Academic Achievement among the Secondary School Students of Tiruchirappalli District with respect to Select Variables

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Abstract:-   In the present study Academic Achievement of Secondary School Students of Tiruchirappalli District with respect to select variables was analyzed by Document analysis using secondary data. Among the 39649 students who appeared for the X Standard Public Examination (March 2016) from this District Tiruchirappalli, 1853 students were selected randomly. They were divided into various sub groups on the basis of institutional and students' variables. The data were collected from the Secondary Source data namely 'Tabulated Mark Sheet' of the School concerned which was published by the Directorate of Government Examination, School Education Department, Government of Tamilnadu for the March 2016 X Standard Public Examination. The academic achievement refers to the sum of marks secured in the subjects Tamil, English, Mathematics, Science and Social Science. Except the variables Type of Staying and Hours of Using Computer at Home, Students differ significantly in all the select variables viz., Type of School Management, Type of School, Locale of the School, Medium of Instruction, Birth Order, Gender, Community, Type of Family, Fathers' Educational Qualifications, Mothers' Educational Qualification, Fathers' Occupation, Mothers' Occupation and, Having Computer in Home. Educational implication of the findings has been discussed.

Key Words *: Academic Achievement, Document Analysis*,

I.   INTRODUCTION
        Education cultivates the human behavior. It success depends on the amount of knowledge/ contents / concepts one possess after having exposed to the particular content of the domain. Students' academic achievement to be improved steadily for his/her both intellectual and spiritual development. Hence the achievement or attainment of contents /concepts has been studied even today. According to Kohli (1975), academic achievement is the level of proficiency attained in academic work or as formally acquired knowledge in the school subjects which is often represented by percentage of marks obtained by students in examination. Good (1981) in the Dictionary of Education refers academic achievement as the knowledge attained or skills developed in the school subjects, usually designated by test scores or marks assigned by the teacher. Dictionary of Education (2003) defines academic achievement can be defined as performance, knowledge or skill acquired after instructions and training in courses or subjects of study, usually determined by test score or by marks assigned by teacher. Thus academic achievement of a student is defined as the outcome of education of a student – the extent to which a student has achieved his or her educational goals over a certain period.

II.   NEED FOR THE STUDY
        Students face numerous challenges to attain the particular level of academic achievement and have different level of academic achievement. Studies reveal that the academic achievement depends on many factors personal and non – personal factors. The non – personal factors can further be classified into school related factors, environment of the home or family related factors. (Khan and Malik,1999; Fan, 2001; Gonzalez Pienda et. al., 2002). In order to improve the academic achievement of the students, teacher should aware of the factors which promote/hinder students' achievement. Hence the present study was carried out.

III.   OBJECTIVES OF THE STUDY
The objectives of the present study are:
➢   To find out the level of Academic Achievement of Secondary School students of Tiruchirappalli District
➢   To find out whether there exists, any significant difference in the Academic Achievement of Secondary School Students of Tiruchirappalli District with respect to the Institutional variables viz., Type of School Management, Type of School, Locale of the School, Medium of Instruction and Type of Staying.

- To find out whether there exists, any significant difference in the Academic Achievement of Secondary School Students of Tiruchirappalli District with respect to the Biological variables viz., Birth Order and Gender.
- To find out whether there exists, any significant difference in the Academic Achievement of Secondary School Students of Tiruchirappalli District with respect to the Social variables viz., Community, Type of Family, Fathers' Educational Qualification Mothers' Educational Qualification.
- To find out whether there exists any significant difference in the Academic Achievement of Secondary School Students of Tiruchirappalli District with respect to the Economical variables viz., Fathers' Occupation, Mothers' Occupation
- There exists no significant difference in the Academic Achievement of Secondary School Students of Tiruchirappalli District with respect to the Technological variables viz., Having Computer, Hours of using Computer

IV. HYPOTHESES OF THE STUDY

To achieve the above objectives the following hypotheses have been framed.
- The Academic Achievement of Secondary School Students of Tiruchirappalli District is low.
- There exists no significant difference in the Academic Achievement of Secondary School Students of Tiruchirappalli District with respect to the following Institutional variables viz., Type of School Management, Type of School, Locale of the School, Medium of Instruction and Type of Staying.
- There exists no significant difference in the Academic Achievement of Secondary School Students of Tiruchirappalli District with respect to the following Biological variables viz., Birth Order and Gender.
- There exists no significant difference in the Academic Achievement of Secondary School Students of Tiruchirappalli District with respect to the following Social variables viz., Community, Type of Family, Fathers' Educational Qualification Mothers' Educational Qualification.
- There exists no significant difference in the Academic Achievement of Secondary School Students of Tiruchirappalli District with respect to the following Economical variables viz., Fathers' Occupation, Mothers' occupation
- There exists no significant difference in the Academic Achievement of Secondary School Students of Tiruchirappalli District with respect to the following Technological variables viz., Having Computer, Hours of using Computer
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V. METHODOLOGY IN BRIEF

Document analysis was followed in the present study using secondary data. This study is limited to the X Standard Students of Tiruchirappalli District of Tamil Nadu only.

