CHAPTER IV

C H A P T E R IV

ANALYSIS OF VARIANCE (ANOVA) APPROACH

4.0.0 Introduction

The present chapter poses the questions, 'In what ways and to what extent, country, socio-economic status, and school climate on one set of independent variables and country, socio-economic status, and classroom behaviour on the other with their classifications affect the criterion variable of creative thinking. The answers to these questions have been provided partly through t-test approach in Chapter V and then through correlational approach in Chapter VI. The three way classification of analysis of variance with (2x2x2) factorial design was employed to test the major effects of country, socio-economic status and school climate on the one hand and country, socio-economic status, and classroom behaviour on the other. Such analysis was done for all the eighteen criterion variables of creative thinking viz., Seeing Problems (SP), Unusual Uses Fluency (UF), Unusual Uses Flexibility (UX), Unusual Uses Originality (UO), Unusual Uses Creativity (UC), Consequences Fluency (CF),

Consequences Originality (CO), Consequences Creativity (CC), Creativity Total (CY), Figural Fluency (FF), Figural Flexibility (FX), Figural Originality (FO), Figural Elaboration (FE), Figural Creativity (FC), Verbal Fluency (VF), Verbal Flexibility (VX), Verbal Originality (VO), and Verbal Creativity (VC).

The elements of the population are secondary school students of Baroda and Bangkok. All belong to grade IX and their ages range between 13^{+} to 16^{+}. The subjects have been taken on a random basis. The ANOVA design (2x2x2) consisted of 8 experimental conditions; fifteen students were included for each cell entry. Therefore, the size of the sample remains 120 for each of the two sets of this analysis. The three-way analysis of variance had to be employed twice because it was difficult to obtain sufficient cases which are mutually exclusive for different cells of four-way analysis of variance involving country, socio-economic status, school climate, and classroom behaviour, especially for the high socio-economic status group in the total sample. All the four independent variables involving in the two sets of this analysis were varied in two ways : country (Indian and Thai); Socio-economic status (high and low); school climate (open and

closed) and classroom behaviour (high and low).

It may be noted here that the technique of analysis of variance was followed by t-test approach covering Total, Indian and Thai samples. The results of t-test indicating significance of difference between means of creativity for the subgroups formed on the basis of country, socio-economic status, school climate and classroom behaviour, are given in Chapter V. This Chapter presents the results and discussion of the application of analysis of variance only.

4.1.0 Creative Thinking in relation to Country, Socio-Economic Status and School climate

The summaries of analysis of variance for all the criterion variables of creative thinking by having country, socio-economic status and school climate as independent variables are presented in Tables 4.1 B to 4.18 B in the following paragraphs.

TABLE 4.1-A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF SEEING PROBLEMS (SP)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
CDQ.H	328	246	416	303	1293
CDQ.L	265	172	309	240	986
SUM	593	418	725	543	2279

TABLE 4.1B SUMMARY RESULTS OF ANOVA (2x2x2) FOR SEEING PROBLEMS (SP)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	2441.658	7	-	-
2	CON	550.408	1	550.408	16.996**
3	SES	1062.075	1	1062.075	32.795**
4	OCDQ	785.408	1	785.408	.013
5	CON x SES	.408	1	.408	24.252**
6	SES x OCDQ	9.075	1	9.075	.280
7	OCDQ x CON	9.075	1	9.075	.280
8	CON x SES x OCDQ	25.208	1	25.208	.778
9	Replicate	663.617	14	47.401	1.464
10	Error	3173.717	98	32.385	-
	TOTAL	6278.992	119	52.765	-

** Significant at 0.01 level.

From the Table 4.1B, it appears that the contribution of country, was found to have contributed significant variance at .01 level (F= 16.996 for df. 1/112). The analysis of raw scores given in Table 4.1A indicates that the Thai students (Bangkok) have more talent pertaining to the performance on Seeing Problems (SP) than the Indian students (Baroda). This shows that the

different cultural and environmental factor experiences to the subjects, and these are likely to influence their creative talent.

The variable of socio-economic status yielded an F-ratio or 32.795, df 1/112, significant at .01 level, which indicates that the socio-economic status does matter in accounting for variance in Seeing Problems (SP).

The variable of school climate towards variance in Seeing Problems (SP) was not found to be significant (F=.013 for df 1/112). It implies that the students in the open school climate and those in the closed school climate have more or less similar competence with regard to Seeing Problems.

Among all types of interaction effects, only the interaction effect due to country x socio-economic status was found to be significant at .01 level (F = 24.252 for df. 1/112). All other interaction effects were found to be not significant. The significant interaction effect due to country x socio-economic status reveals that the proficiency in Seeing Problems (SP) in a group of particular country at a particular socio-economic status shows predominance as compared to those of other country and socio-economic status combinations.

TABLE 4.2A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF UNUSUAL USES FLUENCY (UF)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H.	SES.L	
OCDQ.H	289	204	312	243	1048
OCDQ.L	286	193	302	231	1012
SUM	575	397	614	474	2060

TABLE 4.2B SUMMARY RESULTS OF ANOVA (2x2x2) FOR UNUSUAL USES FLUENCY (UF)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	979.333	7	-	-
2	CON	112.133	1	112.133	7.111**
3	SES	842.700	1	842.700	53.438**
4	OCDQ	10.800	1	10.800	.763
5	CON x SES	12.033	1	12.033	.685
6	SES x OCDQ	.833	1	.833	.053
7	OCDQ x CON	.533	1	.533	.034
8	CON x SES x OCDQ	.300	1	.300	.019
9.	Replicate	287.917	14	20.565	1.304
10	Error	1545.417	98	15.770	-
	TOTAL	2812.667	119	23.636	-

** Significant at 0.01 level

Table 4.2B reveals that the variable of country also accounted for significance variance in Unusual Uses Fluency (UF) as revealed by F-ratio ($F = 7.111$, df 1/112) which is significant at .01 level. The scores of Unusual Uses Fluency given in Table 4.2A indicate the higher scores in favour of the Thai students. This fact of higher maintenance in Unusual Uses Fluency (UF) for the Thai group has been further tested through the t-test approach (Vide Chapter V).

Like the variable of country, socio-economic status also accounted for significant variance in Unusual Uses Fluency (UF) as yielded by F-ratio of 53.438 with ef 1/112 which is significant at 0.01 level. It is evident (Vide Table 4.2A) that the high socio-economic status groups are having higher mean values than the low socio economic status group.

The contribution of school climate towards variance in Unusual Uses Fluency (UF) was not found to be significant ($F = .763$ for df 1/112).

All types of interaction effects viz., country x socio-economic status, socio-economic status x school climate, school climate x country, and the interaction due to country x socio-economic status x school climate were found to be not significant.

TABLE 4.3A THE DISTRIBUTION OF SCORES FOR 2x2x2 TRIVARIATE PARADIGM OF UNUSUAL USES FLEXIBILITY (UX)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
OCDQ.H	174	123	198	168	663
OCDQ.L	172	120	221	153	666
SUM	346	243	419	321	1329

TABLE 4.3B SUMMARY RESULTS OF ANOVA (2x2x2) FOR UNUSUAL USES FLEXIBILITY (UX)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	552.458	7	-	-
2	CON	190.008	1	190.008	27.088**
3	SES	336.675	1	336.675	47.997**
4	OCDQ	.075	1	.075	.011
5	CONxSES	.208	1	.208	.030
6	SESxOCDQ	12.675	1	12.675	1.807
7	OCDQxCON	1.408	1	1.408	.201
8	CONxSESxOCDQ	11.408	1	11.408	1.626
9	Replicate	40.450	14	2.889	.412
10	Error	687.417	98	7.014	-
	TOTAL	1280.325	119	10.759	-

** Significant at 0.01 level

The variable of country yielded an F-ratio of 27.088, df 1/112, significant at .01 level which shows that country affects for the variance in Unusual Uses Flexibility (UX). The variable of socio-economic status too accounted for significant contribution in a decided way towards the criterion variable of Unusual Uses Flexibility (F = 47.997, df 1/112). The school climate does not affect for the criterion variable of Unusual Uses Flexibility. The contribution of school climate towards variance in Unusual Uses Flexibility was found to be not significant (F = .011 for df 1/112).

