

CHAPTER V

CHAPTER V

SIGNIFICANCE OF THE DIFFERENCE BETWEEN MEANS

(The t-test Approach)

5.0.0 Introduction

This chapter is devoted to test the null hypotheses which are being reproduced below for the purpose of ready reference :

1. There is no significant difference in the creative thinking of the high school students in Baroda City and Bangkok City.
2. There is no relationship between the socio-economic status and creative thinking of Indian students (Baroda) and Thai students (Bangkok)
3. There is no relationship between school climate and creative thinking of Indian students (Baroda) and Thai students (Bangkok).
4. There is no relationship between classroom behaviour of teachers and creative thinking of Indian students (Baroda) and Thai students (Bangkok).

5. There is no significant difference in the creative thinking of Indian students (Baroda) and Thai students (Bangkok) with respect to sex.

It may be noted here that though the hypotheses were mainly concerned with the total creative thinking in each activity, nevertheless, the analytical picture in terms of different subscores of creative thinking were also taken into consideration. The discussion would be sequenced as creative - thinking and country, creative thinking and socio-economic status, creative thinking and school climate, creative thinking and classroom behaviour and creative thinking and sex for Total, Indian and Thai samples.

5.1.0 Creative Thinking and Country

To test the hypothesis ' There is no significant difference in the creative thinking of the high school students in Baroda City and Bangkok City ; the technique employed was significance of difference between means approach. The Indian students (Baroda) and the Thai students (Bangkok) have been compared in the context of eighteen criterion variables of creative thinking, namely, 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 interpretation and discussion of the hypotheses as already mentioned in caption 5.0.0 have been presented alongwith completed related researches. The discussion also included the probable reasons for obtaining these results.

TABLE 5.1 SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORES OF CRITERION VARIABLE OF CREATIVE THINKING FOR 300 INDIAN STUDENTS (BARODA) AND 300 THAI STUDENTS (BANGKOK)

CON	VAR	M	SD	N	t-VALUES (df=598)
INDIA (Baroda)		17.583	6.946	300	
	SP				6.040**
THAILAND (Bangkok)		21.050	7.133	300	
INDIA (Baroda)		15.680	5.229	300	
	UF				5.610**
THAILAND (Bangkok)		18.210	5.795	300	
INDIA (Baroda)		10.750	4.439	300	
	UX				5.370**
THAILAND (Bangkok)		12.490	3.425	300	

TABLE 5.1 (Contd.)

CON	VAR	M	SD	N	t-VALUES (df=598)
INDIA (Baroda)		23.117	10.757	300	
	UO				7.706**
THAILAND (Bangkok)		30.183	11.693	300	
INDIA (Baroda)		51.337	15.977	300	
	UC				6.410**
THAILAND (Bangkok)		60.343	18.228	300	
INDIA (Baroda)		17.370	6.671	300	
	CF				3.333**
THAILAND (Bangkok)		19.240	7.066	300	
INDIA (Baroda)		10.140	4.420	300	
	CO				2.507*
THAILAND (Bangkok)		11.040	4.385	300	
INDIA (Baroda)		27.583	9.836	300	
	CC				3.020**
THAILAND (Bangkok)		30.150	10.962	300	
INDIA (Baroda)		98.630	27.190	300	
	CY				7.110**
THAILAND (Bangkok)		111.470	29.276	300	
INDIA (Baroda)		17.140	6.702	300	
	FF				4.772**
THAILAND (Bangkok)		18.500	6.362	300	
INDIA (Baroda)		13.270	5.332	300	
	EX				3.549**
THAILAND (Bangkok)		16.031	5.158	300	

TABLE 5.1 (Contd.)