5.1 Sample

In Tiruchirappalli District 39649 students appeared for the X Standard Public Examination (March 2016). Among these students, 1853 students were selected randomly from the schools of Tiruchirappalli District. They were divided into various sub groups on the basis of institutional and students' variables. Hence the sample for the present study is 1853.

5.2 Tool

The data were collected from the Secondary Source data namely 'Tabulated Mark Sheet' of the School concerned which was published by the Directorate of Government Examination, Chennai, functioning under School Education Department, Government of Tamilnadu for the March 2016 X Standard Public Examination. The academic achievement refers to the sum of marks secured in the subjects Tamil, English, Mathematics, Science and Social Science.

VI. ANALYSIS & INTERPRETATION

The data were analyzed by using 't' test and 'F test.

6.1 Academic Achievement of Secondary School Students of Tiruchirappalli

The minimum, maximum, mean and Standard Deviation (SD) obtained for the five subjects Tamil, English, Mathematics, Science and Social Science are presented in the Table 1.

Table 1 : Mean & SD of the subjects of X Standard Students of Tiruchirappalli District

Subject	N	Minimum	Maximum	Mean	Std. Deviation	Mean Percentage
Tamil	1853	9.00	99.00	74.88	17.67	72.52
English	1853	7.00	774.00	63.78	23.77	61.85
Mathematics	1853	4.00	100.00	60.12	20.85	58.21
Science	1853	33.00	100.00	84.49	12.11	81.39
Social Science	1853	9.00	100.00	77.23	19.09	74.75
Total	1853	116.00	494.00	360.30	77.91	69.70

The mean and standard deviation of the Academic Achievement of the students have been found to be 360.30 and 77.91 respectively (Table 1). The maximum Achievement score that could be obtained is 500. The maximum score teacher trainees obtained in the present study has been 494 and the minimum 116. The mean score 360.30 (69.70%) is far above 50% of the maximum score. So, it may be concluded that Academic Achievement of Secondary School Students is rather high. The SD, 77.91, indicates that there is a slight wide dispersion of scores. Subject-wise analysis of the Academic Achievement also shows that their performance is relatively high in all the five subjects except Mathematics (Table.1). Students are relatively very good in the achievement at 'Science' with the mean score of 84.49 and SD, 12.11. Next to the subject Science, students are very good in the achievement at 'Social Science' with the mean score of 77.23 and SD, 19.09. Regarding the subject 'Tamil' the achievement mean and SD have been found to be 74.88 and 17.67 respectively. In the subject 'English' the achievement mean score is 63.78 and SD is 23.77. When comparing with the remaining four subjects students are relatively not good in the achievement at 'Mathematics' with the mean score 60.12 and SD 20.85. So it may be concluded that students of Tiruchirappalli District generally have high Academic Achievement in the Board Examination. Subject-wise analyses also support the general conclusion.

Table 2 : Test of Significance:- Difference in Academic Achievement between the High Achievers and Low Achiever of Tiruchirappalli District

Levels of Achievement	N	Mean	Standard Deviation	t	df	Significant Level
High	1683	375.32	64.22	56.615	333*	0.01
Low	170	211.65	31.69			

*Equal variance not assumed

The Table 2 shows that the calculated t value 56.615 is greater than the table value 2.591 for df = 333 at 0.01 level of significance. Hence the null hypothesis that there is no significant difference in Academic Achievement between High Achievers and Low Achiever of Tiruchirappalli District **is** rejected at 0.01 level of significance.

6.2 Testing the significance of difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Type of Management of the School

Table 3 : ANOVA Summary

Sources	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1890663.710	2	945331.855	187.008	0.01
Within Groups	9351819.015	1850	5055.037		
Total	11242482.725	1852			

The Table 3 shows that the calculated 'F' value 187.008 is greater than the table value 4.616 for df (2, 1850) and hence the null hypothesis there exists no significant difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Type of Management of the School is rejected at 0.01 levels of significance. Further analysis was done. The results are given in the Table 4.