All the interaction effects of country x socio-economic status, socio-economic status x school climate, school climate x country and country x socio-economic status x school climate, were found to be not significant.

TABLE 4.4A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF UNUSUAL USES ORIGINALITY (UO)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
OCDQ.H	351	252	596	410	1609
OCDQ.L	416	271	477	369	1533
SUM	767	523	1073	779	3142

TABLE 4.4B SUMMARY RESULTS OF ANOVA (2x2x2) FOR UNUSUAL USES ORIGINALITY (UO)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	5745.833	7	-	-
2	CON	2632.033	1	2632.033	43.660**
3	SES	2412.033	1	2412.033	40.011**
4	OCDQ	48.133	1	48.133	.798
5	CONxSES	20.833	1	20.833	.346
6	SESxOCDQ	8.533	1	8.533	.142
7	OCDQxCON	496.133	1	496.133	8.230**
8	CONxSESxOCDQ	128.133	1	128.133	2.125
9.	Replicate	958.217	14	68.444	1.135
10	Error	5907.917	98	60.285	-
	TOTAL	12611.967	119	105.983	-

** Significant at 0.01 level

In the Table 4.4B indicated that, country as the independent variable also accounted for significant variance in the criterion variable of Unusual Uses Originality (UO) as revealed by F-ratio (F= 43.660, df 1/112) which is significant at .01 level. To verify this, significamce of differences between means on the scores of criterion variable of creative thinking for the two groups were worked out. These differences were significant mostly at .01 level in favour of Thai students (Vide Chapter 5, Caption 5.1.0).

Referring to the socio-economic status, it was found to be significant effect upon Unusual Uses Originality. It yielded an F-ratio of 40.011, df 1/112, significant at .01 level, which indicates that the socio-economic status also does matter in accounting for variance in Unusual Uses Originality.

The variable of school climate was found to have no significant effect upon the criterion variable of Unusual Uses Originality as obtained by F-ratio of .798 with df 1/112.

For all four types of interaction effects, only the interaction effect of school climate x country does account to the variance of Unusual Uses Originality (F= 8.230, df = 1/112) which is significant at .01 level. This implies that the Unusual Uses Originality ability in a group of a particular country at a particular school climate shows predominance as compared to those of other country and school climate.

All other interactions were found to have no significant effect upon the Unusual Uses Originality viz, country x socio-economic status, socio-economic status x school climate, school climate x country, and country x socio-economic status x school climate. The F-values are .346, .142, and 2.125 respectively which are not significant at .05 level.

TABLE 4.5A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF UNUSUAL USES CREATIVITY (UC)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
OCDQ.H	815	579	1106	821	3321
OCDQ.L	864	584	1019	753	3220
SUM	1679	1163	2125	1574	6541

TABLE 4.5B SUMMARY RESULTS OF ANOVA (2x2x2) FOR UNUSUAL USES CREATIVITY (UC)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	16105.325	7	-	-
2	CON	6120.408	1	6120.408	35.146**
3	SES	9487.408	1	9487.408	54.480**
4	OCDQ	85.008	1	85.008	.488
5	CONxSES	10.208	1	10.208	.059
6	SESxOCDQ	5.208	1	5.208	.030
7	OCDQxCON	364.008	1	364.008	2.090
8	CONxSESxOCDQ	33.075	1	33.075	.190
9	Replicate	2644.617	14	188.901	1.085
10	Error	17066.050	98	174.143	-
	TOTAL	35815.992	119	300.975	-

** Significant at 0.01 level.

Table 4.5B reveals that the variable of country is having influence upon the criterion variable of Unusual Uses Creativity (F= 35.146, df 1/112, significant at .01 level). The significant F-value supported by the data in Table 4.5A indicates that there are cultural differences in Unusual Uses Creativity in favour of the Thai students.

Socio-economic status too affects the criterion variable of Unusual Uses Creativity. The F-value of 54.480 with df 1/112 was significant at .01 level.

All the interactions towards Unusual Uses Creativity were found to be not significant at .05 level upon Unusual Uses Creativity.

TABLE 4.6A THE DISTRIBUTION OF SCORES FOR 2x2x2 TRIVARIATE PARADIGM OF CONSEQUENCES FLUENCY (CF)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
OCDQ.H	325	201	317	270	1113
OCDQ.L	296	232	283	256	1067
SUM	629	433	600	526	2180

TABLE 4.6B SUMMARY RESULTS OF ANOVA (2x2x2) FOR CONSEQUENCES FLUENCY (CF)

S. No.	Source of Variation	Sum of Squares	df	Mean Squares	F-Ratio
1	Treatment	828.667	7	-	-
2	CON	43.200	1	43.200	1.169
3	SES	572.033	1	572.033	15.485**
4	OCDQ	17.633	1	17.633	.477
5	CONxSES	108.300	1	108.300	2.932
6	SESCxOCDQ	53.333	1	53.333	1.444
7	OCDQxCON	20.833	1	20.833	.564
8	CONxSESxOCDQ	13.333	1	13.333	.361
9	Replicate	209.667	14	14.976	.405
10	Error	3620.333	98	36.942	-
	TOTAL	4658.667	119	39.148	-

** Significant at 0.01 level

Table 4.6B shows that only the independent variable of socio-economic status could account for the criterion variable of Consequences Fluency (CF). The F-ratio yielded value of 15.485 with df 1/112 was significant beyond .01 level. The variable of country and socio-economic status have no effect upon Consequences Fluency (F=1.169, and .477 with df 1/112).

Like the variable of country and socio-economic status, all the interactions of country x socio-economic status, socio-economic status x school climate, school climate x country and country x socio-economic status x school climate do not affect upon the Consequences Fluency. The F-values were 2.932, 1.444, .564 and .361 respectively for df 1/112. These were not significant.

TABLE 4.7A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF CONSEQUENCES ORIGINALITY (CO)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
OCDQ.H	177	91	179	149	596
OCDQ.L	172	141	156	156	625
SUM	349	232	335	305	1221

TABLE 4.7B SUMMARY RESULTS OF ANALYSIS OF VARIANCE (2x2x2) FOR CONSEQUENCES ORIGINALITY (CO)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	375.592	7	-	-
2	CON	29.008	1	29.008	1.666
3	SES	180.075	1	180.075	10.341**
4	OCDQ	7.008	1	7.008	.402
5	CONxSES	63.075	1	63.075	3.622
6	SESxOCDQ	60.208	1	60.208	3.458
7	OCDQxCON	31.008	1	31.008	1.781
8	CONxSESxOCDQ	5.208	1	5.208	.299
9	Replicate	139.200	14	9.943	.571
10	Error	1706.533	98	17.414	-
	TOTAL	2221.325	119	18.667	-

** Significant at 0.01 level

From the Table 4.7B, it has been seen that only the variable of socio-economic status was found to be significantly affected upon the criterion variable of Consequences Originality. The F-ratio of 10.341 with df 1/112 was significant at .01 level. This shows that the particular group of socio-economic status has better performance with regard to Consequences Originality as compared with the other. The independent variables of country and school climate has found no effect upon Consequences Originality.

Similarly to the variables of country and school climate, all interactions of country x socio-economic status, socio-economic status x school climate, school climate and country and country x socio-economic status x school climate, they were found to have no effect upon the Consequences Originality. The F-values of 3.622, 3.458, 1.781 and .299 respectively were not significant for df 1/112.