CON	VAR	M	SD	N	t-VALUES (df=598)
INDIA (Baroda)		19.470	7.425	300	
	FO				4.547**
THAILAND (Bangkok)		23.640	7.117	300	
INDIA (Baroda)		49.233	16.691	300	
	FE				4.643**
THAILAND (Bangkok)		55.603	15.922	300	
INDIA (Baroda)		104.290	31.293	300	
	FC				6.237**
THAILAND (Bangkok)		115.510	24.735	300	
INDIA (Baroda)		40.317	13.760	300	
	VF				7.642**
THAILAND (Bangkok)		48.983	8.544	300	
INDIA (Baroda)		33.500	11.288	300	
	VX				2.902**
THAILAND (Bangkok)		36.800	11.100	300	
INDIA (Baroda)		34.467	11.427	300	
	VO				5.277**
THAILAND (Bangkok)		40.467	10.946	300	
INDIA (Baroda)		111.067	34.159	300	
	VC				8.618**
THAILAND (Bangkok)		128.200	34.002	300	

** Significant at .01 level

* Significant at .05 level

The results of the significance of the difference between means of eighteen dimensions of creative thinking for the Indian students (Baroda) and the Thai students (Bangkok) as given in Table 5.1, has proved significant differences between them. The M and SD of the Thai students (Bangkok) for Seeing Problems were 21.050 and 7.133 while for the Indian students (Baroda) 17.583 and 6.946 respectively. The "t" was found to be 6.040 which was significant at .01 level. Similarly the Thai students (Bangkok) were found to have higher means for Unusual Uses Fluency ($t = 5.610$), Unusual Uses Flexibility ($t = 5.370$), Unusual Uses Originality ($t = 7.706$), Unusual Uses Creativity ($t = 6.410$), Consequences Fluency ($t = 3.333$), Consequences Originality ($t = 2.507$), Consequences Creativity ($t = 3.020$), Creativity Total ($t = 7.110$), Figural Fluency ($t = 4.772$), Figural Flexibility ($t = 3.549$), Figural Originality ($t = 4.547$), Figural Elaboration ($t = 4.643$), Figural Creativity ($t = 6.237$), Verbal Fluency ($t = 7.642$), Verbal Flexibility ($t = 2.902$), Verbal Originality ($t = 5.277$), and Verbal Creativity ($t = 8.618$). All the t-ratios were found to be significant at .01 level except in the case of Consequences Originality ($t = 2.507$), which was significant at .05 level.

Discussion

On the basis of the comparisons between the Indian students (Baroda) and the Thai students (Bangkok) with regard to their creative thinking, identified in the light of t-test results, the null hypothesis that "there is no significant difference in creative thinking of high school students in Baroda City and Bangkok City" was rejected.

In other words, the Indian students (Baroda) and the Thai students (Bangkok) differed in their creative thinking. The Thai students (Bangkok) are more creative than the Indian students (Baroda). Vullope (1976) has also found that the Thai students (Nakornsawan) exceeded the Indian students (Baroda) with regard to creativity. The results of the present study were again similar to Lembright and Yamamoto (1965); Vernon (1966); Ogletree (1971); Mari (1971) and Torrance (1973).

Making an exploratory comparison between Amish and Urban American school children Lembright and Yamamoto (1965) used a battery of tests of creative thinking with 43 Amish and Urban American children in the fourth, fifth and sixth grades. Results showed both qualitative and quantitative differences in these two groups' performance, obviously reflecting their respective environment

and sub-cultures.

A cross-cultural study of "creativity tests" with 11-year boys was made by Vernon (1966). The short individual battery of 5 tests was given individually during 1965 to the different cultural samples. The tests used were : The Rorschach Inkblot Tests, The Incomplete Figures Test, The Tin Can Test, 'If I could fly' Test; and 'The Dog that could not Bark' test. The results showed that there was more overlapping in the content of responses between the various cultural groups than had been expected. The Hebridean samples generally resembled the English apart from low scores on the 'Incomplete Figures' Test. But Gaelic background boys showed some restriction of creative imagination on several tests. Both Eskimos and Indians, though coming from very poor economic and cultural background and being retarded in English, were often as high in ideational fluency as the English reference group, or higher, though the quality of those associations or stories was poor. The Indians in particular showed strong perservation and lack of originality which can probably be attributed to their lack of cultural stimulation, extreme conservation and non-co-operation with the white civilisation. Eskimos, however, obtained scores on several originality

variables comparable to those of the British sample.

