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Science Attitude as a Determinant to Educational Aspiration in Students

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Abstract: *Science has brought about revolutionary changes in every walk of life. Its impact is visible everywhere and in every aspect of our existence i.e. vocational, social, economic, political and cultural. Science attitude refers to an individual's outlook towards life. It means willingness to adopt scientific approaches and procedures for resolving issues / assessing ideas or information. Science attitude denotes interest or feeling towards studying science. Educational aspiration is a sum total of other level of aspiration goals, such as career goals, occupational goals, life- style, wealth etc. The objectives of the study were to assess the science attitude and educational aspiration of senior secondary school students in relation to gender variation. The study was a descriptive study of research of ex-post- facto nature and it was a co-relational study design. A representative sample consisting of 100 students of class XII from six senior secondary schools had been selected randomly from the Gangtok, Sikkim. Tools used for the study were Science attitude scale of Grewal (1990), and Mazumdar Educational Aspiration Inventory (2004). Findings of this study were that there was no significant difference in science attitude and educational aspiration in relation to gender but there was a positive low correlation between science attitude and educational aspiration.*

Key Words: *Science Attitude, Educational Aspiration*

I. Introduction

Science has brought about revolutionary changes in every walk of life. Its impact is visible everywhere and in every aspect of our existence *i.e.* vocational, social, economic, political and cultural. Nowadays human being entirely depend on science for domestic amenities, industrial production, communication, agriculture, medicine, transport, defense and others. The progress, welfare and prosperity of nation depends on rapid, planned and sustained growth in both the quality and extent of education and research in science and technology (Education commission 1964-66). Right now science becomes a priority area in the education both at the compulsory as well as at the level of specialization. The people possessing positive attitude would get the benefit of science much as compared to those who lacked it. In modern times the chief aim of education is to enable a citizen to develop a science attitude of mind to think objectively and base his conclusion on tested data. With development of science attitude an individual is able to have the understanding and intellectual integrity to shift truth from the falsehood, facts from the propaganda and to reject the dangerous appeal of fanaticism and prejudice. Science attitude refers to an individual's outlook towards life. It means willingness to adopt scientific approaches and procedures for resolving issues / assessing ideas or information. Science attitude denotes interest or feeling towards studying science. It is the students' disposition towards 'like' or 'dislike' science while attitude in science means scientific approach assumed by an individual for solving problems, assessing ideas and making decisions.

Educational aspiration is a sum total of other level of aspiration goals, such as career goals, occupational goals, life- style, wealth etc. Earlier researches showed that failure motivated adolescents make more unrealistic career choices than success motivated adolescents. It was also found that highly motivated persons had a highly occupational level of aspiration. Robinson (1962) attempted to study the relationship between school achievement and level of aspiration by taking achievement motivation into account. Kao and Thompson (2003) observed that although educational aspirations are an important predictor of eventual educational attainment "their position in recent social science literature is more problematic". They indicated that the nature of the associations between aspirations and attainment for young adults from different family backgrounds continues to be unclear.

II. Rationale of the Study

Science is a very useful subject in the school and the range of this usefulness extends from simple problems in daily life to complex problems in various branches of higher scientific studies. Development of right kind of attitude should therefore be given due importance in the transaction of teaching learning process in the school. There is a felt need for developing right sort of attitudes to avoid any mental conflicts. These attitudes can be developed among the students through the study of various subject and learning activities in the school curriculum. Science education, by the virtue of the fact that it provides more vocational opportunities and

develops the scientific attitude required of an individual in the modern society is likely to be associated with the educational aspiration of the students. Every student has educational aspiration. It is a decision which the individual makes about what he wants to become in life and what course he wants to study. In well developed countries the school system is so organized that the student can make actual vocational decisions at the end of each stage of education. The student has the freedom to choose from different curricula, these decisions influence the career. The present day trend is much more directed towards pursuing a career in the area of science and technology. In order to ascertain whether it is their science attitude for having educational aspiration for a career in science or not, is the sincere attempt of the investigator. Therefore, the investigator was inclined to assess the science attitude of students influencing educational aspiration in them.

III. Objectives of the Study

a) To assess the science attitude of senior secondary school students in relation to gender variation.
b) To assess the educational aspiration of senior secondary school students in relation to gender variation.
c) To determine the differences in science attitude and educational aspiration in students in relation to gender variation.
d) To determine relationship between science attitude and educational aspiration.

IV. Hypothesis of the Study

Ho_1: Science attitude in senior secondary school students is not of the same level and magnitude.
Ho_2: Educational aspiration in all students is not of the same level and degree.
Ho_3: There does not exist significant difference in science attitude of senior secondary school students in relation to gender variable.
Ho_4: There is no significant difference in educational aspiration of senior secondary school students in relation to gender variation.
Ho_5 There does not exist significant difference in different components of educational aspiration of senior secondary school Students in relation to gender variation.
Ho_6 There does not exist significant relationship between science attitude and educational aspiration.
Ho_7: High, average and low level of science attitude does not influence one's educational aspiration.