Table 4 : Test of Significance:- Difference in Academic Achievement between the Students of Tiruchirappalli District who studied in Government Schools, Government Aided Private Schools and Unaided Private Schools

Type of School Management	N	Mean	Standard Deviation	t	df	Significant Level
Government	754	328.77	74.03	11.329	1631	0.01
Government Aided Private	879	369.99	72.65			
Government	754	328.77	74.03	22.840	504*	0.01
Unaided Private	220	429.67	51.91			
Government Aided Private	879	369.99	72.65	13.970	459*	0.01
Unaided Private	220	429.67	51.91			

*Equal variance not assumed

The Table 4 shows that the calculated t values 11.329, 22.84 and 13.970 are greater than the table values 2.579, 2.586, 2.587 for df = 1631, 504, 459 respectively at 0.01 level of significance. Hence the null hypotheses that there is no significant difference in Academic Achievement between students of Tiruchirappalli District who studied in Government Schools & Government Aided Private Schools, Government Schools & Unaided Private Schools, and Government Aided Private Schools & Unaided Private Schools are rejected at 0.01level of significance.

6.3 Testing the significance of difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Type of School

Table 5 : ANOVA Summary

Sources	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	433198.636	2	216599.318	37.071	0.01
Within Groups	10809284.089	1850	5842.856		
Total	11242482.725	1852			

The Table 5 shows that the calculated 'F' value 37.071 is greater than the table value 4.616 for df (2, 1850) and hence the null hypothesis there exists no significant difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Type of School is rejected at 0.01 levels of significance. Further analysis was done. The results are given in the Table 6.

Table 6 : Test of Significance:- Difference in Academic Achievement between the Students of Tiruchirappalli District who studied in Boys Schools, Girls' Schools and Coeducational Schools

Type of School	N	Mean	Standard Deviation	t	df	Significant Level
Boys	373	338.49	83.04	8.659	711*	0.01
Girls'	396	385.56	66.18			
Boys	373	338.49	83.04	4.237	1455	0.01
Coeducational	1084	358.58	77.56			
Girls'	396	385.56	66.18	6.618	816*	0.01
Coeducational	1084	358.58	77.56			

*Equal variance not assumed

The table 6 shows that the calculated t values 8.659, 4.237and 6.618 are greater than the table values 2.583, 2.579, 2.582 for df = 711, 1455, 816 respectively at 0.01 level of significance. Hence the null hypotheses that there is no significant difference in Academic Achievement between students of Tiruchirappalli District who studied in Boys Schools & Girls' Schools, Boys Schools & Coeducational Schools, and Girls' Schools & Coeducational Schools are rejected at 0.01 level of significance.

6.4 Testing the significance of difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Locale of School

Table 7 : Locale of School – ANOVA Summary

Sources	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	189853.800	3	63284.600	10.587	0.01
Within Groups	11052628.925	1849	5977.625		
Total	11242482.725	1852			

The Table 7 shows that the calculated 'F' value 10.587 is greater than the table value 3.792 for df (3, 1849) and hence the null hypothesis there exists no significant difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Type of School is rejected at 0.01 levels of significance. Further Post Hoc test was carried out. The results are given in the Table 8.

Table 8 : Post Hoc Tests - Locale of School – Homogeneous Subsets

	Academic Achievement				
	Locale of School	N	Subset for alpha = 0.05		
			1	2	3
Duncan[a,b]	Municipal	47	337.1702		
	Village Panchayat	994	354.7555	354.7555	
	Corporation	774		366.2326	
	Town Panchayat	38			413.3421
	Sig.		0.150	0.347	1.000
Means for groups in homogeneous subsets are displayed.					
a. Uses Harmonic Mean Sample Size = 80.176.					
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.					

The Table 8 indicates that Locale of Schools is secluded into three sub-sets. As it can be seen, the Academic Achievement of Town Panchayat Area is at the same subset. As it can be seen, the Academic Achievement of Municipal Area and Village Panchayat Area are at the same subset and indicating that there is no significance difference between them (p=0.150). Similarly the same can be observed in relation to the Locale of the School, Village Panchayat Area and Corporation Area and indicating that there is no significance difference between them (p=0.347). The Academic Achievement of Municipal Area is significantly different from the Academic Achievement of Corporation Area and Town Panchayat Area. The Academic Achievement of Village Panchayat is significantly different from Town Panchayat Area. It is interpreted from the above finding that the Secondary School Students of Tiruchirappalli District differ in their Academic Achievements with respect to the variable Locale of School. Secondary School Students of Town Panchayat Area of Tiruchrappalli District have high level of Academic Achievement than the students of other Areas of Tiruchirappalli District.

