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SCIENTIFIC ATTITUDE OF ADOLESCENTS IN RELATION TO THEIR SELF- CONCEPT

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ABSTRACT

This investigation has studied the scientific attitude of adolescents in relation to their self-concept. For the present study 100 students of 10th class of government senior secondary school sector 20 Chandigarh were randomly selected. Scientific attitude scale by (Bajwa, 2009) and Self Concept Inventory by (Saraswat, 2011) were administered to collect the data. Descriptive survey method was used. The results of the study shows that there exists no significant difference in the scientific attitude and self concept of boys and girls and there exists a significant correlation between scientific attitude and self-concept of the adolescents.

Key words : scientific attitude, adolescents, self-concept

Science is a way of gaining knowledge and understanding of our natural world. The things, we can feel, see, hear, smell, and taste to the smallest detail are based on observation, identification, description, experimental, investigation, theoretical explanation of natural phenomenon. In terms of education, science helps students to develop the understanding and habits of mind. They need to become compassionate human beings able to think for themselves and to face the life ahead . It should equip them also to participate

thoughtfully with fellow citizens in building and protecting a society that is open, decent and vital .

SCIENTIFIC ATTITUDE

Science has several dimensions. Traditionally, the overwhelming emphasis in the science curriculum has been on the content dimension. Consequently student obtained a narrow understanding of the scientific culture. The situation has improved somewhat in recent years as a result of the development of modern science programmes. Greater attention is given to the nature of scientific inquiry through the promotion of active student participation in activity oriented learning experiences. In addition to the knowledge and process dimensions of science some recognition has been given to scientific attitude and to developing these attitudes in students. It is generally maintained and accepted unquestionably that scientists uphold a set of common scientific attitudes. It is also pointed out that students by practicing science in the manner of scientists will consequently adopt and internalize these attitudes.

SELF –CONCEPT

Self -concept is a technical expression given to the definition of oneself. Basically it is mental notion a person has about his physical, psychological and social attribute as well as his attitude, belief and ideas. There are varieties of ways to think about the self- concept. Today our self-concept i.e. our knowledge, assumption and feeling about ourselves, is central to most of the mental processes only.

Review of various studies related with scientific attitude and self concept presents a diverse picture **Malviya (1991)** examined attitude towards science and interest in science. The study found that high scores on attitudes towards science favor higher scientific interest . Further, with minor differences here and there, age , sex, profession and socio - economic status have no effect on attitudes towards science.

Rao (2005) conducted a study on scientific attitude to develop desirable behavioral changes in pupils and found that a teacher must formulate some definite objectives and specifications in order to develop desirable behavioral changes in pupils. He emphasized

on objectives such as knowledge, understanding, application, skill, interest, scientific attitude and appreciation.

Yadav,Paramanand,Bhartiand Anita (2007) conducted a study on the relationship between environment awareness and scientific attitudes among higher secondary students of Varanasi district of U.P. and found that 33.09 of environmental awareness may be attributed to scientific attitude and scientific attitude was higher among the science students than arts students.

Annakkodi (2008) conducted a study on scientific attitude of pupils of class XI and their achievement in science of higher secondary students of combative district and found that girls and urban students posses more scientific attitude corporation school students gained more scientific attitude, Government aided students gained average scientific attitude and Government school students scored less scientific attitude.

Narayana, Laksmi and Suhane (2010) conducted a study on the contribution of scientific aptitude and scientific attitude in influencing environmental practices and found that scientific attitude do contribute in developing environmental sensitive behavior among secondary school students.

Sekar(2013)designed a study to make out the status of science attitude of biology group students of higher secondary stage. The sample consists of six hundred and twenty one XI standard students randomly drawn from Thiruvannamalai District. The findings indicate the existence of significant difference between rural and urban higher secondary school students in science attitude. Further, the unaided schools have some influence on developing science attitude among the students when compared to the government and aided schools.