Scope and Delimitation of the Study

The scope of the study was to assess the science attitude as a determinant to educational aspiration in relation to gender. The study was delimited to 100 senior secondary school students of class XII from six schools of Gangtok, Sikkim. Schools had been selected on simple random basis.

Methodology: The Design

The study was a descriptive study of research of ex-post- facto nature. An attempt had been made to find out the correlation between science attitude with educational aspiration. Therefore it was a co-relational study design.

Sample

A representative sample consisting of 100 students of class XII from six senior secondary schools has been selected randomly from the Gangtok, Sikkim.

Tools Used

Tools used for the study were Science attitude scale of Grewal (1990), consists of 20 statements under five point scale of both the positive and negative statements and Mazumdar Educational Aspiration Inventory (2004), consists of 55 statements divided into seven dimensions.

V. Results and Discussions

The scores were compiled and put into a frequency distribution in order to calculate the measures of central tendencies and variations, then categorization was made accordingly and the mean, standard deviation, quartile deviation and't' ratio according to these variables were grouped together.

Descriptive Measures on the Scores on Science Attitude

The Mean (54.18) and Standard Deviation (5.85) of each of the contrast along with the sample were calculated. In order to find out differences, if any in the scores of science attitude of boys and girls, the test of significance of difference between means of two sub sample was calculated and tested for significance. The result has been presented in the table 1.

Table 1Gender wise difference on Science Attitude

Sr. No.	Contrasts	N	M	SD	SE_D	df	"t'	Level of significance
1	Boys	51	54.70	6.24	1.19	98	0.86	Not Significant
2	Girls	49	53.67	5.72				

't' for df 98 at 0.01=1.68 p>0.01

One of the objectives of the study was to find out if "There exists any sex difference in the science attitude of senior secondary school students". Therefore the null hypothesis that "There does not exist significant difference in the science attitude of senior Secondary School students with regard to gender variation'' needs to be tested and verified. On the perusal of the above table, it was observed that the 't' is not significant. Hence, the null hypothesis state that 'There does not exist significant difference in the science attitude of senior secondary school students with regard to gender variation' is accepted. This result was supported by the findings of various researchers like Ayers and Price (1975), Wright, Rao(1990).

Descriptive Measures on the Scores on Educational Aspiration

The Mean (132.85) and Standard Deviation (10.09) of total sample were calculated. In order to find out differences, if any in the scores of educational aspiration of boys and girls, the test of significance of difference between means of two sub sample was calculated and tested for significance. The result has been presented in the table 2.

Table 2 Gender wise difference on Educational Aspiration

Contrasts	Number	Mean	SD	SE_D	't'	Level of significance
Boys	51	134	10.42	2.08	0.60	Not Significant
Girls	49	132	10.45			

't' for df 98 at 0.01=1.68 p>0.01

On the perusal of the above table, it was observed that the't' ratio is not significant. Hence, the null hypothesis that "There does not exist significant difference in the educational aspiration of senior Secondary School Students with regard to gender variation" is accepted. Hence it is found there does not exist significant difference among boys and girls educational aspiration. This result was interpreted in corroboration with the studies supported by Pant (1985), Kumar et al (1986).

Components wise difference on educational aspiration

Table 3 Summary of test of significance of difference between means in different components of Educational Aspiration due to gender variation

Sl. No.	Dimensions	Gender				SE_D	df	't'	Remarks
		Boys		Girls					
		M	SD	M	SD				
1.	Past experience	19.35	2.92	19.22	2.76	0.54	98	0.24	Not Significant
2.	Goal period Long term Short term	19.23	2.83	18.79	2.86	1.07	98	0.41	Not Significant
3.	Efforts made and success achieved in examination	19.57	2.76	18.61	1.96	0.87	98	1.10	Not Significant
4.	Education desired for personal development	19.47	2.90	18.91	2.30	0.51	98	1.09	Not Significant
5.	Level of education desired	19.23	2.96	19.04	2.47	0.54	98	0.35	Not Significant
6.	Education desired for self satisfaction	19.26	2.79	18.48	1.96	0.40	98	1.91	P<0.01
7.	Quality of education desired	19.47	2.83	19.22	2.78	0.54	98	0.46	Not Significant

On perusal of the table, it was observed that with reference to various components in relation to gender variation in educational aspiration there is no mean difference except the component of educational desired for self satisfaction which was significant in all other dimension "t" significant. Hence, it is concluded that there does not exist significant difference among boys and girls in relation to components. Hence, the formulated

hypothesis that "There does not exit significant difference in different components of adjustment problems of Senior Secondary School Students in relation to sex variation" was accepted. Therefore, the investigator desires to conclude that the gender variation becoming not significant with respect to different components of educational aspiration.