6.5 Testing the significance of difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Medium of Instruction

Table 9 : Test of Significance:- Difference in Academic Achievement between Tamil Medium Students and English Medium Students of Tiruchirappalli District

Medium of Instruction	N	Mean	Standard Deviation	t	df	Significant Level
Tamil	1452	342.28	74.00	25.440	880*	0.01
English	401	425.57	52.80			

*Equal variance not assumed

The Table 9 shows that the calculated t values 25.44 is greater than the table value 2.581 for df = 880 at 0.01 level of significance. Hence the null hypothesis that there is no significant difference in Academic Achievement between Tamil Medium Students and English Medium Students of Tiruchirappalli District is rejected at 0.01 level of significance.

6.6 Testing the significance of difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Type of Staying

Table 10 : Test of Significance:- Difference in Academic Achievement between Days Scholars and Hostlers of Tiruchirappalli District

Type of Staying	N	Mean	Standard Deviation	t	df	Significant Level
Days Scholars	1721	360.73	76.79	0.732	146*	NS at 0.05
Hostlers	132	354.75	91.47			

*Equal variance not assumed

The Table 10 shows that the calculated t values 0.732 is less than the table value 1.976 for df = 146 at 0.05 level of significance. Hence the null hypothesis that there is no significant difference in Academic Achievement between Days Scholars and Hostlers of Tiruchirappalli District is accepted at 0.05 level of significance.

6.7 Testing the significance of difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Birth Order

Table 11: Birth Order – ANOVA Summary

Sources	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	101799.951	2	50899.976	8.452	0.01
Within Groups	11140682.774	1850	6021.991		
Total	11242482.725	1852			

The Table 11 shows that the calculated 'F' value 8.452 is greater than the table value 4.616 for df (2, 1850) and hence the null hypothesis there exists no significant difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Birth order is rejected at 0.01 levels of significance. Further Post Hoc a test was carried out. The results are given in the Table 12.

Table 12 : Post Hoc Tests - Birth Order – Homogeneous Subsets

Academic Achievement				
	Birth Order	N	Subset for alpha = 0.05	
			1	2
Duncan[a,b]	Middle	493	348.4037	
	Last	584		362.0685
	First	776		366.5387
	Sig.		1.000	0.320
Means for groups in homogeneous subsets are displayed.				
a. Uses Harmonic Mean Sample Size = 596.494.				
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.				

The Table 12 indicates that Birth order is secluded into two sub-sets. As it can be seen, the Academic Achievement of Middle Birth Order is at the same subset. As it can be seen, the Academic Achievement of Last Birth Order and First Birth Order are at the same subset and indicating that there is no significance difference between them (p=0.320). The Academic Achievement of Middle Birth Order is significantly different from the Academic Achievement of Last Birth Order and First Birth Order. It is interpreted from the above finding that the Secondary School Students of Tiruchirappalli District differ in their Academic Achievements with respect to the variable Birth Order. Secondary School Students of First Birth Order of Tiruchirappalli District have high level of Academic Achievement than the students of other Birth Order of Tiruchirappalli District.

6.8 Testing the significance of difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Gender

Table 13 : Test of Significance:- Difference in Academic Achievement between the Boys and Girls of Tiruchirappalli District

Gender	N	Mean	Standard Deviation	t	df	Significant Level
Male	919	342.63	78.79	9.933	1835*	0.01
Female	934	377.70	73.01			

*Equal variance not assumed

The Table 13 shows that the calculated t values 9.933 is greater than the table value 2.579for df = 1835 at 0.01 level of significance. Hence the null hypothesis that there is no significant difference in Academic Achievement between Boys and Girls of Tiruchirappalli District is rejected at 0.01 level of significance.

6.9 Testing the significance of difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Community

Table 14 : Community – ANOVA Summary

Sources	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	506640.248	5	101328.050	17.433	0.01
Within Groups	10735842.478	1847	5812.584		
Total	11242482.725	1852			

The Table 14 shows that the calculated 'F' value 17.433 is greater than the table value 3.027 for df (5, 1847) and hence the null hypothesis there exists no significant difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Community is rejected at 0.01 levels of significance. Further Post Hoc test was carried out. The results are given in the Table 15.

Table 15 : Post Hoc Tests - Community – Homogeneous Subsets

Academic Achievement					
	Community	N	Subset for alpha = 0.05		
			1	2	3
Duncan[a,b]	ST	20	326.8500		
	SC	329	332.2401		
	MBC	323		357.2446	
	DNC	141		361.6879	
	BC	979		368.0010	
	FC	61			412.1311
	Sig.		0.666	0.421	1.000
Means for groups in homogeneous subsets are displayed.					
a. Uses Harmonic Mean Sample Size = 74.402.					
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.					

