RELATIONSHIP BETWEEN SELECTED PERSONALITY TRAITS AND ACHIEVEMENT IN MATHEMATICS OF HIGHER SECONDARY STUDENTS

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ABSTRACT

The aim of the present study was to find out the relationship between selected personality traits and achievement in Mathematics of higher secondary students. The sample consisted of 1200 students of whom 672 are boys and 528 are girls. The personality inventory was designed by Dr. Manju Rani Agarwal and Achievement in Mathematics was prepared and validated by the investigators . It was found that there is significant relationship between personality traits and level of achievement in Mathematics of higher secondary students.

INTRODUCTION

The systematically developed aim of education should be operationalized through goals and objectives by the educational authorities and teachers in their daily routine. Teachers during their teaching session should purposefully try to attain the objectives of education and develop all round personality in the students. Adolescence is the transition period between childhood and adulthood. It is a turning point in everybody's life. Personality traits affect students in all walks of life. The very nature of learning Mathematics is quite different from that of learning other subjects because it needs logical thinking and mental efforts which in turn are factors of personality. The investigator attempts to study the relationship between personality traits- temperament and adjustment - and achievement in Mathematics of higher secondary students.

REVIEW OF RELATED STUDIES

The investigators have reviewed a number of studies related to the topic under investigation. Sahayadhas S. and Porgio G. (2010) studied the relationship between selected personality traits and achievement in Sociology. House J. Daniel (2009) conducted a study on Elementary-school Mathematics Instruction and Achievement of fourth grade students in Japan. Surekha (2008) examined the relationship between student adjustment and academic achievement. Personality traits of college students with advanced skills in Mathematics were assessed by Spray, Kristina J. (1995). Pangahalingappa, Shahpur nagarppa (1995) investigated the causes of under achievement in secondary schools in Mathematics. Says, Julior (1995) studied the relationship among selected personality traits, identity status and academic achievement among black adolescents. TubmanJ.G., Lerner B.M., Lerner, J.V. and Von Eye A. (1992) conducted a longitudinal analysis of temperament and adjustment in young adulthood. William, Rosalind (1992) tried to find out the personality characteristics of selected and talented students. The survey of related studies has revealed clearly that not much work has been done on the relationship between personality traits and achievement in Mathematics of Higher Secondary students. Hence, the present study.

OBJECTIVES OF THE STUDY

1. To find out the level of personality traits-temperament and adjustment- of higher secondary students.
2. To find out the level of achievement in Mathematics of higher secondary students.
3. To find out whether there is any significant difference in personality traits-temperament and adjustment - of higher secondary students with reference to the background variables.

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4. To find out whether there is any significant difference in achievement in Mathematics of higher secondary students with reference to the background variables.
5. To find out whether there is any significant association between the temperament and level of achievement in Mathematics of higher secondary students.
6. To find out whether there is any significant association between the adjustment and level of achievement in Mathematics of higher secondary students.

HYPOTHESES OF THE STUDY

1. There is no significant difference in personality traits – temperament and adjustment - of higher secondary students with respect to type of school.
2. There is no significant difference in personality traits – temperament and adjustment - of higher secondary students with respect to nature of school.
3. There is no significant difference in achievement in Mathematics of higher secondary students with respect to background variables.
4. There is no significant association between temperament and achievement in Mathematics of higher secondary students.
5. There is no significant association between adjustment and achievement in Mathematics of higher secondary students.

METHOD SELECTED

The investigator selected the Normative Survey Method for the study.

POPULATION OF THE STUDY

The population includes higher Secondary students of Kanyakumari, Tirunelveli and Tuticorin districts of Tamil Nadu state.

SAMPLE

The investigator used the random sampling technique and randomly selected 1200 students from Kanyakumari, Tirunelveli and Tuticorin districts.

TOOLS

The tools used in the present study included Personality Inventory by Manju Rani Agarwal and Achievement in Mathematics prepared and validated by the investigators.

STATISTICS USED

Statistics of the study includes t-test, ANOVA, Duncan test and Chi-square.