Study by Gutierez (2015) presents the effects of integrating socio-scientific issues to enhance the bioethical decision-making skills of biology students. Using a quasi-experimental research design, results of the independent and related samples t-test on the pre-and posttest mean scores of 72 students significantly revealed that integrating socio-scientific issues in biology lessons are useful to enhance their bioethical decision-making skills. Moreover, as socio-scientific issues were integrated in their lessons, students' classroom interactions and argumentations improved significantly and enabled them to give a positive, more elaborate, and in-depth responses with a wider range of explanations.

Gurubasappa(2009) Conducted a study on intelligence and self- concept as correlate of academic achievement of secondary school students with a sample of two government, two

private aided, and two private unaided school of Karnataka. The study found that high intelligent students in a school achieved high, students with better self-concept achieved high and product of learning i.e. academic achievement of students is certainly influenced by psychological factors like intelligence and self- concept.

Gavidia-Payne, Denny, Davis, Francis and Jacksonf, (2015) conducted study on children's self-concept of parental school engagement and student-teacher relationships in rural and urban Australia and found that self-concept differences between rural and urban children in the state of Victoria, Australia, and to investigate relationships between student-teacher relationships, parental school engagement and self-concept in both groups. The sample comprised 219 triads of children (aged between 7-14 years), parents and teachers, representing rural (n = 33) and urban (n = 186) areas. Children, parents, and teachers completed measures related to self-concept, parental engagement with school, and quality of student-teacher interactions, respectively. No significant differences were detected between the self-concept levels of rural and urban children. However, associations between the student-teacher relationship, parental engagement, and self-concept differed between demographic groups.

Padhi (2001) studied relationship between academic self-concept in science and cognitive preferences styles and found that memory styles was negatively and significantly correlated with academic self-concept in science where as 'Questioning style' was negatively and less significantly related with academic self-concept in science. Application style was positively and significantly related to academic self-concept in science and students differed in their cognitive preferences styles with high and low academic self-concept in science.

Sorubarani (2003) conducted study on an enquiry into the relationship between child abuse and self-concept and revealed that use of punishment decreased the self-concept of the school going children and appositive approach increased self-concept of the school going children.

Tracy(2006) studied the effect of adolescent's self-concept on their perception of school climate and overall academic achievement and found positive correlation between self-concept and academic achievement and multiple correlation was found between the sub components of self-concept and school climate with academic achievement.

Larson (2007) conducted research on Adventure camp programs, self–concept and their effects on behavioral problem of adolescents which included 61 male and female adolescents ranging in age from 9 to 17 years. The treatment group of 31 adolescents was randomly selected from a population (n= 85) of behavioral problem adolescents who voluntarily attended an adventure camp. The control group of 30 adolescents was randomly selected from a population (n= 80) that underwent treatment for behavioral problems. The study found that the effects of the adventure camp program on the self – concept of adolescents with behavioral problems. Analysis demonstrated a significant difference between the experimental and control 9 to 11 years old age group's self – concept.

Hadley, Hair and Moore (2008) in a study assessing what kids think about themselves. A guide to adolescents self-concept for out of school time program practitioners, study revealed that children in United States tend to experience a decline in positive self-concept during their adolescent years. This decline often begins around age adolescence before generally recovering in the mid teen years and negative self-concept during adolescence has been associated with maladaptive behaviors and emotions. In contrast, positive self-concept has been linked to positive social and emotional development.

OBJECTIVES OF THE STUDY

1. To study and compare the scientific attitude of adolescent boys and girls.
2. To study and compare the self-concept of adolescent boys and girls.
3. To study the relationship between scientific attitude & Self-concept of adolescents.

HYPOTHESES OF THE STUDY

1. There exists no significant difference in scientific attitude of adolescent boys and girls.
2. There exists no significant difference in self-concept of adolescent boys and girls.
3. There exists no significant correlation between scientific attitude & self-concept of adolescents.

DELIMITATIONS OF THE STUDY

The study was delimited to IX class students of government schools of Chandigarh.

Results and Implications

t – Test was applied to find out the difference in scientific attitude score of boys & girls.

