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Comparative Evaluation Of Scientific Temper And Academic Achievement Among Adolescent Students (J&K)

Amees Tuhasaif Aezum

Researcher/Counsellor, IGNOU Special Study Centre, Govt. Degree College For Women, J&K, India

Dr. Nisar Ahmad Wani

Guide/Coordinator, IGNOU Special Study Centre, Govt. Degree College For Women, J&K, India

Abstract:

The present research work entitled “Comparative evaluation of Scientific Temper and Academic Achievement among adolescents in Jammu & Kashmir” was carried out with the objectives to study and evaluate the scientific temperament and academic achievements among adolescents in J & K (Anantnag). A group of 180 adolescents (100 boys and 80 girls) was recruited from both government and private institutions in the study via a stratified random sampling technique. The data were collected using a scientific attitude questionnaire and analysed using mean, S.D and t-test. The findings of the study indicated that the scientific attitude and academic achievement of the boy and girl students (gender) as well as the students from rural and urban areas (locality) and from government and private institutions differed significantly. Boys were found to be a more efficient scorer than girls ($p < 0.05$). Adolescents from urban areas were found to be more efficient than rural ones ($p < 0.05$). Adolescents belonging to Private colleges showed better mean score than government colleges ($p < 0.05$). Recommendations were made upon the conceptualization of scientific temper as well as a plan of action to promote it in better academic achievements among all adolescents. The present paper attempts how to develop a "Scientific Temper" in the Indian context, and how to achieve the innovativeness and achieved in a period of stress and strain through a proper guidance.

Key words: Inconscientiousness, Scientific Attitude, Academic Achievement, Adolescents

1.Introduction

A scientific attitude is likely to produce something novel, which not only produce new ideas but also help in reshaping of old facts. Scientific thinking, it is a kind of mental operation and open thinking in which a person thinks in a different direction, something searching which results in better academic achievement. In India the term “scientific temperament” was first used by Pandit Jawaharlal Nehru, after he became the first Prime Minister of Independent India in 1947, Pandit Nehru made untiring efforts for the expansion of the scientific temperament and strived hard to convince the political and scientific leadership to inculcate diversification and innovativeness among its citizens. Though the term scientific temper was not in use, a number of social reformers, scholars and scientists advocated the need to install a spirit of scientific enquiry in the society & its achievement in academics. However, a statement on scientific temper was issued by a group of individuals in 1981, which evoked support as well as criticism from different quarters. In 2011, an attempt was made to revisit the 1981 scientific temper statement and the outcome was a revised statement, now known as the Palampur Declaration. It implies such qualities of mind such as intellectual curiosity, passion for truth, respect for evidence, complete freedom from the multiplicity of responses and choices, which recognizes the need for competence or in other words we can say set of emotionally toned ideas which results in creative academic achievements.

Academic achievement or (academic) performance is the outcome of education the extent to which a student, teacher or institution has achieved their educational goals. Academic achievement is commonly measured by examinations or continuous assessment but there is no general agreement on how it is best tested or which aspects are most important — procedural knowledge such as skills or declarative knowledge such as facts. Individual differences in academic performance have been linked to differences in intelligence and personality. Students with higher mental ability as demonstrated by IQ tests (quick learners) and those who are higher inconscientiousness (linked to effort and achievement motivation) tend to achieve highly in academic settings. Academic achievement can be defined as excellence in all academic disciplines, in class as well as extracurricular activities. It includes excellence in sporting, behaviour, confidence, communication skills, punctuality,

assertiveness, Arts, Culture, and the like. There are so many conditions that contribute to high academic achievement; Creativity, synetics, flexibility, sense of humour, originality, environment, support from peers, colleagues and from the school or college management. The creativity and adjustment are essential factors in the progress of academic achievement of students. The correlation between academic achievement and creativity, academic achievement and adjustment showed that there was a linkage between them. Therefore proper stress may be given to develop the creative power among the students, so that they can be balanced and ultimately secure the better academic achievement.

2.Objectives Of The Research

- To investigate the scientific temper and academic achievements of adolescents.
- To investigate if there is a significant difference in scientific attitude and academic performance of students regarding gender, class and type of institution.

3.Hypotheses of the study

The following Null hypotheses have been formulated for verification.

- The scientific temper and academic achievements of adolescent boys and girls irrespective of class and type of institution doesn't differ significantly.
- The scientific temper and academic achievements of adolescent belonging to urban and rural classes irrespective of gender and type of institution doesn't differ significantly.
- The scientific temper and academic achievements of adolescents studying in government and private colleges irrespective of gender and class doesn't differ significantly.

4.Methodology

The research design adopted for the study was descriptive survey design.

4.1.Sample

The sample of this study comprised of adolescent/college students studying in XI standard at Anantnag District of Jammu & Kashmir. In this study stratified random sampling technique has been used to select the samples. A sample of 180 students from eight colleges was selected both from government and private institutions, 112 from government and 68 from private.

4.2.Tool Used

The instruments used for achieving the objectives of the study were the 'attitude questionnaire' ascribed and standardized by Dr. D. N. Dani. This tool consists of 60 statements on scientific attitudes of adolescence. The reliability of the tool was 0.768 as by split – half method. The researcher also ensured the validity of the tool by using content validity. It means to get opinion from the area experts in Educational Research. The author of the tool also found the construct validity.