Ogletree (1971) made a cross-cultural examination of the creative thinking ability of public and private school pupils in England, Scotland, and Germany, using a total of 1,165 third through sixth grade children. Subjects were administered the TTCT orally in their native tongue. The battery gave scores for verbal and figural fluency, flexibility, originality and elaboration. The English sample scored significantly higher on most of the creativity measures than their Scottish and German peers. German pupils surpassed Scottish pupils on the verbal measures, and conversely, Scottish pupils outscored German and English pupils on the figural measures.

Mari (1971) designed a study with a view to compare modern American with traditional Arab rural eighth grade students in their creative ability. He found that overall, American subjects performed significantly better than Arab subjects in all problems, although on two out of the thirteen specific scores the differences were not significant. These are fluency in unusual questions and fluency in Picture Completion. It was believed that test limitation was a factor which led to these two non-significant findings.

Torrance (1973) made use of all of the data from the creative thinking test performances, and developed an overall creativity index for each of the seven groups (U.S. Comparison Group, West Germany, Norway, Western Australia, U.S. Negro, India, and Western Samoa). According to the rankings assigned, the U.S. Comparison Group stands highest among these seven cultures; and West Berlin children gave the U.S.A. children a better race than the other groups. Further analysis of the data showed differential levels of functioning on the figural and verbal measures of fluency, flexibility, originality and elaboration. The more highly developed cultures, such as, the U.S. advantaged culture, West Germany, Australia and Norway stand separately from the more underdeveloped cultures such as, the U.S. Negro Group, Western Samoa, and India on the ability of elaboration.

In the more developed cultures complexity and elaboration are required for satisfactory adjustment. While, in the less developed countries, such complexity of thinking might be maladaptive. Something simpler is frequently more effective in these cultures.

The differences exist on creativity of the Thai students (Bangkok) and the Indian students (Baroda) in the present study may be explained in

terms of the complexity of the situational factors of environmental conditions in both the cities, whereas Bangkok environment has more challenges, information, knowledge and educational facilities as compared to Baroda environment. As regards, Bangkok schools children are provided with more co-curricular activities, such as, exhibition, excursion, sport etc. This provides more opportunity to the Bangkok students to interact within a variety of situations and also express their talent in various ways.

5.2.0 Creative Thinking and Socio-Economic Status :

A set of tables from 5.3 to 5.5 contains significance of difference between mean scores of 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) with regard to different groups of socio-economic status for the total sample (N = 600) and each of the two sets Indian sample (N = 300) and Thai sample (N = 300).

The total score on Socio-Economic Status Scale is graded by Kuppuswamy into Five Socio-Economic Status classes. For the convenience of grouping children, the usual 5 class system has been converted into 3 class system for this analysis as shown in Table 5.2.

TABLE 5.2 REVISED GROUPING SCHEME

Score on Scale	Kuppuswamy's Grading	Grading adopted for the study	Score
26 - 29	I)	High SES	16 and above
16 - 25	II)		
11 - 15	III	Middle SES	11 - 15
5 - 10	IV)	Low SES	10 and below
Below - 5	V)		

TABLE 5.3 SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORES OF CRITERION VARIABLE OF CREATIVE THINKING FOR DIFFERENT GROUPS OF SOCIO-ECONOMIC STATUS (N = 600)

SES	VAR	M	SD	N	t-VALUES		
					df=499 Gr.1/2	df=363 Gr.2/3	df=332 Gr.1/3
High		21.711	6.973	235			
Middle	SP	18.594	6.156	266	5.093**	6.071**	10.849**
Low		15.158	4.640	99			

TABLE 5.3 (Contd.)