TABLE 1: t-RATIO FOR SCIENTIFIC ATTITUDE OF ADOLESCENT BOYS AND GIRLS

Variable	Groups	Total Students	Mean	Standard Deviation	t-Value	Remarks
Scientific Attitude	Boys	70	151.47	12.09	1.554	Not Significant
	Girls	30	147.43	11.45		

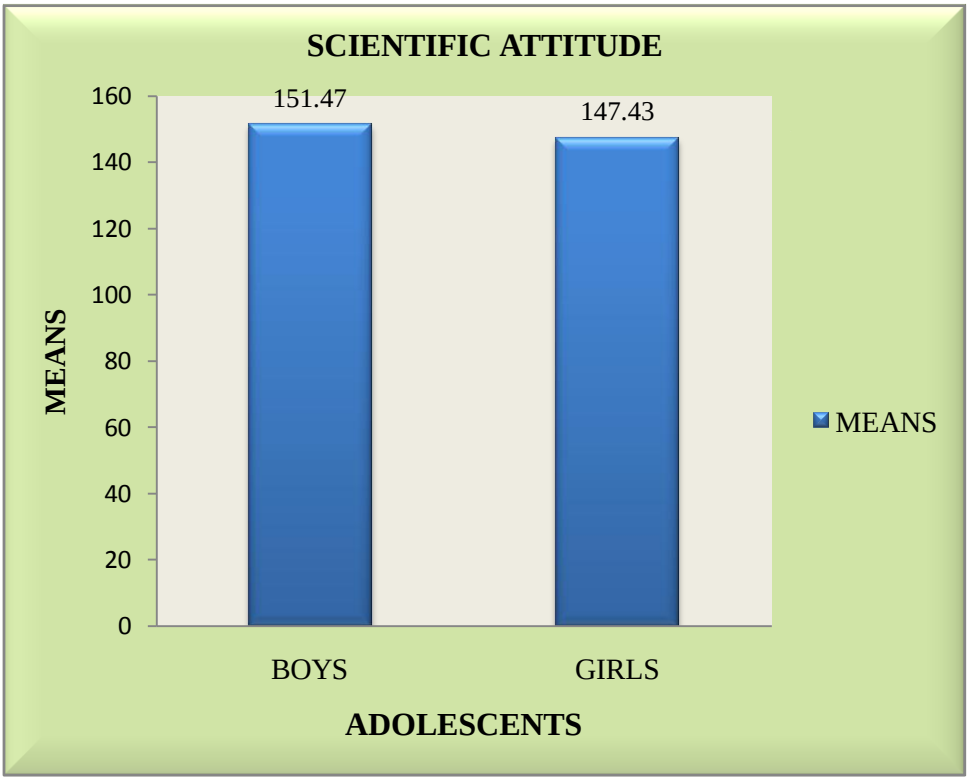
Degree of freedom = 98

Table value of t at 0.05 level of significance = 1.98

Table value of t at 0.01 level of significance = 2.63

Table1 shows the value of calculated t-ratio for scientific attitude of boys and girls. It comes out to be 1.554 which is even less than the table value 1.98 at 0.05 level of significance. It shows that the calculated value of **t** is not significant at 0.05 level of significance. So it can be said that there exists no significant difference in the scientific attitude of boys and girls at 0.05 level of significance. Hence, the hypothesis that **there exists no significant difference in scientific attitude of adolescent boys and girls is retained at 0.05 level of significance.**

THE MEANS SCORES OF SCIENTIFIC ATTITUDE OF ADOLESCENT BOYS AND GIRLS



The figure 1 clearly indicated that there is not much difference in mean scores of Scientific Attitude of adolescent Boys & Girls.