TABLE 4.8A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF CONSEQUENCES CREATIVITY (CC)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
OCDQ.H	493	292	506	419	1710
OCDQ.L	468	383	439	412	1702
SUM	961	675	945	831	3412

TABLE 4.8B SUMMARY RESULTS OF ANOVA (2x2x2) FOR CONSEQUENCES CREATIVITY (CC)

S. No.	Source of Variation	Sum of Square	df	Mean Square	F-Ratio
1	Treatment	2191.333	7	-	-
2	CON	163.333	1	163.333	1.709
3	SES	1333.333	1	1333.333	13.954**
4	OCDQ	.533	1	.533	.006
5	CONxSES	246.533	1	246.533	2.580
6	SESxOCDQ	258.133	1	258.133	2.701
7	OCDQxCON	163.333	1	163.333	1.709
8	CONxSESxOCDQ	26.133	1	26.133	.273
9	Replicate	471.717	14	33.694	.353
10	Error	9364.417	98	95.555	--
	TOTAL	12027.467	119	101.071	--

** Significant at 0.01 level

The variable of socio-economic status yielded significant F-ratio 13.954 for df 1/112 (Vide Table 4.8B) so the role of socio-economic status was further examined through t-test approach and correlational approach. The result of F-test indicates that socio-economic status does matter in accounting for variance in Consequences Creativity (CC). In case of country and school climate they were found to be not significantly affected towards the criterion variable of Consequences Creativity. Like country, and school climate, all the interactions were found to be not significant at .05 level. The F-values of country x

socio-economic status, socio-economic status x school climate, school climate x country and country x socio-economic status x school climate were 2.580, 2.701, 1.709, .273 and .353 respectively for df 1/119.

TABLE 4.9A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF CREATIVITY TOTAL(CY)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
OCDQ.H	1718	1180	2028	1543	6469
OCDQ.L	1634	1110	1827	1405	5976
SUM	3352	2290	3855	2948	12445

TABLE 4.9B SUMMARY RESULTS OF ANOVA (2x2x2) FOR CREATIVITY TOTAL (CY)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1.	Treatment	46120.925	7	-	-
2	CON	11232.675	1	11232.675	16.387**
3	SES	32308.008	1	32308.008	47.133**
4	OCDQ	2025.408	1	2025.408	2.955
5	CONxSES	200.208	1	200.208	.292
6	SESxOCDQ	49.408	1	49.408	.072
7	OCDQxCON	285.208	1	285.208	.416
8	CONxSESxOCDQ	20.008	1	20.008	.029
9	Replicate	8369.917	14	597.851	.872
10	Error	67175.950	98	685.469	-
	TOTAL	121666.79	119	1022.410	-

** Significant at 0.01 level.

Table 4.9B reveals the F-ratio of the effect of "country" upon the Creativity Total (CY) was found to be significant at .01 level (F=16.387 for df 1/112). This is evident that the students in particular country show predominance as compared to those in the other country for this analysis. The socio-economic status also accounted for significant variance in the criterion variable of Creativity Total (CY) as revealed by Table 4.9B (F=21.833 for df 1/112, significant at .01 level). This means that the socio-economic status do influence the variance in Creativity Total (CY). The variable of school climate and all interactions were found to have no effect upon the Creativity Total (CY).

TABLE 4.10A THE DISTRIBUTION OF SCORES FOR 2x2x2 TRIVARIATE PARADIGM OF FIGURAL FLUENCY (FF)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
OCDQ.H	276	181	349	321	1127
OCDQ.L	272	200	323	300	1095
SUM	578	381	672	621	2222

TABLE 4.10 B SUMMARY RESULTS OF ANOVA (2 x 2 x 2) FOR FIGURAL FLUENCY (FF)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	1662.100	7	-	-
2	CON	1104.133	1	1104.133	60.870**
3	SES	396.033	1	396.033	21.833**
4	OCDQ	8.533	1	8.533	.470
5	CON x SES	112.133	1	112.133	6.182*
6	SES x OCDQ	6.533	1	6.533	.360
7	OCDQ x CON	32.033	1	32.033	1.266
8	CON x SEX x OCDQ	2.700	1	2.700	.149
9	Replicate	266.217	14	19.015	1.048
10	Error	1777.650	98	18.139	-
	TOTAL	3705.967	119	31.143	-

** Significant at 0.01 level
* Significant at 0.05 level

Table 4.10B shows significant F-ratio (60.870 for df 1/112) for the variable of country towards Figural Fluency (FF), The variable of socio-economic status was also found to be significant at .01 level in accounting to variance of Figural Fluency. Only the interaction of country x socio-economic status does affect to the Figural Fluency (F = 6.182, for df 1/112).

TABLE 4.11A THE DISTRIBUTION OF SCORES FOR 2x2x2 TRIVARIATE PARADIGM OF FIGURAL FLEXIBILITY (FX)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
OCDQ.H	225	138	278	243	884
OCDQ.L	222	166	245	246	879
SUM	447	304	523	489	1763

TABLE 4.11B SUMMARY RESULTS OF ANOVA (2x2x2) FOR FIGURAL FLEXIBILITY (FX)

SR. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	990.792	7	-	-
2	CON	567.675	1	567.675	36.395**
3	SES	261.075	1	261.075	16.738**
4	OCDQ	.208	1	.208	.013
5	CONxSES	99.008	1	99.008	6.348*
6	SESxOCDQ	37.408	1	37.408	2.398
7	OCDQxCON	25.208	1	25.208	1.616
8	CONxSESxOCDQ	.208	1	.208	.013
9	Replicate	208.217	14	14.873	.954
10	Error	1528.583	98	15.598	-
	TOTAL	2727.591	119	22.921	-

** Significant at 0.01 level
* Significant at 0.05 level

From Table 4.11B, it has been seen that the contribution of country towards variance in Figural Flexibility yielded an F-ratio of 36.395, df 1/112, significant at .01 level, which indicates that country again does matter in accounting for variance in Figural Flexibility. The variable of socio-economic status too does affect to the criterion variable of Figural Flexibility, which was found to be significant at .01 level (F= 16.738, df 1/112). Only the interaction of country x socio-economic status was found to be significant at.05 level, the others have lost the ground.

TABLE 4.12A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM FOR FIGURAL ORIGINALITY (FO)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
OCDQ.H	326	218	404	380	1328
OCDQ.L	336	249	362	362	1309
SUM	662	467	766	742	2637

TABLE 4.12B SUMMARY RESULTS OF ANOVA (2x2x2) FOR FIGURAL ORIGINALITY (FO)

S. No.	Source of Variation.	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	1945.325	7	-	-
2	CON	1197.008	1	1197.008	35.243**
3	SES	399.675	1	399.675	11.767**
4	OCDQ	3.008	1	3.008	.088
5	CONxSES	243.675	1	243.675	7.174**
6	SESxOCDQ	16.875	1	16.875	.497
7	OCDQxCON	85.008	1	85.008	2.503
8	CONxSESxOCDQ	.075	1	.075	.002
9	Replicate	809.050	14	57.789	1.701
10	Error	3328.550	98	33.965	-
	TOTAL	6082.925	119	51.117	-

** Significant at 0.01 level.

On the basis of the results of analysis of variance (Vide Table 4.12B) the variable of country and socio-economic status were found to be significant influenced upon the criterion variable of Figural Originality (FO) at .01 level. The only interaction of country x socio-economic status was found to have effect to the Figural Originality. The F-value of 7.174 was significant at .01 with df 1/112. The other interactions were found to have no influence upon Figural Originality (FO).

TABLE 4.13A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF FIGURAL ELABORATION (FE)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
OCDQ.H	716	517	939	810	2982
OCDQ.L	854	707	1020	762	3343
SUM	1570	1224	1959	1572	6325

TABLE 4.13B SUMMARY RESULTS OF ANOVA (2x2x2) FOR FIGURAL ELABORATION (FE)

S. No.	Source of Variation	Sum of Squares	df.	Mean Square	F-Ratio
1	Treatment	11151.458	7	-	-
2	CON	4526.408	1	4526.408	16.858**
3	SES	4477.408	1	4477.408	16.676**
4	OCDQ	1086.008	1	1086.008	4.045*
5	CONxSES	14.008	1	14.008	.052
6	SESxOCDQ	49.408	1	49.408	.184
7	OCDQxCON	725.208	1	725.208	2.701
8	CONxSESxOCDQ	273.008	1	273.008	1.017
9	Replicate	4178.667	14	298.476	1.112
10	Error	26312.667	98	268.497	-
	TOTAL	41642.792.	119	349.939	-

** Significant at 0.01 level
* Significant at 0.05 level

Table 4.13B shows that all the three variables of country, socio-economic status, and school climate were significant towards the criterion variable of Figural Elaboration (FE). These variables yielded F-values of 16.858, 16.676 and 4.045 respectively for df 1/112. The first two variables were significantly affected at .01 level and the third one at .05 level.