4.3.Data Analysis

Analysis was done for extracting meaningful interpretation of results from raw data using mean, S.D, t-test and F-ratio.

4.4.Null Hypothesis: I

For verification of first hypotheses i.e., the adolescent boys and girl student's doesn't differ significantly in their scientific attitude and academic achievement. The t-test was applied to compare means and standard deviations. The analysis is present in table 1.

Variable	Gender	N	df	Mean	SD	t-value	5% level of significance
Scientific attitude & academic achievement	Boys	100	178	56.4	9.70	2.039	Significant
	Girls	80		53.5	8.74		

Table 1: T-Test Analysis Of Adolescent Boys And Girl Students In Their Scientific Attitude And Academic Achievement.

The results of the analysis from table 1 revealed that the calculated t-value (2.039) is higher than the tabulated value (1.974) at $p=0.05$ level of significance. Hence, the null hypothesis withstands rejected concluding that there is significant difference between adolescent boys and girl students in their scientific temperament and academic achievement, boys being better scorer than the girls.

4.5.Null Hypothesis: Ii

For verification of second hypotheses i, e., the rural and urban college students doesn't differ significantly in their scientific attitude and academic achievement. The t-test was applied to compare means and standard deviations. The analysis is present in table 2.

Variables	Class	N	Df	Mean	SD	t-value	5% level of significance
Scientific attitude and academic achievement	Rural	60	178	52.41	8.48	2.753	Significant
	Urban	120		56.5	9.78		

Table 2: T-Test Analysis Of Rural And Urban Students In Their Scientific Attitude And Academic Achievement

The results of analysis from table 2 showed that the calculated t-value (2.753) is higher than the tabulated one (1.974) at the 0.05 level of significance. Therefore, null hypothesis withstand rejected, which implies that there is a significant difference between the rural and urban college students in terms of their scientific attitude and academic achievement concluding that the mean score of the urban college students was better than rural college students.

4.6.Null Hypothesis: Iii

For verification of third hypotheses i.e., there is no significant difference between Government and Private College students in their scientific attitude and academic achievement. The t-test was applied to compare means and standard deviations. The analysis is present in table 3.

Variable	Type of institution	N	df	Mean	SD	t-value	5% level of significance
Scientific attitude and Academic achievement	Government	122	1	46.8	8.2	6.22	Significant
	Private	68	178	56.18	9.51		

Table 3: The Table Showing Government And Private College Students In Their A Scientific Attitude And Academic Achievement

The results of analysis from table 2 indicated that the calculated t-value (6.22) is higher than the tabulated one (1.974) at the 0.05 level of significance. Therefore, null hypothesis withstands rejected revealed that there is a significant difference between the government and private college students in respect of their scientific attitude and academic achievement concluding that the mean score of the private college students was better than government college students.

5.Findings And Discussion

The findings of this study were discussed as follows,

- Scientific Temperament and Academic Achievement of adolescent boys and girls vary differently. Boys show better results than girls, which is in agreement with the findings of Marlily Pushpam (2010), who reported that gender was more important variable than intelligence quotient in deciding high academic performance and boys were better than girls in language, reasoning and drilling dimensions, reason may be better IQ.
- There is a significant difference between the rural and the urban students as per the locality of the college. Urban students do better than the rural students. The findings are in line with the results of Singh (1988) revealing that the urban students had better academic achievement than rural students, the reason behind this may be the facilities and exposure provided to urban learner.
- There is a significant difference between the scientific attitude and academic achievement of the govt. and private colleges. Private colleges proved to be better than the government ones. The findings are in agreement with Jancirani *et al.* (2012) reporting that there is significant difference between government, self finance and aided school students, reason being the higher financial back up of the private college students.

5.1. Educational Implications

- The increase in the degree of consistency helps in developing and inculcating a scientific attitude and academic achievement among the students.
- The scientific attitude can be inculcated among the students by providing them the opportunities for making good adjustments to different situations and to achieve better results.
- The students should be helped in performing laboratory works which results in developing a scientific attitude and in educational achievement.
- The teacher/guide should provide the students open environment, using different methods so that they analyse the problem in their own perspective so that they deal intellectually with the problem and also improve their knowledge.
- The students should be given proper guidance and instruction about the problems so that they will not commit any mistake regarding their observation.

5.2. Suggestions For Further Research

Some of the suggestions are as follows;

- The present study could be undertaken in different districts of J&K as well as in various states of India, as this study has been oriented to Anantnag district only.
- Different subjects could be undertaken for further research.
- Different aspects like areas, dimensions, variables etc upon which the further study may be conducted.
- Studies may be conducted on the use of A-V aids, teaching aids, management system, laboratory and library facilities, and curricular viz., co-curricular activity facilities available in the colleges as they have stronger influence on scientific attitude and to achieve good results in academics.

6. Conclusion

In this research, the investigator has studied the scientific attitude and academic achievement of the adolescent students in Anantnag district. The results have shown that the scientific attitude and academic achievement of the adolescent students vary differently with respect to the gender, social class, type of institution etc. Studies on academic achievement as a function of social class, gender and school management revealed that all the three factors affects the academic achievement of adolescents. The teacher is the pillar around which whole system rotates. The students should be provided with sufficient facilities and opportunities so as to develop critical thinking and perform simple experiments which results in their higher mental ability. The government and management should show cooperation with the teachers, organise seminars and workshops, so that the scientific attitude can be inculcated among the students which in turn help them to achieve better academic results.

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