ANALYSIS AND INTERPRETATION

Objective: 1 To find out the level of personality traits – temperament and adjustment of higher secondary students.

Table 1

LEVEL OF PERSONALITY TRAITS OF HIGHER SECONDARY STUDENTS

Variable	Poor		Good	
	N	%	N	%
Temperament	105	8.8	1095	91.3
Adjustment	888	74	312	26

From Table 1, it is inferred that 91.3 percent of the higher secondary students have good temperament and 74 percent have poor adjustment.

Objective : 2

To find out the level of achievement in Mathematics of higher secondary students.

Table 2

LEVEL OF ACHIEVEMENT IN MATHEMATICS OF HIGHER SECONDARY STUDENTS

Variable	Low		Average		High	
	N	%	N	%	N	%
Achievement in Mathematics	10	0.8	425	35.4	765	63.75

Table 2 shows that 63.75 percent of higher secondary students have high level of achievement in Mathematics, 35.42 percent have average and only 0.83

percent of students have low level of achievement in Mathematics.

Hypothesis : 1

There is no significant difference in personality traits – temperament and adjustment-of higher secondary students with respect to type of school.

Table 3

Mean and S.D scores of temperament and adjustment of Higher Secondary Students with respect to type of school and calculated F and P values.

Personality Traits	Type of School						F Value	P Value
	Matriculation		Government		Aided			
	Mean	S.D	Mean	S.D	Mean	S.D		
Temperament	42.63	5.8	43.1	6.1	41.88	6.5	0.21	0.8086
Adjustment	44.06	4.8	44.43	4.99	45.68	4.9	6.47	0.0016

From Table 3 it is known that the calculated P value for adjustment is less than 0.01 at 1% level of significance. The null hypothesis "There is no significant difference in personality traits – temperament and adjustment- of higher secondary students with respect to type of school" is partially rejected.

To find out the significant differences in adjustment among the groups, Duncan test is used.

Table 4

MEAN AND S.D OF SCORES OF ADJUSTMENT AND CALCULATED F AND P VALUES

Personality Traits	Type of School						F Value	P Value
	Matriculation		Government		Aided			
	Mean	S.D	Mean	S.D	Mean	S.D		
Adjustment	44.06[a]	4.78	44.43[a]	4.99	45.68[b]	4.9	6.47	0.0016

From Table 4 it is inferred that there is no significant difference in the adjustment of Matriculation and Government School higher secondary students. However aided school students significantly differ from Matriculation and Government School students in their adjustment.

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Hypothesis : 2

There is no significant difference in personality traits – temperament and adjustment - of higher secondary students with respect to nature of school.

Table 5

MEAN AND S.D SCORES OF TEMPERAMENT AND ADJUSTMENT OF HIGHER SECONDARY STUDENTS WITH RESPECT TO NATURE OF SCHOOL AND CALCULATED F AND P VALUES

Personality Traits	Nature of school						F Value	P Value
	Boys		Girls		Co-Education.			
	Mean	S.D	Mean	S.D	Mean	S.D		
Temperament	42.39	6.74	42.31	6.39	42.6	6.86	0.144	0.8656
Adjustment	45.03	5.09	44.32	6.16	44.3	4.82	1.653	0.1918

From Table 5 it is known that the calculated P values are greater than 0.05 at 5% level of significance. Hence the null hypothesis "There is no significant difference in personality traits – temperament and adjustment- of higher secondary students with respect to nature of school" is accepted.

Hypothesis : 3

There is no significant difference in achievement of higher secondary students in Mathematics with respect to background variables.