Relationship between Science Attitude and Educational Aspiration

In order to study the relationship between the science attitude and the educational aspiration, the product moment co-efficient of correlation between the scores on both the variables have been calculated for the whole sample. The 'r' value is 0.31. The investigator therefore desires to conclude that there exists low positive significant relationship between science attitude and educational aspiration. Chi-square test of independence was also calculated to find out the relationship between high, average, and low level of science attitude discriminates having relationship with educational aspiration. The result has been presented in table 4.

Table 4 Chi- Square Test of Independence between Science Attitude and Educational Aspiration

$X^2 = 33.48$, $P < 0.01$

	Science Attitude				
		High	Average	Low	Total
Educational Aspiration	High	14	17	4	35
		(8.4)	(17.5)	9.1	
	Average	6	27	5	38
		(9.1)	(19)	(9.8)	
	Low	4	6	17	27
		(6.4)	(13.5)	(7.02)	
	Total	24	50	26	100

't' for df 98 at 0.01=1.68 $p>0.01$

Hence x^2 is significant. Therefore the result indicated that the students having high average and low scores on science attitude differ significantly with regard to their corresponding scores on educational aspiration. On the basis of the above the investigator desires to conclude that the result obtained investigation may be considered appropriate.

VI. Findings of the study

1. There does not exist significant differences in science attitude in relation to gender.
2. There is no significant difference in educational aspiration in relation to gender.
3. The level and magnitude of students in science attitude and educational aspiration was not same.
4. There exist a positive low correlation in between science attitude and educational aspiration.

VII. Recommendations

The following measures are recommended for further improvement:

1. There are a number of key players in supporting aspirations, particularly parents, whose early influence can be crucial. Parents should be permissive. they should encourage the children to know, to gain information by participating in different life situation. They should encourage them to be flexible, fearless and perceive the correct knowledge only after the scientific and objective investigation. Those working with parents, especially in disadvantaged areas, need to be aware that they can play a role in helping them develop these early aspirations and attitudes not only for their children, but for themselves. This will give them a sense of confidence and empowerment that they can help their children and persevere to overcome obstacles when things are not going well.

2. Students should have high level of science attitude. The teachers and the parents should set high goals before the students so that they should try to achieve them and they should develop the tendency to achieve more and more. But care must be taken that the goals should be set up by keeping an eye to the sex, age, intellectual standard and habitation variable or else; it will have negative impact upon the children and may block their achievement.

3. Schools may have a key role to play, expanding children's own horizons and supporting their parents – for instance through extended schools and the social and emotional aspects of learning programme, as well as through partnerships with businesses School staff also need to be aware of the role they playing cultivating children's aspirations through assessment and messages about academic performance and that these may be more significant for children whose family background does not offer support for their abilities and aspirations.

4. As children mature, they need easy access to appropriate information, advice and guidance services, but for some disadvantaged young people, accessible services alone are not enough: support needs to come from a tutor, youth worker or mentor who knows the young person well, can help them see beyond their situation to what they can become, and motivate them to take the steps necessary to reach their goal.
5. Conservative attitudes, prejudices attached to different situations and objects are responsible in reducing the attitude and aspiration. The attitude of the people attached with the resistance of girls' education, caste system, child marriages, pre conceived ideas about the quantity and quality of education often cause to reduce the achievement and aspiration in students. So, care must be taken to free from the society from these prejudices and biases.
6. Learning in the classroom cannot be sufficient for a student of modern time. So visits, excursion and field trips to different places of scientific importance should be organized at regular intervals to provide an opportunity to the students to get direct and practical learning experiences in an interesting manner. Science teacher must arrange tours to radio station, telephone exchange, natural heritage sites, bio-diversity parks, planetarium which will supplement classroom instruction.
7. Science curriculum should devise in such a way that it must fulfills the growing needs and thirst of the students. Enough provision should be made for laboratory, library, science museum, science fairs, exhibitions and various club activities. Audio-visual aids like television, cassette recorder, projectors and computer with internet facility should be provided in each school, which makes learning more attractive, acceptable, lively and understandable. This also helps in bring out and enhance the creative potentiality of the child.
8. Finally, involvement in extracurricular activities may enhance science attitude, educational and occupational aspirations. Such activities can help to improve communication skills and offer opportunities and mentorship that may raise aspirations. Staff working alongside young people taking part in positive activities, including those organised as part of extended schools initiatives, can make a difference to young people's aspirations and futures.

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