SES	VAR	M	SD	N	t-VALUES		
					df=499 Gr.1/2	df=363 Gr.2/3	df=332 Gr.1/3
High		19.716	5.653	235			
Middle	UF	17.642	4.207	266	4.470**	7.247**	10.404**
Low		14.410	4.113	99			
High		13.013	10.698	235			
Middle	UX	25.463	9.271	266	4.778**	5.229**	9.791**
Low		18.835	6.400	99			
High		30.013	10.698	235			
Middle	UO	25.463	9.271	266	4.882**	8.093**	12.588**
Low		18.835	6.400	99			
High		60.957	35.511	235			
Middle	UC	53.769	26.718	266	2.458*	4.722**	6.564**
Low		43.281	15.893	99			
High		21.746	6.211	235			
Middle	CF	18.441	6.125	266	5.758**	7.667**	13.605**
Low		14.209	4.429	99			
High		12.052	6.690	235			
Middle	CO	10.581	4.143	266	2.840**	3.387**	5.234**
Low		8.928	4.763	99			
High		34.461	9.989	235			
Middle	CC	27.873	9.236	266	7.353**	6.613**	13.067**
Low		21.525	8.726	99			

TABLE 5.3 (Contd.)

SES	VAR	M	SD	N	t-VALUES		
					df=499 Gr.1/2	df=363 Gr.2/3	df=332 Gr.1/3
High		118.207	28.618	235			
Middle	CY	106.755	28.114	266	4.335**	12.610**	17.414**
Low		77.475	16.420	99			
High		20.573	5.500	235			
Middle	FF	19.681	5.785	266	1.699	7.079**	8.633**
Low		15.108	6.143	99			
High		16.293	4.514	235			
Middle	FX	14.638	4.863	266	3.787**	3.605**	6.544**
Low		12.504	5.862	99			
High		23.940	6.503	235			
Middle	FO	21.795	7.631	266	3.250**	5.267**	8.753**
Low		17.892	6.405	99			
High		62.776	32.333	235			
Middle	FE	56.568	36.966	266	1.918	3.780**	6.102**
Low		44.165	25.823	99			
High		121.810	43.262	235			
Middle	FC	107.210	44.398	266	3.575**	6.837**	10.839**
Low		80.957	29.214	99			
High		46.931	12.158	235			
Middle	VF	44.035	13.768	266	2.393*	4.300**	6.583**
Low		37.748	13.482	99			

TABLE 5.3 (Contd.)

SES	VAR	M	SD	N	t-VALUES		
					df=499 Gr.1/2	df=363 Gr.2/3	df=332 Gr.1/3
High		37.720	11.176	235			
Middle	VX	34.790	11.886	266	2.726**	4.460**	6.977**
Low		29.201	11.511	99			
High		40.030	11.395	235			
Middle	VO	38.371	12.528	266	1.487	5.168**	6.696**
Low		31.647	11.837	99			
High		127.690	45.078	235			
Middle	VC	117.664	40.318	266	2.518*	5.455**	7.546**
Low		95.417	36.406	99			

** Significant at .01 level

* Significant at .05 level

Significance of difference between means of the High SES group, Middle SES group and Low SES group for eighteen criterion variables are shown in Table 5.3. The High SES group was found to have significantly higher mean for Seeing Problems ($t = 5.093$), Unusual Uses Fluency ($t = 4.470$), Unusual Uses Fluency ($t = 4.470$), Unusual Uses Flexibility ($t = 4.778$), Unusual Uses Originality ($t = 4.882$), Unusual Uses Creativity ($t = 2.458$), Consequences Fluency ($t = 5.758$), Consequences Originality ($t = 2.840$), Consequences Creativity

($t = 7.353$), Creativity Total ($t = 4.335$), Figural Flexibility ($t = 3.787$), Figural Originality ($t = 3.250$), Figural Creativity ($t = 3.575$), Verbal Fluency ($t = 2.393$), Verbal Flexibility ($t = 2.726$) and Verbal Creativity ($t = 2.518$) in comparison to the Middle SES group.