All types of interactions of country x socio-economic status, socio-economic status x school climate, school climate x country, country x socio-economic status x school climate obtained no significant influence in accounting to Figural Elaboration (FE).

TABLE 4.14A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF FIGURAL CREATIVITY (FC)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
OCDQ.H	1543	1074	1970	1736	6323
OCDQ.L	1684	1302	1922	1678	6586
SUM	3227	2376	3892	3414	12909

TABLE 4.14B SUMMARY RESULTS OF ANOVA (2x2x2) FOR FIGURAL CREATIVITY (FC)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	42630.925	7	-	-
2	CON	24168.408	1	24168.408	34.131**
3	SES	14718.675	1	14718.675	20.786**
4	OCDQ	576.408	1	576.408	.814
5	CONxSES	1159.408	1	1159.408	1.637
6	SESxOCDQ	49.408	1	49.408	.070
7	OCDQxCON	1880.208	1	1880.208	2.655
8	CONxSESxOCDQ	78.408	1	78.408	.111
9	Replicate	14303.950	14	1021.711	1.443
10	Error	69394.450	98	708.107	-
	TOTAL	126829.330	119	1061.591	—

** Significant at 0.01 level

Like most of the results of analysis of variance, Table 4.14B reveals that country and socio-economic status accounted for the significant contribution of variance for the criterion variable of Figural Creativity (FC). The significant F-values were 34.131 and 20.786 respectively at .01 level for df 1/112. Referring to effect of "school climate" and all the interaction effects of country x socio-economic status, socio-economic status x school climate, school climate x country and country x socio-economic status x school climate, there were found to be not significantly accounted for variance in Figural Creativity (FC).

TABLE 4.15A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF VERBAL FLUENCY (VF)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
OCDQ.H	704	549	771	731	2755
OCDQ.L	661	467	750	771	2649
SUM	1365	1016	1521	1502	5404

TABLE 4.15B SUMMARY RESULTS OF ANOVA (2x2x2) FOR VERBAL FLUENCY (VF)

S. No.	Source of Variation	Sum of Squares	df.	Mean Ratio	F-Ratio
1	Treatment	5824.333	7	-	-
2	CON	3434.700	1	3434.700	18.757**
3	SES	1128.533	1	1128.533	6.161*
4	OCDQ	93.633	1	93.633	.511
5	CONxSES	907.500	1	907.500	4.956*
6	SESxOCDQ	4.033	1	4.033	.022
7	OCDQxCON	172.800	1	172.800	.944
8	CONxSESxOCDQ	83.333	1	83.333	.455
9	Replicate	1996.367	14	142.598	.779
10	Error	17944.967	98	183.112	-
	TOTAL	25765.867	119	216.520	-

** Significant at 0.01 level
* Significant at 0.05 level

From Table 4.15B, the variable of country yielded on F-ratio of 18.757, df 1/112, significant at .01 level. This also supports the idea of cultural and environmental influences towards the creative thinking In the same, socio-economic status was found to be significant at .05 level (F= 6.163 for df 1/112). The interaction effects of country x socio economic status also accounted for significant variance in Verbal Fluency (VF) as revealed by F-ratio (F = 4.956, df 1/112, significant at .05 level). The other interaction effects were found to be not significant.

TABLE 4.16A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF VERBAL FLEXIBILITY (VX)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H.	SES.L	
OCDQ.H	554	430	608	592	2184
OCDQ.L	537	366	589	607	2099
SUM	1091	796	1197	1199	4283

TABLE 4.16B SUMMARY RESULTS OF ANOVA (2x2x2) FOR VERBAL FLEXIBILITY (VX).

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	3775.192	7	-	-
2	CON	2159.008	1	2159.008	14.342**
3	SES	715.408	1	715.408	4.752*
4	OCDQ	60.208	1	60.208	4.883*
5	CONxSES	735.075	1	735.075	.400
6	SESxOCDQ	1.408	1	1.408	.009
7	OCDQxCON	49.408	1	49.408	.328
8	CONxSESxOCDQ	54.675	1	54.675	.363
9	Replicate	1529.717	14	109.265	.726
10	Error	14752.683	98	150.538	-
	TOTAL	20057.592	119	168.551	-

** Significant at 0.01 level
* Significant at 0.05 level

Table 4.16B indicates that country, socio-economic status, and school climate do explain the effect upon the criterion variable of Verbal Flexibility (VX). The first one was significant at .01 ($F = 14.342$ for df 1/112), the later two were found to be significant at .05 level ($F = 4.752$ and 4.883 for df 1/112). All types of the interactions to the criterion variable of Verbal Flexibility (VX) do not affect to Verbal Flexibility. There were found to be not significant at .05 level.

TABLE 4.17A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF VERBAL ORIGINALITY (VO)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
OCDQ.H	591	471	680	629	2371
OCDQ.L	584	407	654	641	2286
SUM	1175	878	1334	1270	4657

TABLE 4.17B SUMMARY RESULTS OF ANOVA (2x2x2) FOR VERBAL ORIGINALITY (VO)

S. No	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	4233.925	7	-	-
2	CON	2530.008	1	2530.008	17.252**
3	SES	1086.008	1	1086.008	7.405**
4	OCDQ	60.208	1	60.208	.411
5	CONxSES	452.408	1	452.408	3.850
6	SESxOCDQ	3.008	1	3.008	.021
7	OCDQxCON	27.075	1	27.075	.185
8	CONxSESxOCDQ	75.208	1	75.208	.513
9	Replicate	1300.967	14	92.926	.634
10	Error	14371.700	98	146.650	-
	TOTAL	19906.592	119	167.282	-

** Significant at 0.01 level

The contribution of country and socio-economic status towards variance in Verbal Originality (VO) were found to be significant (F = 17.252, 7.405 for df 1/112, significant at .01 level). It implies that country and socio-economic status do matter in accounting to Verbal Originality (VO). With regard to the school climate, it was found to have no effect upon the Verbal Originality. All the interactions were also found to be not significant at .05 level with regard to Verbal Originality.

TABLE 4.18A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF VERBAL CREATIVITY (VC)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
OCDQ.H	1849	1450	2059	1952	7310
OCDQ.L	1782	1230	1993	2019	7024
SUM	3631	2680	4052	3971	14334

TABLE 4.18B SUMMARY RESULTS OF ANOVA (2x2x2) FOR VERBAL CREATIVITY (VC)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	41665.033	7	-	-
2	CON	24424.533	1	24424.533	17.574**
3	SES	8875.200	1	8875.200	6.386*
4	OCDQ	681.633	1	681.633	.490
5	CONxSES	6307.500	1	6307.500	4.538*
6	SESxOCDQ	3.333	1	3.333	.002
7	OCDQxCON	691.200	1	691.200	.497
8	CONxSESxOCDQ	681.633	1	681.633	.490
9	Replicate	13956.950	14	996.925	.717
10	Error	136203.720	98	1389.834	-
	TOTAL	191825.70	119	1611.981	-

** Significant at 0.01 level
* Significant at 0.05 level

The variable of country yielded an F-ratio of 17.574, df 1/112, significant at .01 level. The variable of socio-economic status too accounted for significant variance in Verbal Creativity (VC) as revealed by F-ratio (F = 6.386, df 1/112) which is significant at .05 level. Only the interaction of country x socio-economic status was significantly affected the criterion variable of Verbal Creativity (F = 4.538, for df 1/112, significant at .05 level). The other interactions were found to have no influence towards Verbal Creativity.