The Table 15 indicates that Community is secluded into three sub-sets. As it can be seen, the Academic Achievement of Forward Caste (FC) is at the same subset. As it can be seen, the Academic Achievement of Scheduled Caste (SC) and Scheduled Tribe (ST) are at the same subset and indicating that there is no significance difference between them (p=0.666). Similarly the same can be observed in relation to the Community, Most Backward Class (MBC), Denotified Class (DNC) and Backward Class (BC) and indicating that there is no significance difference between them (p=0.421). The Academic Achievement of the Students of Scheduled Caste / Scheduled Tribe (ST) is significantly different from the Academic Achievement of the students of Most Backward Class (MBC), Denotified Class (DNC), Backward Class (BC) and Forward Caste. The Academic Achievement of Most Backward Class (MBC) / Denotified Class (DNC) / Backward Class (BC) is significantly different from the Forward Caste. It is interpreted from the above finding that the Secondary School Students of Tiruchirappalli District differ in their Academic Achievements with respect to the variable Community. Secondary School Students of Forward Caste of Tiruchrappalli District have high level of Academic Achievement than the students of other Castes of Tiruchirappalli District.

6.10 Testing the significance of difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Type of Family

Table 16 : Type of Family – ANOVA Summary

Sources	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	269253.441	2	134626.721		
Within Groups	10973229.284	1850	5931.475	22.697	0.01
Total	11242482.725	1852			

The Table 16 shows that the calculated 'F' value 22.697 is greater than the table value 4.616 for df (2, 1850) and hence the null hypothesis there exists no significant difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Type of Family is rejected at 0.01 levels of significance. Further Post Hoc test was carried out. The results are given in the Table 17.

Table 17 : Post Hoc Tests - Type of Family – Homogeneous Subsets

	Family	N	Subset for alpha = 0.05	
Academic Achievement				
			1	2
Duncan[a,b]	Nuclear	895	351.4413	
	Joint	448	356.0022	
	Separated	510		379.6392
	Sig.		0.320	1.000
Means for groups in homogeneous subsets are displayed.				
a. Uses Harmonic Mean Sample Size = 564.946.				
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.				

The Table 17 indicates that Type of Family is secluded into two sub-sets. As it can be seen, the Academic Achievement of Separated Family is at the same subset. As it can be seen, the Academic Achievement of Nuclear Family and Joint Family are at the same subset and indicating that there is no significance difference between them (p=0.320). The Academic Achievement of the Students of Nuclear Family / Joint Family is significantly different from the Academic Achievement of the students of Separated Family. It is interpreted from the above finding that the Secondary School Students of Tiruchirappalli District differ in their Academic Achievements with respect to the variable Type of Family. Secondary School Students of Separated Family have high level of Academic Achievement than the students of other Families of Tiruchirappalli District.

6.11 Testing the significance of difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Fathers' Educational Qualification

Table 18 : Fathers' Educational Qualification – ANOVA Summary

Sources	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	939506.784	2	469753.392		
Within Groups	10302975.942	1850	5569.176	84.349	0.01
Total	11242482.725	1852			

The Table 18 shows that the calculated 'F' value 84.349 is greater than the table value 4.616 for df (2, 1850) and hence the null hypothesis there exists no significant difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Fathers' Educational Qualification is rejected at 0.01 levels of significance. Further Post Hoc test was carried out. The results are given in the Table 19.

Table 19 : Post Hoc Tests - Fathers' Educational Qualification – Homogeneous Subsets

	Fathers' Qualification	N	Subset for alpha = 0.05		
Academic Achievement					
			1	2	3
Duncan[a,b]	SSLC Graduates & Below	1332	347.5766		
	HSC Graduates	275		375.6618	
	Degree Graduates & Above	246			412.0569
	Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 354.939.
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

The Table 19 indicates that Fathers' Educational Qualification is secluded into three sub-sets. As it can be seen, the Academic Achievement of Students whose Fathers are SSLC Graduates & Below is at the same subset. Similarly the same can be observed for Students whose Fathers are HSC Graduates and Students whose Fathers are Degree Graduates & Above and each is at the same subset. The Academic Achievement of the Students whose Fathers are SSLC Graduates & Below is significantly different from the Academic Achievement of the Students whose Fathers are HSC Graduates and Students whose Fathers are Degree Graduates & Above. The Academic Achievement of the Students whose Fathers are HSC Graduates is significantly different from the Academic Achievement of the Students whose Fathers are Degree Graduates & Above. It is interpreted from the above finding that the Secondary School Students of Tiruchirappalli District differ in their Academic Achievements with respect to the variable Fathers' Educational Qualification. Secondary School Students whose Fathers are Degree Graduates & Above have high level of Academic Achievement than the students of whose Fathers are SSLC Graduates & Below and HSC Graduates of Tiruchirappalli District.