The t -ratios of Seeing Problem (SP), Unusual Uses Fluency (UF), Unusual Uses Flexibility (UX), Unusual Uses Originality (VO), Consequences Fluency (CF), Consequences Originality (CO), Consequences Creativity (CC), Creativity Total (CY), Figural Flexibility (FX), Figural Originality (FO), Figural Creativity (FC) and Verbal Flexibility (VX) were significant at .01 level while the Unusual Uses Creativity (UC), Verbal Fluency (VF) and Verbal Creativity (VC) were significant at .05 level between these two groups. The dimensions of Figural Fluency (FF) and the Verbal Originality (VO) were found to be not significant at .05 level between the High SES group and the Middle SES group.

As regards, the Middle SES group and the Low SES group, all eighteen criterion variables of creative thinking namely, Seeing Problems ($t = 6.071$), Unusual Uses Fluency ($t = 7.247$), Unusual Uses Flexibility ($t = 5.229$), Unusual Uses Originality

($t = 8.093$), Unusual Uses Creativity ($t = 4.722$), Consequences Fluency ($t = 7.667$), Consequences Originality ($t = 3.387$), Consequences Creativity ($t = 6.613$), Creativity Total ($t = 12.610$), Figural Fluency ($t = 7.079$), Figural Flexibility ($t = 3.605$), Figural Originality ($t = 5.267$), Figural Elaboration ($t = 3.780$), Figural Creativity ($t = 6.837$), Verbal Fluency ($t = 4.300$), Verbal Flexibility ($t = 4.460$), Verbal Originality ($t = 5.168$) and Verbal Creativity ($t = 5.455$) were found to have significant mean difference at .01 level. The higher mean scores were in the favour of Middle SES group.

Similarly the significance of differences between means of the High SES group and the Low SES group for all the eighteen criterion variables have found to be significant at .01 level. The higher mean scores in all dimensions were in the favour of the High SES group for the total sample ($N = 600$).

TABLE 5.4 SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORES OF CRITERION VARIABLE OF CREATIVE THINKING FOR 300 INDIAN STUDENTS WITH REGARD TO THEIR SOCIO-ECONOMIC STATUS ($N=300$)

SES	VAR	M	SD	N	t-VALUES		
					df=236 Gr.1/2	df=199 Gr.2/3	df=159 Gr.1/3
High		19.917	4.025	99			
Middle	SP	17.069	5.063	139	4.086**	4.600**	9.165**
Low		14.088	4.151	62			

TABLE 5.4 (Contd.)

SES	VAR	M	SD	N	t-VALUES		
					df=236 Gr.1/2	df=199 Gr.2/3	df=159 Gr.1/3
High		19.573	4.457	99			
Middle	UF	15.686	3.779	139	6.599**	3.304**	9.498**
Low		13.912	3.884	62			
High		12.188	3.519	99			
Middle	UX	10.971	3.170	139	2.551*	5.313**	7.315**
Low		8.304	3.949	62			
High		24.823	6.499	99			
Middle	UO	20.784	7.865	139	3.948**	3.697**	7.835**
Low		17.176	5.944	62			
High		57.375	20.870	99			
Middle	UC	50.912	20.859	139	2.178*	3.807**	6.021**
Low		40.294	18.922	62			
High		20.313	4.664	99			
Middle	CF	17.157	6.204	139	4.062**	3.108**	7.765**
Low		14.559	5.727	62			
High		10.927	4.804	99			
Middle	CO	10.431	5.449	139	.680	3.330**	4.421**
Low		8.363	3.119	62			
High		34.354	7.410	99			
Middle	CC	26.157	8.748	139	7.128**	4.747**	5.067**
Low		20.451	8.424	62			

TABLE 5.4 (Contd.)

