	**33**	**29**	**9.07**	**'F' value @-109.067**	**Not Significant**	**Not Significant**
		Self Empl/Agri/Ge-Merchant	**343**	**29.78**	**11.03**			
		Labor	**63**	**32.68**	**10.82**			
	Income status of father	**Rs.50,000 & below**	**285**	**30.33**	**10.68**	**'t' value @0.5562**	**Not significant**	**Not Significant**
		Above Rs.50,000	**156**	**29.68**	**11.31**			
	Manage-Ment	**Govt**	**421**	**29.86**	**11.02**	**'t' value @ 0.00153**	**Not Significant**	**Not significant**
		Private	**20**	**35.15**	**6.21**			
	Literacy Index	**1-4 yrs**	**14**	**30.43**	**12.12**	**F value @-146.078**	**Not significant**	**Not significant**
		5-8 Yrs	**176**	**28.84**	**11.23**			
		9-12Yrs	**234**	**30.07**	**9.26**			
		13 & above	**17**	**32.94**	**7.11**			

Note: - @ Indicates not significant *Indicates Significant at 0.05 level. * * Indicates Significant at 0.01 level.

The Relationship Between Scientific Attitudes And Achievement Level In Science:

Table V reveals that the critical ratio & 'F' values obtained for the groups based on sex, age , locality,management,literacy index of family, fathers' educational, occupational and income status are less than table values of 't'/'F' at 0.05 level of significance. Hence Null hypotheses is accepted..

For the entire sample of 441 students the scientific attitude scores and science achievement scores were tabulated and Karl Pearson's product moment correlation Coefficient ® was calculated. The coefficient of correlation was found to be 0.2986, which is significant and moderate. In other words the relationship between the variable under consideration is considerable. Hence the null hypothesis that there would not be significant correlation between scientific attitudes and achievement level in science of VIII class Urdu medium students is not accepted.

III. Major Findings And Conclusions

It is observed that, in general the students of VIII class Urdu medium minority students possessed moderate scientific attitudes. However their achievement in science was below average.

1) As the boys and girls were not significantly different in both scientific attitudes and their achievement in science subject. It is concluded that sex could not influence significantly the scientific attitudes as well as the achievement level in science.

2) It was found that the chronological age of the student was not a significant factor in influencing the scientific attitudes although the trend in the mean scores was in favor of those with middle age. However children with appropriate age and over age to the class prove better in their science achievement when observe their mean scores. Therefore it could be concluded that age is a significant factor up to some level in determining the level of achievement.
3) As there were no significant differences among the students from urban and rural schools in their scientific attitudes and achievement in science, although the trend in the mean scientific attitude scores of urban students is greater than the mean scores of their counterpart rural students. Another striking revelation is that the mean science achievement scores of rural students are better than the urban area students. However when the't' test is observed it could be concluded that the locality was not a significant factor in determining the level of achievement in science as well as their scientific attitudes.
4) It was found that the Management of schools was not a significant factor in influencing the scientific attitudes and science achievement of minority students. Although the trend in mean scores of scientific attitudes as well as science achievement of private schools students are better than the Government school students. However as per the't' test result it could be concluded that management is not a significant factor in determining the scientific attitudes and achievement level in science.
5) As there were significant differences among the students whose fathers possess different educational status in their scientific attitudes, it could be concluded that the educational status of father was a significant factor in determining the scientific attitudes of students. However it is not significant in determining achievement level in science.
6) As there were no significant differences as per 'F' ratio among the Urdu medium minority students whose fathers belonging to different occupational status both in their scientific attitudes and achievement level in science. Therefore it could be concluded that the occupational status father was not a significant factor in determining the scientific attitudes and achievement level in science of VIII class Urdu medium minority students.
7) As the variation in income status of father could not significantly bring the difference in both scientific attitudes and achievement in science of their children, it is concluded that the income status of father was not a significant factor in determining the scientific attitudes as well as achievement level in science.
8) It was found that the literacy index of family was not a significant factor in influencing the scientific attitudes and achievement in science of VIII class Urdu medium minority students.
9) The result of the Product moment coefficient correlation between the scientific attitudes and science achievement(r= 0.2986)

Educational Implications Of The Study

Science education is gaining more attraction throughout the world. It is believed that the development of science education is one of the most important prerequisite for the all round development of any economy in the world. Higher the quality of science education that is provided in the country, higher would be the gains in all walks of life through the development of technology. Although the Mudaliar Commission (1953) the Education commission (1964-66) and the National Policy on Education (1986) stressed the importance of science education, we are not able to reach the expected standards in our science education. The reasons are many.

Most of the pupils do not possess positive attitude towards science and thereby not developing much interest in science education. This intern makes them to achieve less percentage of marks in science. Without understanding science properly, one cannot develop positive scientific attitudes such as thinking objectively, logical analysis of issues, open minded, curious to know more about the things, does not believe in superstitions and false beliefs, suspended judgment, unbiased and impartial in judgment, seeks the facts etc. The results of the present investigation revealed that while observing mean scores of gender girls have better achievement in science and scientific attitudes when compare to their counterparts. On the whole't' test showed that both boys and girls were at the same level of achievement in science and also in their scientific attitudes .This is quite interesting to note that as people in general, think that minority Urdu medium girls will be poor in scientific thinking .The enrolment of girls is more in schools while comparing boys, this is quite interesting finding as people think that minorities restricts their girls to attend schools. Hence more and more literacy awareness programmes have to be conducted in minority areas. But the achievement of minority students is very low in the Mahabubnager district which is exposed by this study. The home factors such as father's education, literacy index of family, occupational and income status of father and factors like management and locality are not significant contributors for better achievement in science as well as for development of scientific attitudes among the secondary school Urdu medium minority children. Hence we can say that whatever may be the background of children unless and until parents if doesn't focus on their children the attainment levels will not

be increased. Therefore it is believed that the development of science education and thereby more positive scientific attitudes may be achieved over generations and not instantly by proper strategies.