4.1.1 Conclusion

TABLE 4.1C SUMMARY OF RESULTS OF ANOVA (2x2x2) FOR ALL DIMENSIONS OF CREATIVE THINKING BY HAVING COUNTRY, SOCIO-ECONOMIC STATUS AND SCHOOL CLIMATE AS INDEPENDENT VARIABLES

Criterion Variables	F - Ratio						
	CON	SES	OCDQ	CONxSES	SESxOCDQ	OCDQ xCON	CONx SESx OCDQ
SP	0.01	0.01	NS	0.01	NS	NS	NS
UF	0.01	0.01	NS	NS	NS	NS	NS
UX	0.01	0.01	NS	NS	NS	NS	NS
UO	0.01	0.01	NS	NS	NS	0.01	NS
UC	0.01	0.01	NS	NS	NS	NS	NS
CF	NS	0.01	NS	NS	NS	NS	NS
CO	NS	0.01	NS	NS	NS	NS	NS
CC	NS	0.01	NS	NS	NS	NS	NS
CY	0.01	0.01	NS	NS	NS	NS	NS
FF	0.01	0.01	NS	0.05	NS	NS	NS
FX	0.01	0.01	NS	0.05	NS	NS	NS
FO	0.01	0.01	NS	0.01	NS	NS	NS
FE	0.01	0.01	0.05	NS	NS	NS	NS
FC	0.01	0.01	NS	NS	NS	NS	NS
VF	0.01	0.05	NS	0.05	NS	NS	NS
VX	0.01	0.05	0.05	NS	NS	NS	NS
VO	0.01	0.01	NS	NS	NS	NS	NS
VC	0.01	0.05	NS	0.05	NS	NS	NS

In all the situations of three-way analysis of variance (Vide Caption 4.1.0) the results of ANOVA (Vide Tables 4.1B to 4.18B) showed that the contribution towards variance of eighteen criterion variables due to country and socio-economic status was found to be significant. This is evident that the variable of country and socio-economic status have strong influence upon the criterion variable of creative thinking. However, the variable of country was not found to be significant with the criterion variables of Consequences Fluency (CF), Consequences Originality (CO) and Consequences Creativity (CC).

With regard to all types of the interaction effects the interaction effects of country x socio-economic status was found to have most influence towards the criterion variable of creative thinking as compared with the others.

It is also interesting to note here that the variable of school climate has also accounted for the criterion variables of Unusual Uses Originality (UO), Figural Elaboration (FE) and Verbal Flexibility (VX). The interaction effect of school climate x country was found to have influence only for the criterion variable of Unusual Uses Originality (UO).

These findings provided motivation to investigate further into the effect of country, socio-economic status and classroom behaviour upon the eighteen criterion variables of creative thinking (Vide Caption 4.2.0)

4.2.0 Creativity in relation to Country, Socio-Economic Status, and Classroom Behaviour

The summaries of analysis of variance for all the criterion variables of creative thinking by having country, socio-economic status and classroom behaviour as independent variables are given in Table 4.19 B to 4.36 B.

TABLE 4.19A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF SEEING PROBLEMS (SP)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
TB.H	351	252	392	302	1297
TB.L	291	188	307	259	1045
SUM	642	440	699	561	2342

TABLE 4.19B SUMMARY RESULTS OF ANOVA (2x2x2) FOR SEEING PROBLEMS (SP)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	1820.500	7	-	-
2	CON	264.033	1	264.033	9.021**
3	SES	963.333	1	963.333	39.914**
4	TB	529.200	1	529.200	18.081**
5	CONxSES	34.133	1	34.133	1.166
6	SESxTB	12.033	1	12.033	.411
7	TBxCON	.133	1	.133	.005
8	CONxSESxTB	17.633	1	17.633	.602
9	Replicate	307.217	14	21.944	.750
10	Error	2868.250	98	29.268	-
	TOTAL	4995.967	119	41.983	-

** Significant at 0.01 level

Table 4.19B reveals that the variables of country socio-economic status and classroom behaviour were found to be significantly affected towards the criterion variable of Seeing Problems (SP). The F-ratio of 9.021, 39.914 and 18.081 were significant at.01 level for df 1/112. All types of the interaction effects were not significant at .05 level.

TABLE 4.20A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF UNUSUAL USES FLUENCY (UF)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
TB.H	305	186	296	266	1053
TB.L	279	212	315	228	1034
SUM	584	398	611	494	2087

TABLE 4.20B SUMMARY RESULTS OF ANOVA (2x2x2) FOR UNUSUAL USES FLUENCY (UF)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	1036.058	7	-	-
2	CON	126.075	1	126.075	5.192*
3	SES	765.075	1	765.075	31.506**
4	TB	3.008	1	3.008	.124
5	CONxSES	39.675	1	39.675	1.634
6	SESxTB	.208	1	.208	.0086
7	TBxCON	3.008	1	3.008	.124
8	CONxSESxTB	99.008	1	99.008	4.077*
9	Replicate	184.717	14	13.194	.543
10	Error	2379.817	98	24.284	-
	TOTAL	3600.592	119	30.257	-

** Significant at 0.01 level
* Significant at 0.05 level

From the Table 4.20B, it has been seen that the contributions of country and socio-economic status towards variance in Unusual Uses Fluency (UF) were found to be significant at .05 and .01 level respectively (F= 5.192 and 31.506 for df 1/112). The class-room behaviour (indirect/direct behaviour) do not play an important role in the Unusual Uses Fluency (F = .124 for df 1/112). The interaction due to countryx socio-economic status x classroom behaviour was significant at .05 level. The significant interaction due to country x socio-economic status x classroom behaviour leads to argue that students of a particular country of a particular socio-economic status with a particular classroom interaction behaviour seem to have superiority in the mean scores on Unusual Uses Fluency as compared to any other combination involving all the three variables. The other types of interaction effects were not significant at .05 level.

TABLE 4.21A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF UNUSUAL USES FLEXIBILITY (UX)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
TB.H	198	113	180	177	668
TB.L	169	132	208	178	687
SUM	367	245	388	355	1355

TABLE 4.21B SUMMARY RESULTS OF ANOVA (2x2x2) FOR UNUSUAL USES FLEXIBILITY (UX)

S. No.	Source of Variation	Sum of Square	df	Mean Square	F-Ratio
1	Treatment	475.458	7	-	-
2	CON	143.008	1	143.008	19.988**
3	SES	200.208	1	200.208	27.983**
4	TB	3.008	1	3.008	.420
5	CONxSES	66.008	1	66.008	9.226**
6	SESxTB	3.675	1	3.675	.514
7	TBxCON	12.675	1	12.675	1.771
8	CONxSESxTB	46.875	1	46.875	6.552
9	Replicate	118.167	14	8.440	1.180
10	Error	701.167	98	7.155	-
	TOTAL	1294.792	119	10.881	-

** Significant at 0.01 level
* Significant at 0.05 level

Table 4.21B indicates that country was found to be significant at .01 level (F= 19.988 for df 1/112). The second variable of socio-economic status yielded F-value of 27.983 for df 1/112, significant at .01 level. The interaction effect due to country x socio-economic status was found to be significant at .01 level, whereas all other interaction effects were found to be not significant. Again the variable of classroom behaviour did not account for significant contribution towards variance on Unusual Uses Flexibility(UX).

TABLE 4.22A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF UNUSUAL USES ORIGINALITY (UO)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
TB.H	403	190	495	404	1492
TB.L	403	289	541	363	1596
SUM	806	479	1095	767	3088

TABLE 4.22B SUMMARY RESULTS OF ANOVA (2x2x2) FOR UNUSUAL USES ORIGINALITY (UO)

S. No.	Source of Variance	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	5677.467	7	-	-
2	CON	2236.033	1	2236.033	29.154**
3	SES	2960.133	1	2960.133	38.595**
4	TB	90.133	1	90.133	1.175
5	CONxSES	28.033	1	28.033	.366
6	SESxTB	1.200	1	1.200	.016
7	TBxCON	73.633	1	73.633	.960
8	CONxSESxTB	288.300	1	288.300	3.759
9	Replicate	961.717	14	68.694	.896
10	Error	7516.283	98	76.697	-
	TOTAL	141554.67	119	118.954	-

** Significant at 0.01 level

Table 4.22B indicates that the variable of country was found to have significant effect upon the criterion variable of Unusual Uses Originality (UO). The F-ratio of 29.159 for df 1/112 was significant at .01 level. The socio-economic status too was significant at .01 level (F= 38.595 for df 1/112). All the joint interactions have no effects on Unusual Uses Originality. The effect of "classroom behaviour" was also found to be not significant (F= 1.175 with df 1/112).