SES	VAR	M	SD	N	t-VALUES		
					df=236 Gr.1/2	df=199 Gr.2/3	df=159 Gr.1/3
High		119.219	29.720	99			
Middle	CY	95.108	32.242	139	5.475**	4.264**	11.772**
Low		80.431	13.000	62			
High		17.927	4.416	99			
Middle	FF	15.088	5.124	139	4.187**	2.145*	3.048**
Low		13.627	4.594	62			
High		14.417	4.020	99			
Middle	FX	12.912	4.694	139	2.427*	2.663**	4.923**
Low		10.961	5.761	62			
High		21.979	5.582	99			
Middle	FO	19.882	7.209	139	2.294*	3.883**	6.905**
Low		16.255	6.081	62			
High		52.979	16.387	99			
Middle	FE	52.373	23.388	139	.212	2.480*	3.296**
Low		45.461	15.665	62			
High		107.396	27.262	99			
Middle	FC	95.186	35.781	139	2.710**	4.534**	8.218**
Low		74.794	27.987	62			
High		43.583	11.133	99			
Middle	VF	38.176	11.791	139	3.319**	3.605**	7.047**
Low		32.343	11.308	62			

TABLE 5.4 (Contd.)

SES	VAR	M	SD	N	t-VALUES		
					df=236 Gr.1/2	df=199 Gr.2/3	df=159 Gr.1/3
High		35.344	10.325	99			
Middle	VX	30.882	10.573	139	3.005**	3.500**	6.559**
Low		25.814	10.097	62			
High		37.823	10.394	99			
Middle	VO	33.314	11.851	139	2.850**	2.826**	6.077**
Low		28.951	10.140	62			
High		116.719	31.456	99			
Middle	VC	107.157	44.337	139	1.758	3.025**	5.788**
Low		90.912	31.258	62			

** Significant at .01 level

* Significant at .05 level

Significance of difference between means of eighteen criterion variables of creative thinking of the High SES, Middle SES, and Low SES for Indian students are shown in Table 5.4.

Referring to the High SES group and the Middle SES group of Indian students, the t-ratios were significant for fifteen dimensions of creative thinking, namely, Seeing Problems ($t = 4.086$), Unusual Uses Fluency ($t = 6.599$), Unusual Uses Flexibility ($t = 2.551$), Unusual Uses -

Originality ($t = 3.948$), Unusual Uses Creativity ($t = 2.178$), Consequences Fluency ($t = 4.062$), Consequences Creativity ($t = 7.128$), Creativity Total ($t = 5.475$), Figural Fluency ($t = 4.187$), Figural Flexibility ($t = 2.427$), Figural Originality ($t = 2.294$), Figural Creativity ($t = 2.710$), Verbal Fluency ($t = 3.319$), Verbal Flexibility ($t = 3.005$) and Verbal Originality ($t = 2.850$). The means for these fifteen dimensions of creative thinking were higher for the High SES group. There was no significant difference between the High SES group and the Middle SES group of Indian students in the cases of Consequences Originality ($t = .680$), Figural Elaboration ($t = .212$) and Verbal Creativity ($t = 1.758$).

With regard to the Middle SES and the Low SES groups, the t-ratios for all the dimensions of creative thinking namely, Seeing Problems ($t = 4.600$), Unusual Uses Fluency ($t = 3.304$), Unusual Uses Flexibility ($t = 5.313$), Unusual Uses Originality ($t = 3.697$), Unusual Uses Creativity ($t = 3.807$), Consequences Fluency ($t = 3.108$), Consequences Originality ($t = 3.330$), Consequences Creativity ($t = 4.747$), Creativity Total ($t = 4.264$), Figural Fluency ($t = 2.145$), Figural Flexibility ($t = 2.663$), Figural Originality ($t = 3.883$), Figural Elaboration

($t = 2.480$), Figural Creativity ($t = 4.534$), Verbal Fluency ($t = 3.605$), Verbal Flexibility ($t = 3.500$), Verbal Originality ($t = 2.826$), and Verbal Creativity ($t = 3.025$) were found to be significant. Only the dimension of Figural Elaboration was significant at .05 level, the other seventeen criterion variables were significant at .01 level with $df = 199$. The significant higher means for all these criterion variables were in favour of the Middle SES group.