TABLE 2: t-RATIO FOR SELF-CONCEPT OF ADOLESCENT BOYS AND GIRLS

Variable	Groups	Total Students	Mean	Standard Deviation	t-Value	Remarks
Self-Concept	Boys	70	91.69	28.21	0.668	Not Significant
	Girls	30	87.53	29.17		

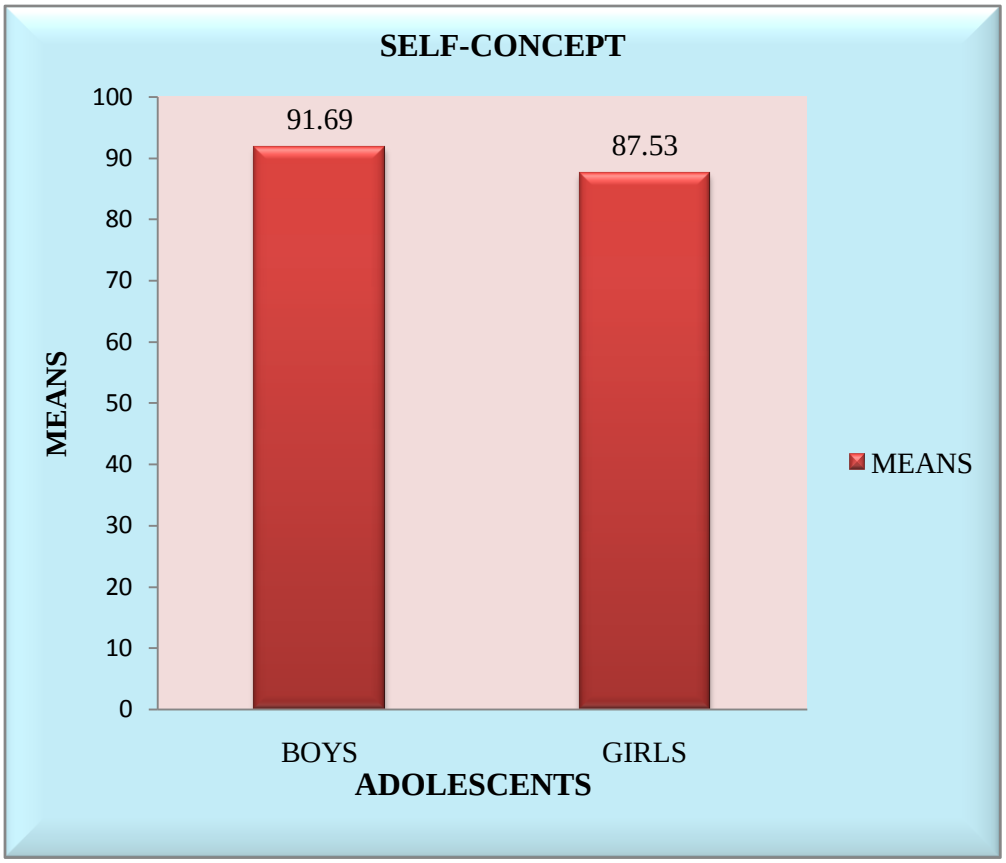
Degree of freedom = 98

Table value of t at 0.05 level of significance = 1.98

Table value of t at 0.01 level of significance = 2.63

Table 2 also shows the value of calculated t-ratio for self-concept of boys and girls. It comes out to be 0.668 which is even less than the table value 1.98 at 0.05 level of significance. It shows that the calculated value of **t** is not significant at 0.05 level of significance. So it can be said that there exists no significant difference in the self-concept of boys and girls at 0.05 level of significance. Hence, the hypothesis that **there exists no significant difference in self-concept of adolescent boys and girls is retained at 0.05 level of significance.**

FIGURE 2 MEAN SCORES OF SELF-CONCEPT OF ADOLESCENT BOYS AND GIRLS



The figure 2 clearly indicated that there is not much difference in mean scores of Scientific Attitude of adolescent Boys & Girls.

Coefficient of Correlation

The coefficient of correlation was calculated to find out relation between Scientific Attitude & Self- Concept of adolescent as shown in table

TABLE 3 COEFFICIENT OF CORRELATION BETWEEN SCIENTIFIC ATTITUDE AND SELF-CONCEPT OF ADOLESCENTS

Variables	N	Coefficient of correlation	Remarks
Scientific attitude	**100**	0.963	Significant at 0.01 level
Self-concept	**100**		

Degree of freedom = 98

Table value at 0.05 level = 0.195

Table value at 0.01 level = 0.254

Table 3 reveals that the coefficient of correlation between scientific attitude & self-concept of adolescents is 0.963 which is higher than the table value 0.195 at 0.05 and 0.254 at 0.01 level of significance respectively. It shows that there is a very high positive correlation between scientific attitude and self-concept of adolescents. It further means that adolescents having high level of scientific attitude will have high level of self-concept.