TABLE 4.23A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF UNUSUAL USES CREATIVITY (UC)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
TB.H	906	479	981	847	3213
TB.L	855	633	1064	764	3346
SUM	1761	1112	2045	1611	6559

TABLE 4.23B SUMMARY RESULTS OF ANOVA (2x2x2) FOR UNUSUAL USES CREATIVITY (UC)

S. No.	Source of Variation	Sum of Square	df	Mean Square	F-Ratio
1	Treatment	16604.858	7	-	-
2	CON	5109.075	1	5109.075	22.602**
3	SES	9774.075	1	9774.075	43.239**
4	TB	88.408	1	88.408	.391
5	CONxSES	385.208	1	385.208	1.704
6	SESxTB	12.675	1	12.675	.056
7	TBxCON	88.408	1	88.408	.391
8	CONxSESxTB	1147.008	1	1147.008	5.074*
9	Replicate	2789.617	14	199.258	.881
10	Error	22152.517	98	226.046	-
	TOTAL	41546.992	119	349.134	-

** Significant at 0.01 level
* Significant at 0.05 level

The results of the analysis of variance (Vide Table 4.23B) made it evident that the main effects for the variables of country and socio-economic status accounted for significant contribution towards variance in Unusual Uses Creativity (UC) at .01 level (F= 22.602 and 43.239 for df 1/112). Classroom behaviour in this case also did not yield significant F-ratio. Among all types of interactions effects, only country x socio-economic status x class room behaviour was found to be significant at .05 level. All other interaction effects of first, second and third order were found to be not significant.

TABLE 4.24A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF CONSEQUENCES FLUENCY (CF)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
TB.H	355	220	336	265	1176
TB.L	322	214	321	253	1110
SUM	677	434	657	518	2286

TABLE 4.24B SUMMARY RESULTS OF ANOVA (2x2x2) FOR CONSEQUENCES FLUENCY (CF)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	1390.100	7	-	-
2	CON	34.133	1	34.133	.828
3	SES	1216.033	1	1216.033	29.495**
4	TB	36.300	1	90.133	.880
5	CONxSES	90.133	1	36.300	2.186
6	SESxTB	7.500	1	7.500	.182
7	TBxCON	1.200	1	1.200	.029
8	CONxSESxTB	4.800	1	4.800	.116
9	Replicate	439.200	14	31.371	.761
10	Error	4040.400	98	41.229	-
	TOTAL	5869.700	119	49.325	-

** Significant at 0.01 level

Table 4.24B, the results of analysis of variance made it evident that only the main variable of socio-economic status accounted for significant contribution towards variance in Consequences Fluency (CF). The F-ratio of 29.4495 with df 1/112 was significant at .01 level. In the other cases of country, classroom behaviour, country x socio-economic status, socio-economic status x classroom behaviour, classroom behaviour x country and country x socio-economic status x classroom behaviour were found to have no effect towards Consequences Fluency(CF).

TABLE 4.25A THE DISTRIBUTION OF SCORES FOR 2x2x2 TRIVARIATE PARADIGM OF CONSEQUENCES ORIGINALITY (CO)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
TB.H	224	92	201	154	671
TB.L	194	121	174	143	632
SUM	218	213	375	297	1303

TABLE 4.25B SUMMARY RESULTS OF ANOVA (2x2x2) FOR CONSEQUENCES ORIGINALITY (CO)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1.	Treatment	902.192	7	-	-
2	CON	14.008	1	14.008	.801
3	SES	667.408	1	667.408	38.156**
4	TB	12.675	1	12.675	.725
5	CONxSES	134.408	1	134.408	7.684**
6	SESxTB	46.875	1	46.875	2.680
7	TBxCON	14.408	1	14.408	.652
8	CONxSESxTB	15.408	1	15.408	.881
9	Replicate	130.217	14	9.301	.532
10	Error	1714.183	98	17.492	-
	TOTAL	2746.592	119	23.081	-

** Significant at. 0.01 level

The variable of socio-economic status yielded an F-ratio of 38.156, df 1/112, significant at .01 level which indicates that the socio-economic status does matter in accounting for variance in Consequences Originality (CO). The other two main variables of country and classroom behaviour did not account for significant effects towards the criterion variable of Consequences Originality (CO). Like the variables of country and class room behaviour, all the interactions were not found to be significant at .05 level. This means all the interactions do not have any effect towards the Consequences Originality (CO).

TABLE 4.26A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF CONSEQUENCES CREATIVITY (CC)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
TB.H	589	312	537	419	1857
TB.L	516	334	495	396	1741
SUM	1105	646	1032	815	3598

TABLE 4.26B SUMMARY RESULTS OF ANOVA (2x2x2) FOR CONSEQUENCES CREATIVITY (CC)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	4643.167	7	-	-
2	CON	76.800	1	76.800	.768
3	SES	3808.133	1	3808.133	38.057**
4	TB	112.133	1	112.133	4.877*
5	CONxSES	488.033	1	488.033	1.121
6	SESxTB	108.300	1	108.300	1.082
7	TBxCON	1.633	1	1.633	.016
8	CONxSESxTB	48.133	1	48.133	.481
9	Replicate	1100.467	14	78.605	.786
10	Error	9806.333	98	100.065	-
	TOTAL	15549.967	119	130.672	-

** Significant at .01 level
* Significant at .05 level

The contribution of socio-economic status and classroom behaviour towards the criterion variable of Consequences Creativity (CC) were found to be significant at .01 and .05 respectively (F= 38.057 and 4.877). Country was not found to be significant (F = .768 for df 1/112 vide Table 4.26B). Similarly to the variable of country, all types of interactions were found to be not significant at .05 level. This meant that these interactions did not matter in accounting for the criterion variable of Consequences Creativity (CC).

TABLE 4.27A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF CREATIVITY TOTAL (CY)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
TB.H	1998	1200	1910	1568	6676
TB.L	1652	1168	1766	1419	6005
SUM	3650	2368	3676	2987	12681

TABLE 4.27 B SUMMARY RESULTS OF ANOVA (2 x 2 x 2) FOR CREATIVITY TOTAL (CY)

S.No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	44226.858	7	-	-
2	CON	3466.875	1	3466.875	5.237*
3	SES	32373.675	1	32373.675	48.904**
4	TB	3752.008	1	3752.008	5.668*
5	CON x SES	2930.408	1	2930.408	4.427*
6	SES x TB	795.675	1	795.675	1.202
7	TB x CON	60.208	1	60.208	.091
8	CON x SES x TB	848.008	1	848.008	1.281
9	Replicate	8678.450	14	619.889	.936
10	Error	64875.017	98	661.990	-
	TOTAL	117780.33	119	989.751	-

** Significant at 0.01 level
* Significant at 0.05 level

Table 4.27B shows that all three main variables of country, socio-economic status and classroom behaviour were found to be significant (F = 5.237, 48,904 and 5.668 with df 1/112), which are significant at .05, .01 and .05 respectively. Only the interaction effect of country x socio-economic status was significant at .05 level (F = 4.427 for df 1/112). The other interaction effects of second, third and fourth were not found to be significant at .05 level.

TABLE 4.28A THE DISTRIBUTION OF SCORES FOR 2x2x2 TRIVARIATE PARADIGM OF FIGURAL FLUENCY(FF)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
TB.H	266	162	334	299	1061
TB.L	290	218	332	281	1121
SUM	556	380	666	580	2182

TABLE 4.28B SUMMARY RESULTS OF ANOVE (2x2x2) FOR FIGURAL FLUENCY (FF)

S. No.	Source of Variation	Sum of Square	df	Mean Square	F-Ratio
1	Treatment	1575.033	7	-	-
2	CON	800.833	1	800.833	36.482**
3	SES	572.033	1	572.033	26.059**
4	TB	30.000	1	30.000	1.367
5	CONxSES	67.500	1	67.500	3.075
6	SESxTB	2.133	1	2.133	.097
7	TBxCON	83.333	1	83.333	3.796
8	CONxSESxTB	19.200	1	19.200	.875
9	Replicate	157.717	14	11.265	.513
10	Error	2151.217	98	21.951	-
	TOTAL	3883.967	119	32.638	-

** Significant at 0.01 level

Table 4.28B reveals that only the two main variables of country and socio-economic status were found to have significant effects towards the criterion variable of Figural Fluency (FF). The F-ratio yielded the values of 36.482 and 26.059 were significant at .01 level for df 1/112. The variable of classroom behaviour did not account for the variance of Figural Fluency (F = 1.367 for df 1/112).