The High SES group of Indian students were found to have significant higher means than the Low SES group for all eighteen dimensions of creative thinking. The t-ratios for all dimensions of creative thinking were significant at .01 level.

TABLE 5.5 SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORES OF CRITERION VARIABLE OF CREATIVE THINKING FOR 300 THAI STUDENTS WITH REGARD TO SOCIO-ECONOMIC STATUS

SES	VAR	M	SD	N	t-VALUES		
					df=261 Gr.1/2	df=162 Gr.2/3	df=171 Gr.1/3
High		22.978	8.239	136			
Middle	SP	19.622	6.223	127	3.672**	2.692**	5.617**
Low		17.108	4.689	37			
High		20.522	5.201	136			
Middle	UF	16.409	4.950	127	6.570**	1.939	6.815**
Low		14.784	4.343	37			

TABLE 5.5 (Contd.)

SES	VAR	M	SD	N	t-VALUES		
					df=261 Gr.1/2	df=162 Gr.2/3	df=171 Gr.1/3
High		13.676	3.576	136			
Middle	UX	11.276	3.553	127	5.467**	3.436**	7.080**
Low		10.568	2.154	37			
High		33.382	10.937	136			
Middle	UO	26.417	9.284	127	5.576**	3.981**	8.239**
Low		20.405	7.694	37			
High		67.132	35.531	136			
Middle	UC	59.063	15.695	127	2.409*	4.445**	5.169**
Low		48.514	11.687	37			
High		22.051	7.104	136			
Middle	CF	17.669	6.076	127	5.358**	3.284**	6.367**
Low		14.000	5.632	37			
High		13.140	8.146	136			
Middle	CO	9.701	3.894	127	4.319**	1.693	3.378**
Low		8.486	3.641	37			
High		34.537	11.493	136			
Middle	CC	27.449	9.606	127	5.407**	2.805**	5.902**
Low		22.486	8.974	37			
High		125.140	26.844	136			
Middle	CY	101.291	23.460	127	7.683**	3.419**	9.986**
Low		89.378	16.989	37			

TABLE 5.5 (Contd.)

SES	VAR	M	SD	N	t-VALUES		
					df=261 Gr.1/2	df=162 Gr.2/3	df=171 Gr.1/3
High		22.441	5.435	136			
Middle	FF	20.567	4.545	127	3.023**	.734	2.565*
Low		19.946	4.466	37			
High		17.618	4.384	136			
Middle	FX	15.827	4.583	127	3.239**	1.304	3.640**
Low		14.757	3.647	37			
High		25.324	6.766	136			
Middle	FO	23.134	7.165	127	2.549*	2.166*	4.123**
Low		20.405	4.997	37			
High		69.691	36.188	136			
Middle	FE	60.331	17.062	127	2.711**	3.176**	4.688**
Low		51.622	13.907	37			
High		131.985	49.269	136			
Middle	FC	116.472	28.030	127	3.109**	3.258**	3.808**
Low		100.459	19.097	37			
High		49.294	12.334	136			
Middle	VF	48.543	12.763	127	.485	.708	1.066
Low		46.892	11.464	37			
High		39.397	11.483	136			
Middle	VX	37.732	11.440	127	1.177	.573	1.377
Low		36.541	9.988	37			

TABLE 5.5 (Contd.)