6.12 Testing the significance of difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Mothers' Educational Qualification

Table 20 : Mothers' Educational Qualification – ANOVA Summary

Sources	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	869313.753	2	434656.877		
Within Groups	10373168.972	1850	5607.118	77.519	0.01
Total	11242482.725	1852			

The Table 20 shows that the calculated 'F' value 77.519 is greater than the table value 4.616 for df (2, 1850) and hence the null hypothesis there exists no significant difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Mothers' Educational Qualification is rejected at 0.01 levels of significance. Further Post Hoc test was carried out. The results are given in the Table 21.

Table 21: Post Hoc Tests - Mothers' Educational Qualification – Homogeneous Subsets

Academic Achievement					
	Mothers' Qualification	N	Subset for alpha = 0.05		
			1	2	3
Duncan[a,b]	SSLC Graduates & Below	1372	348.4716		
	HSC Graduates	271		379.6310	
	Degree Graduates & Above	210			412.6762
	Sig.		1.000	1.000	1.000
Means for groups in homogeneous subsets are displayed.					
a. Uses Harmonic Mean Sample Size = 326.769.					
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.					

The Table 21 indicates that Mothers' Educational Qualification is secluded into three sub-sets. As it can be seen, the Academic Achievement of Students whose Mothers are SSLC Graduates & Below is at the same subset. Similarly the same can be observed for Students whose Mothers HSC Graduates and Students whose Mothers are Degree Graduates & Above and each is at the same subset. The Academic Achievement of the Students whose Mothers are SSLC Graduates & Below is significantly different from the Academic Achievement of the Students whose Mothers are HSC Graduates and Students whose Mothers are Degree Graduates & Above. The Academic Achievement of the Students whose Mothers are HSC Graduates is significantly different from the Academic Achievement of the Students whose Mothers are Degree Graduates & Above. It is interpreted from the above finding that the Secondary School Students of Tiruchirappalli District differ in their Academic Achievements with respect to the variable Mothers' Educational Qualification. Secondary School Students whose Mothers are Degree Graduates & Above have high level of Academic

Achievement than the students of whose Mothers are SSLC Graduates & Below and HSC Graduates of Tiruchirappalli District.

6.13 Testing the significance of difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Fathers' Occupation

Table 22 : Fathers' Occupation – ANOVA Summary

Sources	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	589544.206	3	196514.735		
Within Groups	10652938.520	1849	5761.459	34.108	0.01
Total	11242482.725	1852			

The Table 22 shows that the calculated 'F' value 34.108 is greater than the table value 3.792 for df (3, 1849) and hence the null hypothesis there exists no significant difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Fathers' Occupation is rejected at 0.01 levels of significance. Further Post Hoc test was carried out. The results are given in the Table 23.

Table 23 : Post Hoc Tests - Fathers' Occupation – Homogeneous Subsets

	Academic Achievement				
	Father Occupation	N	Subset for alpha = 0.05		
			1	2	3
Duncan[a,b]	Daily Wages (Cooly)	226	340.4735		
	Business People	835	347.5832		
	Farmers	378		369.0265	
	Professionals	414			388.8261
	Sig.		0.200	1.000	1.000
Means for groups in homogeneous subsets are displayed.					
a. Uses Harmonic Mean Sample Size = 374.415.					
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.					

The Table 23 indicates that Fathers' Occupation is secluded into three sub-sets. As it can be seen, the Academic Achievement of Students whose Fathers are Professionals is at the same subset. Similarly the same can be observed for Students whose Fathers are Farmers and is at the same subset. As it can be seen, the Academic Achievement of Students whose Fathers are Daily Wages (Cooly) and Business People are at the same subset and indicating that there is no significance difference between them (p=0.200). The Academic Achievement of the Students whose Fathers are Daily Wages (Cooly) / Business People is significantly different from the Academic Achievement of the Students whose Fathers are Farmers and Professionals. The Academic Achievement of the Students whose Fathers are Farmers is significantly different from the Academic Achievement of the Students whose Fathers are Professionals. It is interpreted from the above finding that the Secondary School Students of Tiruchirappalli District differ in their Academic Achievements with respect to the variable Fathers' Occupation. Secondary School Students whose Fathers are Professionals have high level of Academic Achievement than the students of whose Fathers are Farmers, Business People and Daily Wages (Cooly) of Tiruchirappalli District.

6.14 Testing the significance of difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Mothers' Occupation

Table 24 : Mothers' Occupation – ANOVA Summary

Sources	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	270010.607	3	90003.536		
Within Groups	10972472.118	1849	5934.274	15.167	0.01
Total	11242482.725	1852			

The Table 24 shows that the calculated 'F' value 15.167 is greater than the table value 3.792 for df (3, 1849) and hence the null hypothesis there exists no significant difference in Academic Achievement among the

Students of Tiruchirappalli District with respect to the variable Mothers' Occupation is rejected at 0.01 levels of significance. Further Post Hoc test was carried out. The results are given in the Table 25.