All the interaction effects in the context of Figural Fluency (FF) were not significant at .05 level.

TABLE 4.29A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF FIGURAL FLEXIBILITY (FX)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
TB.H	197	131	273	231	832
TB.L	248	174	255	202	879
SUM	445	305	528	433	1711

TABLE 4.29B SUMMARY RESULTS OF ANOVA (2x2x2) FOR FIGURAL FLEXIBILITY (FX)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	1035.258	7	-	-
2	CON	371.008	1	371.008	17,089**
3	SES	460.208	1	460.208	21.198**
4	TB	18.408	1	18.408	.848
5	CONxSES	16.875	1	16.875	.777
6	SESxTB	3.008	1	3.008	.139
7	TBxCON	165.675	1	165.675	7.631**
8	CONxSESxTB	.075	1	.075	.003
9	Replicate	198.117	14	14.151	.652
10	Error	2127.617	98	21.710	-
	TOTAL	3360.992	119	28.294	-

** Significant at 0.01 level

Table 4.29B indicates that the variable of country and socio-economic status did affect towards the criterion variable of Figural Flexibility (FX) which described by the F-ratio of 17.089 and 21.198 for df 1/192, both significant at .01 level. Referring to all types of interaction effects, only the interaction between classroom behaviour and country were significant at.01 level (F= 7.631 df 1/112). This means that the students in particular classroom interaction behaviour with particular country have superiority mean scores than those in the other. The other interaction effects of the first, second and fourth did not account in the criterion variable of Figural Flexibility (FX).

TABLE 4.30A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF FIGURAL ORIGINALITY (FO)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
TB.H	306	216	408	329	1259
TB.L	368	277	361	318	1324
SUM	674	493	769	647	2583

TABLE 4.30B SUMMARY RESULTS OF ANOVA (2x2x2) FOR FIGURAL ORIGINALITY (FO)

S. No.	Source of Variation	Sum of Squares	df	Mean square	F-Ratio
1	Treatment	1640.592	7	-	-
2	CON	516.675	1	516.675	10.738**
3	SES	765.075	1	765.075	15.901**
4	TB	3.521	1	3.521	.732
5	CONxSES	29.008	1	29.008	.603
6	SESxTB	10.208	1	10.208	.212
7	TBxCON	273.008	1	273.008	5.674*
8	CONxSESxTB	11.408	1	11.408	.237
9	Replicate	432.050	14	30.861	.641
10	Error	4715.283	98	48.115	-
	TOTAL	6787.93	119	57.041	-

** Significant at 0.01 level
* Significant at 0.05 level

It has been seen from the Table 4.30B that the two main variables of country and socio-economic status did account into the criterion variable of Figural Originality (FO). The F-values of 10.738 and 15.901 for df 1/112 were found to be significant at .01 level. The variable of classroom interaction behaviour was not significant at .05 level. The interaction effect of classroom behaviour and country was found to be significant at .05 level (F = 5.674 for df 1/112). All the remaining interaction effects of the first, second and fourth were not found to be significant in this criterion variable of Figural Originality (FO).

TABLE 4.31A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF FIGURAL ELABORATION (FE)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
TB.H	646	527	957	959	3089
TB.L	958	676	969	731	3334
SUM	1604	1203	1926	1640	6423

TABLE 4.31B SUMMARY RESULTS OF ANOVA (2x2x2) FOR FIGURAL ELABORATION (FE)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	14784.725	7	-	-
2	CON	5454.008	1	5454.008	21.664**
3	SES	3381.408	1	3381.408	13.431**
4	TB	500.208	1	500.208	1.987
5	CONxSES	226.875	1	226.875	.901
6	SESxTB	1353.408	1	1353.408	5.376*
7	TBxCON	3819.408	1	3819.408	15.171**
8	CONxSESxTB	49.408	1	49.408	.196
9	Replicate	957.300	14	68.379	.272
10	Error	24671.900	98	251.754	-
	SUM	40413.925	119	339.613	-

** Significant at 0.01 level
* Significant at 0.05 level

In the Table 4.31B, it shows that the variables of country and socio-economic status did account for the criterion variable of Figural Elaboration(FE). The F-ratio yielded the values of 21.664 and 13.431 for df 1/112 were significant at .01 level. The independent variable of classroom interaction behaviour was found to have no influence upon the criterion variable of Figural Elaboration (FE). The interaction effects of socio-economic status x classroom behaviour and classroom behaviour x country were found to be significant at .05 and .01 level respectively (F-values of 5.376 and 15.171). The first and fourth interaction did not affect the criterion variable of Figural Elaboration (FE).

TABLE 4.32A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF FIGURAL CREATIVITY (FC)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
TB.H	1415	1026	1973	1810	6224
TB.L	1864	1345	1916	1542	6667
SUM	3279	2371	3889	3352	12891

TABLE 4.32B SUMMARY RESULTS OF ANOVA (2x2x2) FOR FIGURAL CREATIVITY (FC)

S. No.	Source of Variation	Sum of Square	df	Mean Square	F-Ratio
1	Treatment	52255.725	7	-	-
2	CON	21094.008	1	21094.008	26.729**
3	SES	17400.208	1	17400.208	22.048**
4	TB	1635.408	1	1635.408	2.072
5	CONxSES	1147.008	1	1147.008	1.453
6	SESxTB	969.008	1	969.008	1.228
7	TBxCON	9955.408	1	9955.408	12.615**
8	CONxSESxTB	54.675	1	54.675	.069
9	Replicate	3325.950	14	237.568	.301
10	Error	77339.650	98	789.180	-
	TOTAL	132921.33	119	1116.986	-

** Significant at .01 level

Table 4.32B indicates that the country and socio-economic status as indicated by F-ratio of 26.729 and 22.048 for df 1/112 were significant at .01 level towards the criterion variable of Figural Creativity (FC). The interaction effect of classroom behaviour x country also accounted for significant effect upon the variable Figural Creativity (F= 12.615 for df 1/112). The main variable of classroom behaviour and the interaction effects of country x socio-economic status, socio-economic status x classroom behaviour and country x socio-economic status x class room behaviour were not significant at .05 level.

TABLE 4.33A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF VERBAL FLUENCY (VF)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
TB.H	647	458	704	732	2541
TB.L	708	549	719	752	2728
SUM	1355	1007	1423	1484	5269

TABLE 4.33B SUMMARY RESULTS OF ANOVE (2x2x2) FOR VERBAL FLUENCY (VF)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	4976.525	7	-	-
2	CON	2475.208	1	2475.208	18.483**
3	SES	686.408	1	686.408	5.126*
4	TB	291.408	1	291.408	2.176
5	CONxSES	1394.008	1	1394.008	10.410**
6	SESxTB	10.208	1	10.208	.076
7	TBxCON	114.075	1	114.075	.852
8	CONxSESxTB	5.083	1	5.083	.039
9	Replicate	1771.617	14	126.544	.945
10.	Error	13123.850	98	133.917	-
	TOTAL	19871.992	119	166.992	-

** Significant at 0.01 level
* Significant at 0.05 level

From the Table 4.33B, it was clear that the two main variables of country and socio-economic status did effect the criterion variable of Verbal Fluency (F=18.483 and 5.126 for df 1/112, significant at .01 and .05 level respectively . The interaction of country x socio-economic status was the only one among all interactions in this criterion variable of Verbal Fluency (VF) which was found to be significant towards the criterion veriable of Verbal Fluency (F= 10.410 for df 1/112).