Hence, the hypothesis that **there exists no significant correlation between scientific attitude and self-concept of adolescents is not retained at 0.05 level of significance as well as at 0.01 level of significance.**

CONCLUSION

The results of the present investigation clearly indicate that no significant gender differences were found for scientific attitude and self concept among adolescents and there is positive correlation between scientific attitude and self concept among adolescents.

EDUCATIONAL IMPLICATIONS

- The study will help pupils to improve their reasoning ability and imagination power.
- This study will help the teacher to formulate teaching strategies keeping in view the level of self-concept of the students.
- Teachers can work out the reasons and conditions of low self- concept among children their by making efforts to improve it.

References

- **Annakkodi, R. (2008).** Study of Scientific attitude of pupils of class IX & their achievement in science. *Miracle of teaching.* Retrieved fro*m:* Quarterly Journal of teaching *profession.* Vol 8, No.1.2008
- **Crawley, F.E. & Black, C.B. (2009).** Causal modeling of secondary science students intentions to enroll in physics and their scientific concept. *Journal of Research in Science Teaching* , v29, p585-599.2009.
- **Gavidia-Payne, S, Denny, B, Davis, K, Francis, A & Jackson, M(2015).**Children's Self-Concept: Parental School Engagement and Student-Teacher Relationships in Rural and Urban Australia *Social Psychology of Education: An International Journal*, v18 n1 p121-136 Mar 2015.
- **Gurubassappa, H.D. (2009).**Intelligence and self- concept as correlate of Academic achievement of secondary school students. *EDUTRACS*, Vol. 8 (10), p42-43.

- **Gutierez, Sally B.(2015).**Integrating Socio-Scientific Issues to Enhance the Bioethical Decision-Making Skills of High School Students. *International Education Studies*, v8 n1 p142-151 2015.
- **Hadley, A.M, Hair, E.C, Moore, K.A (2009).**Child trends. Reports-Description http:// eric.ed .gov. (retrieved at 6:10 pm on 11th may,14)
- **Larson, B.A. (2007).**Adventure Camp Programs self-concept and their effects on behavioral problem adolescents. *http:www.ace.org* (retrieved at 4:15 pm on 9th may, 14)
- **Malviya, D, S.(1991).** A study of attitude toward science and interest in science among school going adolescents. *Fifth Survey of Research in Education by M.B. Buch (1988-92). 1:360*
- **Narayana, U. Lakshmi, Suhane, Anjuli.(2010).**A study on the contribution of scientific attitude and scientific aptitude to develop environmentally sensitive practices. *Indian Educational Review. 46(1)*
- **Padhi, J.S.(2001).**Relationship between academic self-concept in science and cognitive preferences styles. *Indian Educational Abstract v31.p1*.
- **Rao, P. (2005).**Teachers objective in science. *International journal of Science and Education*,v8,p54-78.
- **Sekar, P & Mani(2013).** science attitude is normally associated with the mental processes. Associate Professor of History, Meston College of Education, Chennai – 14.
- **Sorubarani, S.(2003).** An Enquiry into relationship between child and self-concept. M.Phil, Education Madurai Kamraj University.
- **Tracy, J.F.(2006).**The effect of adolescent's self-concept on their perception of school climate and overall academic achievement. *http;// eric.ed.gov*.(retrieved at 10:32 pm on 10th may 14)
- **Yadav, Paramanand, Bharti, Anita(2007).**A study on the relationship between environment awareness and scientific attitudes among higher secondary students.
- SRETRIVED FROM INTERNET
- http:// eric.ed.gov- ERIC – Education Resources Information Centre
- http:// www. Sciencedirect.com
- http:// www. Informa world.com
- www. Thefreedictinary.com