Table 25 : Post Hoc Tests - Mothers' Occupation – Homogeneous Subsets

Academic Achievement					
	Mother Occupation	N	Subset for alpha = 0.05		
			1	2	3
Duncan[a,b]	Daily Wages (Cooly)	182	339.1319		
	Business People	115	345.0261		
	Farmers	1355		360.2399	
	Professionals	201			388.6567
	Sig.		0.443	1.000	1.000
Means for groups in homogeneous subsets are displayed.					
a. Uses Harmonic Mean Sample Size = 200.972.					
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.					

The Table 25 indicates that Mothers' Occupation is secluded into three sub-sets. As it can be seen, the Academic Achievement of Students whose Mothers are Professionals is at the same subset. Similarly the same can be observed for Students whose Mothers are Farmers and is at the same subset. As it can be seen, the Academic Achievement of Students whose Mothers are Daily Wages (Cooly) and Business People are at the same subset and indicating that there is no significance difference between them (p=0.443). The Academic Achievement of the Students whose Mothers are Daily Wages (Cooly) / Business People is significantly different from the Academic Achievement of the Students whose Mothers are Farmers and Professionals. The Academic Achievement of the Students whose Mothers are Farmers is significantly different from the Academic Achievement of the Students whose Mothers are Professionals. It is interpreted from the above finding that the Secondary School Students of Tiruchirappalli District differ in their Academic Achievements with respect to the variable Mothers' Occupation. Secondary School Students whose Mothers are Professionals have high level of Academic Achievement than the students of whose Mothers are Farmers, Business People and Daily Wages (Cooly) of Tiruchirappalli District.

6.15 Testing the significance of difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Having Computer in Home

Table 26 : Test of Significance:- Difference in Academic Achievement between Students of Tiruchirappalli District who are having Computer in Home and not having Computer in home

Having Computer	N	Mean	Standard Deviation	t	df	Significant Level
Yes	654	379.20	78.19	7.835	1851	0.01
No	1199	350.00	75.84			

The Table 26 shows that the calculated t values 7.835 is greater than the table value 2.578 for df = 1851 at 0.01 level of significance. Hence the null hypothesis that there is no significant difference in Academic Achievement between Students of Tiruchirappalli District who are having Computer in Home and not having Computer in home is rejected at 0.01 level of significance

6.8 Testing the significance of difference in Academic Achievement among the Students of Tiruchirappalli District with respect to the variable Hours of Using Computer in Home

Table 27 : Test of Significance:- Difference in Academic Achievement between the Students of Tiruchirappalli District who are using Computer more than one Hour and one hour & less than one hour

Hours of using Computer	N	Mean	Standard Deviation	t	df	Significant Level
Below and Equal to 1 hour	470	377.66	79.83	0.806	652*	NS at 0.05

| above 1 hour | 184 | 383.14 | 73.89 | | | |

Equal variance not assumed

The Table 27 shows that the calculated t values 0.806 is less than the table value 1.964 for df = 652 at 0.05 level of significance. Hence the null hypothesis that there is no significant difference in Academic Achievement between Students who are using Computer more than one Hour and Students who are using Computer one hour & less than one hour of Tiruchirappalli District is accepted at 0.05level of significance.