The variable of classroom behaviour and the other interactions of second, third and fourth order were not found to be significant at .05 level.

TABLE 4.34A THE DISTRIBUTION OF SCORES FOR THE 2 x 2 x 2 TRIVARIATE PARADIGM OF VERBAL FLEXIBILITY (VX)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
TB.H	520	356	558	596	2030
TB.L	578	438	571	579	2166
SUM	1098	794	1129	1175	4196

TABLE 4.34 B SUMMARY RESULTS OF ANOVA (2 x 2 x 2) FOR VERBAL FLEXIBILITY (VX)

S.No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	3341.600	7	-	-
2	CON	1414.533	1	1414.533	12.455**
3	SES	554.700	1	554.700	4.884*
4	TB	154.133	1	154.133	1.357
5	CON x SES	1020.833	1	1020.833	8.988**
6	SES x TB	.300	1	.300	.003
7	TB x CON	172.800	1	172.800	1.521
8	CON x SES x TB	24.300	1	24.300	.214
9	Replicate	1796.117	14	128.294	1.130
10	Error	11130.150	98	113.573	-
	TOTAL	16267.867	119	136.705	-

** Significant at 0.01 level
* Significant at 0.05 level

Table 4.34B reveals that the results of analysis of variance of the independent variables of country and socio-economic status were found to have significant effects towards Verbal Flexibility (F= 12.455 and 4.884 for df 1/112 significant at .01 and .05 respectively). The interaction effect of country x socio-economic status was also found to be significant as indicated by F-ratio of 8.988 for df 1/112. The classroom behaviour and all the interaction effects were not significant with regard to the criterion variable of Verbal Flexibility (VX).

TABLE 4.35A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF VERBAL ORIGINALITY (VO)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
TB.H	558	400	615	595	2168
TB.L	630	473	611	615	2329
SUM	1188	873	1226	1210	4497

TABLE 4.35B SUMMARY RESULTS OF ANOVA (2x2x2) FOR VERBAL ORIGINALITY (VO)

S. No.	Source of Variation	Sum of square	df	mean square	F-Ratio
1	Treatment	3194.192	7	-	-
2	CON	1171.875	1	1171.875	9.547.**
3	SES	913.008	1	913.008	7.438 **
4	TB	216.008	1	216.008	1.760
5	CONxSES	745.008	1	745.008	6.069*
6	SESxTB	5.208	1	5.208	.042
7	TB xCON	138.675	1	138.675	1.130
8	CONxSESxTB	4.408	1	4.408	.036
9	Replicate	2146.300	14	153.307	1.249
10	Error	12029.433	98	122.749	-
	Total	17369.925	119	145.966	-

** Significant at 0.01 level
* Significant at 0.05 level

Referring to Table 4.35B, it has been seen that the variable of country and socio-economic status were found to have effects upon the Verbal Originality (VO) which yielded F-ratio of 9.547 and 7.438 for df 1/112. The only interaction of country x socio-economic status was significant (F= 6.069 for df 1/112). The classroom behaviour and all types the interaction effects except the interaction effect of "country x socio-economic status" were not found to be significant. The interaction effect of country x socio-economic status was found to be significant at .05 Level (F= 6.069 for df 1/112).

TABLE 4.36A THE DISTRIBUTION OF SCORES FOR THE 2x2x2 TRIVARIATE PARADIGM OF VERBAL CREATIVITY (VC)

	INDIAN		THAI		SUM
	SES.H	SES.L	SES.H	SES.L	
TB.H	1724	1217	1877	1925	6743
TB.L	1916	1460	1911	1946	7233
SUM	3640	2677	3788	3871	13976

TABLE 4.36B SUMMARY RESULTS OF ANOVA (2x2x2) FOR VERBAL CREATIVITY (VC)

S. No.	Source of Variation	Sum of Squares	df	Mean Square	F-Ratio
1	Treatment	33829.333	7	-	-
2	CON	15008.033	1	15008.033	13.852**
3	SES	6453.333	1	6453.333	5.956*
4	TB	2000.833	1	2000.833	1.847
5	CONxSES	9117.633	1	9117.633	8.416**
6	SESxTB	12.033	1	12.033	.011
7	TBxCON	1203.333	1	1203.333	1.111
8	CONxSESxTB	34.133	1	34.133	.032
9	Replicate	16502.367	14	1178.741	1.088
10	Error	106176.17	98	1083.43	-
	TOTAL	156507.87	119	1315.19	-

** Significant at 0.01 level
* Significant at 0.05 level

In the Table 4.36B, it has been seen that the two main variables of country and socio-economic status were found to be significant (F= 13.852 and 5.956 for df 1/112, significant at .01 and .05 respectively). Among all types of the interaction effects, the interaction of country x socio-economic status was found to have effect upon the verbal creativity (F= 8.416 for df 1/112). The second, third and fourth of the interaction effects were not found to be significant with regard to Verbal Creativity (VC).

4.2.1 Conclusion

TABLE 4.2C SUMMARY OF RESULTS OF ANOVA (2x2x2) FOR ALL DIMENSIONS OF CREATIVE THINKING BY HAVING COUNTRY, SOCIO-ECONOMIC STATUS AND CLASSROOM BEHAVIOUR AS INDEPENDENT VARIABLES

Criterion variables	F-RATIO						
	CON	SES	TB	CONxSES	SESxTB	TBxCON	CONxSESxTB
SP	0.01	0.01	0.01	NS	NS	NS	NS
UF	0.05	0.01	NS	NS	NS	NS	0.05
UX	0.01	0.01	NS	0.01	NS	NS	0.05
UO	0.01	0.01	NS	NS	NS	NS	NS
UC	0.01	0.01	NS	NS	NS	NS	0.05
CF	NS	0.01	NS	NS	NS	NS	NS
CO	NS	0.01	NS	0.01	NS	NS	NS
CC	NS	0.01	0.05	NS	NS	NS	NS
CY	0.05	0.01	0.05	0.05	NS	NS	NS
FF	0.01	0.01	NS	NS	NS	NS	NS
FX	0.01	0.01	NS	NS	NS	0.01	NS
FO	0.01	0.01	NS	NS	NS	0.05	NS
FE	0.01	0.01	NS	NS	0.05	0.01	NS
FC	0.01	0.01	NS	NS	NS	0.01	NS
VF	0.01	0.05	NS	0.01	NS	NS	NS
VX	0.01	0.05	NS	0.01	NS	NS	NS
VO	0.01	0.01	NS	0.05	NS	NS	NS
VC	0.01	0.05	NS	0.01	NS	NS	NS

The summary results of analysis of variance (Vide Tables 4.19B to 4.36B) indicate that the major effects and interactional effects due to independent variables of country, socio-economic status and classroom behaviour were in the light of country and socio-economic status. The classroom behaviour was found to have effects towards the criterion variables of Seeing Problems (SP), Consequences Creativity (CC), and Creativity Total (CY).

Referring to all types of interaction effects, it has been found that the interaction effect of classroom behaviour x country has accounted for the variance of Figural Flexibility (FX), Figural Originality (FO), Figural Elaboration (FE), and Figural Creativity (FC). The interaction effect of country x socio-economic status has found to have less effects when the variable of classroom behaviour was included in the analysis. The interaction effect due to country x socio-economic status x classroom behaviour was also accounted for the variance of Unusual Uses Fluency (UF), Unusual Uses Flexibility (UX) and Unusual Uses Creativity (UC). The interaction effect of socio-economic status x classroom behaviour was found to be significant only with the criterion variable of Figural Elaboration (FE).

4.3.0 Summarised Picture of All ANOVA Approach :

The two sets of summary results (Vide Tables 4.1C and 4.2C) indicate that the major effects due to country and socio-economic status were found to be similar. The contribution towards variance due to country and socio-economic status was found to have significant effects mostly at .01 level.

Among all types of interaction effects, only country x socio-economic status in both the sets of three way analysis of variance (2x2x2) was found to have most influence towards criterion variables of creative thinking. Since only the global nature of effects is revealed by the variables of country and socio-economic status, a more detailed study of of the criterion variables of creative thinking was done with the help of t-test.