It is observed that the teachers in URDU MEDIUM SCHOOLS required effective training. The training material and modules should be prepared simultaneously on and par with Telugu and English medium. Since Science teaching cannot be imparted as abstract teaching. It should be taught through concrete teaching. The teaching learning material should be real objects, specimens and working models. Pupils should be taken to field trips in order to give direct experience to interact with the nature. The authorities should realize that the science teachers haven't acquired proper skills in implementing methods like heuristic method, Project method, demonstration method, laboratory method, and experimental method. Hence the teachers should be imparted proper training in the said methods for teaching science effectively. This is the century of brain; the explosion of knowledge has taken place. Life is impossible without science and technology. Hence the time has come to open the doors of laboratories in the schools and follow the maxim of learning by doing. Just designing the text books based on constructivism is not enough. The new paradigm should be shifted towards classroom. The science teachers should spent time in laboratories and give concrete experience by imparting proper guidance in conducting experiments to the students. So that students should explore the truth on their own. The authorities should see that they should fix proper monitoring mechanism and conduct the monitoring and supervision effectively by recruiting dynamic monitoring personnel. They should be given proper comprehension in observing the classroom and school process. The theoretical and paper work should be kept aside. All the Educational programmes designed by RMSA and SSA should be thoroughly monitored and evaluated by these personnel. The programmes should percolate in grass root level in order to achieve set objectives. The teachers should work with commitment. The authorities should initiate disciplinary action among erratic, sluggish, ignorant and irresponsible teachers and follow-up action should be taken. The monotony and immunity of irresponsible behavior should be break down immediately. They should be imparted professional ethics and values during training programmes by renowned psychologists.

Sincere and gifted teachers should be suitably rewarded. The interference and influence of teachers unions should be banished from academic matters. In every school Science club should make mandatory. The D.E.O should see that Science forums should be constituted at District, division and mandal level by expert teachers. Every science teacher should have membership and participation in the forums. They should conduct workshops and seminars and come out with innovative teaching strategies by fruitful discussions.

The Urdu medium science teachers also acquire membership and follow the ideas of their Telugu medium counterparts. The methodology should be imparted in classroom without fail. As we know Science education has undergone paradigm shift at the term of millinium.It is not a passive process but it is an active construction and interpretation of experiences learning is a 'treasure within' and scientific knowledge is being actively built up and constructed by the learners. For constructivists, learning is viewed as an interaction between the learners and learning environment. During this interaction prior knowledge becomes the basis to interpret and construct new understanding. In effect learning is a process in which the learner invents new ideas .Viewed from this context learning science becomes a process of conceptual change and knowledge navigation.

Learning involves the reconstruction of the student's conception and the educators need to appreciate the ideas that children bring to the learning situations. They should also understand the process by which the conceptual change occurs in order to design the learning programs. In a learner centered approach learning is not a passive process but instead active meaning making problem solving process. New learning depends on learners' previous knowledge which may sometimes interfere with the understanding of new information. Thus learning employs the organization of prior conceptual schemes. Science can be thought effectively using the constructivist strategies in which the learner involves actively. Hence the constructivist's innovative strategies for science teaching like **PEER TUTORING, SIMULATION, TEAM TEACHING, EXPERIMENTAL LEARNING, COGNITIVE APPRENTICESHIP and DISCOVERY LEARNING** has to be implemented for better achievement of science.

Thus the process of Science education should be strengthened and given top priority in our educational system in order to fetch better results for the progress of the country.

References

[1]. Banner, C.S(Nov-1965) "Socio-economic status and academic achievement of students in high schools" the progress of education. Poona, Vol – XL (4).
[2]. Bhatia, K.K.(1985) "Measurement of evaluation in Education," Prakash brothers (educational publishers) page NO.104.
[3]. Bhatia, K.K.Narang C.L (1989) A first course in principles of education, Prakash brothers (educational publishers) Jalandar.
[4]. Chopra (1966). "Socio – Economic basic background and failure in the high school examinations", journal of educational and psychological measurement Vol.262, Page.495-497.
[5]. Dale R.R. Miller and Miller P.M.(1972). "The Urban and rural back ground of first year university students is relation to their academic performance." British Journal of educational psychology, vol.42.Page 152-158.
[6]. Garrett, Woodworth, R.S.(1966) statistics in Psychology and education, David McKay, Company, INC, New York.

[7]. Likert, R (193). "A technique for the measurement of attitudes" (IN) Bayfield, A.H. and Rote, H.P. 1951. "In index of job satisfaction" the journal of educational. Research, (7).
[8]. McLane, Dianne Locke (1990). "The effect of interesting Bloom's taxonomy and the scienfic method and critical thinking, achievement and attitudes toward science" Dissertation abstracts international, Vol-50 (9). Page 2854 – A.
[9]. Mangle, S.K.(188) Psychological foundations of education Prakash brothers (Educational Publishers) Ludhiana.
[10]. Palmer Judith, A.(Jan 1967). "Home environment and achievement" Tornado Board of Education research department.
[11]. Perumal, N and Visveshran, H. (July 1968). "A study of scientific attitude of pupils of standard IX in relation to their achievement in science in some schools in Coimbatore." Journal of Educational. Research and extension, Vol. V(1), Page-24.
[12]. Sharma, R.C.(1990), Modern science teaching, Dhanpat Rai and Sons (Educational. Publishers), Delhi.