VII.   RESULTS AND DISCUSSION

The present study reveals that there exists significant difference in academic achievement among the Secondary School Students of Tiruchirappalli District with respect to the following variables viz., Type of School Management, Type of School, Locale of the School, Medium of Instruction, Birth order, Gender, Community, Type of family, Fathers' Educational Qualifications, Mothers' Educational Qualification, Fathers' Occupation, Mothers' Occupation, Having Computer in Home. Students differ in their academic achievement with respect to the variable Type of School Management. Students show a significant difference in their academic achievement with respect to the variable Type of Management. Haseen (1999), Chamundeswari *et al*., (2006), and Aruna *et al.,* (2009) also reported difference in academic achievement with respect to the variable Type of School Management. The students of Girls' Schools have secured highest achievement than the students of other type of schools. Significant difference in academic achievement with respect to type of Schools has also been reported by Singh (2005), Bajwa *et al.,* (2006) and Gurubasappa (2009). The Students differ in their academic achievement with respect to the variable Locale of the School. Balasubramanayan (1997), Mishra (1997), Sarsani *et al.,* (2001), Mittal (2008), Aruna *et al.,* (2009) and Gurubasappa (2009) also have reported that students differ in their academic achievement with respect to the variable Locale. Students differ in their academic achievement with respect to the variable Medium of Instruction. The reports of Balasubramanayan (1997), Radha (1998), Gurubasappa (2009) and Sarsani *et al.,* (2010) also confirmed that Medium of Instruction has an influence on students' achievement. The secondary students show a significant difference in their achievement with respect to their Gender. Similar findings have been reported by the studies of Aggarwal (1983), Vijayalakshmi and Natesen (1992), Schnedeker (1997), Mishra (1997), Koreswara *et al.,* (1998), Suneetha *et al.,* (2001), Jacobs (2002), Devi and Mayuri (2003), Deary *et al.,* (2004), Bruni *et al.,* (2006), Leeson *et al.,* (2008), Aruna *et al.,* (2009), Gurubasappa (2009), Sarsani *et al.,* (2010), Karagöl and Bekmezci (2015) and Leo David & Jeyaraman (2015). This study shows students differ in their academic achievement with respect to their community. Similar findings have been reported by the studies of Haseen (1999), Singh (2005). In contrary to the studies of Sharon and Cheryl (2008) and Choudhary (2009), the students of Separated Families have recorded highest academic achievement than students of Joint Family and Nuclear Family. Similar to the existing literature Satyanandam (1969), Krishnan (1977), Saini (1977), Singh & Srivastava (1983), Sharma (1984), Baker & David (1986), Chakrabarti (1986), Rajput (1989), Bhatnagar & Sharma (1992), Cherian (1992), Shah (1993), Pal *et al.,* (1996), Kohl *et al.,* (2000), Devi and Kiran (2002), Rothman (2003), Tavani and Losh (2003), Ganguly (2004), Sunitha (2005), Gurubasappa (2009) and Farkhanda and Ehtesham (2013) the Educational Qualification of the Parents' has direct relationship with students' academic achievement. In terms of Parents' Occupation students differ in their academic achievement. Similar findings have been reported by Alim *et al.,* (2008), Aruna *et al.,* (2009), Gurubasappa (2009) And Mohanty (2009). The Present study reveals that the students having Computer in Home have recorded a higher level of academic achievement than students not having Computer in Home.

VIII   CONCLUSION

The present study was conducted to study the Academic Achievement of Secondary School Students of Tiruchirappalli District with respect to the variables Type of School Management, Type of School, Locale of the School, Medium of Instruction, Type of Staying, Birth order, Gender, Community, Type of Family, Fathers' Educational Qualifications, Mothers' Educational Qualification, Fathers' Occupation, Mothers' Occupation, Having Computer in Home and Hours of Using Computer at Home. Except Type of Staying and Hours of Using Computer at Home, Secondary School Students of Tiruchirappalli District differ significantly in all the select variables. The students of Unaided Private Schools have recorded highest achievement than students of Government Aided Private Schools and Government Schools. This may be due to the availability of excellent infrastructure facilities and utilization of modern technological inputs like smart board for classroom transaction in the Unaided Private Schools. This evinces a special care is to be taken to study the facilities and technological inputs available and their appropriate utilization in the Government Schools. The students of Girls' Schools have secured highest achievement than the students of Co-Educational and Boys Schools. This may be due to the discipline based problems faced both by the teachers and students in Boys Schools than Girls' Schools.

Hence a trained Academic Counselor may be appointed in Boys Schools. The Students of Town Panchayat Area have recorded highest achievement than students of Corporation, Village Panchayat Area and Municipality Area. The reasons for the poor performance of the Students of Municipal Area has to probed in detail since it is contrary to the existing literature of many studies. English Medium has recorded a higher level of academic achievement than students of Tamil medium. This may be due to the utilization of modern technological inputs like Smart Board for classroom transaction in the English Medium Schools. Many software packages learning packages in Tamil regional language may be developed and supplied at free of cost to all Schools having Tamil Medium. The Girls have scored significantly higher than the Boys of Tiruchirappalli District. This shows that Girls have higher propensity towards education than those of male and hence steps should be taken to continue further education of Girls. The Students of Forward Community have got more academic achievement than others especially the Scheduled Caste and Scheduled Tribe. This has to be seriously viewed and an in-depth study on the performance of Scheduled Caste and Scheduled Tribe to be carried out. Students whose parents are more educated have recorded highest academic achievement. This may be due to the parental care on providing educational opportunities at Home. The wards of Professionals have scored the highest academic achievement than the wards of Farmers, Business People and Daily Wages (Cooly). Hence proper environment may be provided in school after school hours to develop study habits among the wards of Farmers, Business People and Daily Wages (Cooly). Students having Computer in Home have recorded a higher level of academic achievement than students not having Computer in Home. This finding reveals that Computer enables the learning among the students even after school hours. Hence in Schools steps may be taken to provide all kinds of modern technological inputs right from Computer to Virtual Classroom facilities.

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