Table 6

MEAN AND S.D SCORES OF ACHIEVEMENT OF HIGHER SECONDARY STUDENTS IN MATHEMATICS WITH RESPECT TO BACKGROUND VARIABLES AND CALCULATED F AND P VALUES

Variable	Category	Mean	S.D	F-Value	P-Value
Type of School	Matriculation	66.47	13.68	2.117	0.1208
	Government	64.85	13.95		
	Aided	64.7	15.22		
Nature of School	Boys	64.12	15.01	2.109	0.1219
	Girls	67.4	15.05		
	Co-Education	65.64	13.6		

From Table 6 it is inferred that the calculated P values are greater than 0.05 at 5% level of significance. Hence the null hypothesis "There is no significant difference in achievement of higher secondary students in Mathematics with respect to background variables" is accepted.

Hypothesis : 4

There is no significant association between temperament and achievement in Mathematics of higher secondary students.

Table 7

THE CALCULATED CHI-SQUARE AND 'P' VALUES OF ACHIEVEMENT IN MATHEMATICS AND TEMPERAMENT

Category	Achievement in Mathematics			Total	Chi-square	P Value
	Low	Moderate	High			
Poor	----	51 -48.6 [12.0]	54 -51.4 [7.1]	105	9.3215	0.00946
Good	10 -0.9 [100.0]	374 -34.2 [88.0]	711 -64.9 [92.9]	1095		

The value within ( ) refers to row percentage.

The value within [ ] refers to column percentage.

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From Table 8 it is inferred that the P value of temperament is less than 0.01 at 1% level of significance. The null hypothesis "There is no significant association between temperament and achievement in Mathematics of higher secondary students" is rejected. Hence there is significant association between temperament and achievement in Mathematics of higher secondary students.

Hypothesis : 5

There is no significant association between adjustment and achievement in Mathematics of higher secondary students.

Table 8

THE CALCULATED CHI-SQUARE AND 'P' VALUES OF ACHIEVEMENT IN MATHEMATICS AND ADJUSTMENT

Category	Achievement in Mathematics			Total	Chi-square	P Value
	Low	Moderate	High			
Poor	8 -0.9 [80.0]	296 -33.3 [69.6]	584 -65.8 [76.3]	888	6.5496	0.0378
Good	2 -0.6 [20.0]	129 -41.3 [30.4]	181 -58 [23.7]	312		

The value within ( ) refers to row percentage.

The value within [ ] refers to column percentage.

From Table 9 it is inferred that the P value of adjustment is less than 0.05 at 5% level of significance. Hence the null hypothesis "There is no significant association between adjustment and achievement in Mathematics of higher secondary students" is rejected. Hence there is significant association between adjustment and achievement in Mathematics of higher secondary students.

FINDINGS

1. High percentage of higher secondary students (91.25%) have good temperament and (74%) have poor adjustment.
2. Majority of higher secondary students (63.75%) are high achievers in Mathematics.
3. There is no significant difference in temperament of higher secondary students with respect to type of school.
4. There is significant difference in adjustment of higher secondary students with reference to type of school. Aided school students have better adjustment.
5. There is no significant difference in personality traits-temperament and adjustment - of higher secondary students with respect to nature of school.
6. There is no significant difference in achievement of higher secondary students in Mathematics with respect to background variables.
7. There is significant association between temperament and achievement in Mathematics of higher secondary students.
8. There is significant association between adjustment and achievement in Mathematics of higher secondary students.

RECOMMENDATIONS

On the basis of the findings, the investigator has given the following recommendations to the teachers and parents to improve adjustment and have good temperament of the students in order to increase their achievement.

1. Each and every student is given an opportunity to participate in extra- curricular and co- curricular activities like quiz, drama etc. This will improve the adjustment and motivate to have good temperament.
2. Teachers should improve teacher-student as well as student-student interaction inside the class by giving discussion sessions.
3. Teachers should include group study methods for developing adjustment and good temperament.

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4. Teachers should arrange science exhibitions, clubs etc. in Government schools also to have more interaction among the students, thereby, to improve their adjustment.
5. Teachers must be given seminars, symposiums, workshops, etc. to have good temperament.
6. Parents should create congenial environment at home, which may help the children to be emotionally balanced and have good temperament.
7. Parents should not put too much pressure on their children to score high marks in the public exam. This may develop good temperament of the students. The parents should be friendly with their children.

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