SES	VAR	M	SD	N	t-VALUES		
					df=261 Gr.1/2	df=162 Gr.2/3	df=171 Gr.1/3
High		41.588	11.843	136			
Middle	VO	40.433	11.580	127	.799	.282	.820
Low		39.838	10.159	37			
High		130.434	45.944	136			
Middle	VC	126.512	35.340	127	.779	.943	1.697
Low		123.135	10.502	37			

** Significant at .01 level

* Significant at .05 level

The significance of difference between means of - criterion variable of creative thinking belonging to High SES, Middle SES, and Low SES of the Thai students is given in Table 5.5. It reveals that the Seeing Problems (SP), Unusual Uses Fluency (UF), Unusual Uses Flexibility (FX), 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), and Figural Creativity (FC) have shown significant mean difference between the High SES group and the Middle SES group. The High SES group was found to have higher means for all these criterion variables

in comparison to the Middle SES group. The t-ratios of Seeing Problems ($t = 3.672$), Unusual Uses Fluency ($t = 6.570$), Unusual Uses Flexibility ($t = 5.467$), Unusual Uses Originality ($t = 5.576$), Consequences Fluency ($t = 5.358$), Consequences Originality ($t = 4.319$), Consequences Creativity ($t = 5.407$), Creativity Total ($t = 7.683$), Figural Fluency ($t = 3.023$), Figural Flexibility ($t = 3.239$), Figural Elaboration ($t = 2.711$) and Figural Creativity ($t = 3.109$), were significant at .01 level, while the Unusual Uses Creativity ($t = 2.409$), Figural Originality ($t = 2.549$), found significantly at .05 level.

The results of the significance of difference between means of Verbal Fluency (VF), Verbal Flexibility (VX), Verbal Originality (VO) and Verbal Creativity (VC) of the High SES group and the Middle SES group has demonstrated no significant differences between them.

The Middle SES group significantly differentiate the Low SES group at .01 level in the cases of Seeing Problems ($t = 2.692$), Unusual Uses Flexibility ($t = 3.436$), Unusual Uses Originality ($t = 3.981$), Unusual Uses Creativity ($t = 4.445$), Consequences Fluency ($t = 3.284$), Consequences Creativity ($t = 2.805$), Creativity Total ($t = 3.419$), Figural Elaboration ($t = 3.176$) and Figural Creativity ($t = 3.258$). Only the t-ratio of Figural Originality ($t = 2.166$) was found

to be significant at .05 level. The means of the Middle SES group for all these criterion variables are greater than the means of the Low SES group. There was no significant difference between the Middle SES group and the Low SES group for the remaining eight dimensions of creative thinking.

The High SES group of Thai students was found to have higher significantly mean for 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), and Figural Creativity (FC). The mean difference for these dimensions were significant at .01 level except in the case of Figural Fluency which was significant at .05 level. There was no significant difference between the High SES group and the Low SES group of the Thai students in the dimensions of Verbal Fluency (VF), Verbal Flexibility (VX), Verbal Originality (VO) and Verbal Creativity (VC).

Discussion

Based on these results (Vide Tables 5.3 to 5.5) some general statements can be made. In all

three sets of comparisons of different groups on socio-economic status for Total, Indian and Thai samples, it is evident that students from higher socio-economic status have more creative thinking than the lower socio-economic status. The high socio-economic status group has better performance on creative thinking than the middle and low socio-economic status group. The middle socio-economic status group has also more creative thinking than the low socio-economic status group. Most of these differences are significant at .01 level. Therefore, the null hypothesis of 'there is no relationship between socio-economic status and creative thinking of Indian students (Baroda) and Thai students (Bangkok)' was rejected.

The result is in the line of Torrance and Smith (1962) who found middle class youngsters to be more creative on verbal tasks than lower class youngsters and converse was true for non-verbal tasks. This result is also similar to Roe (1953), Reid, King and Wick Wire (1959), Weisberg and Springer (1961), Mackinnon (1965), Pareek (1966), Schaefer and Anastasi (1968) and Oden (1968). These researchers have reported that family background, education of parents, position of fame and honour held by the parents or other at home, in community and neighbourhood feelings of superiority, the social

and intellectual bases in the family professional background and vocational independence of the parents have been known to influence creativity of the child.

As against to the present study Paramesh (1970), Johnson (1973) found no significant difference between mean scores of creativity of different pupils from different socio-economic status.

The inferiority of creative talent among low socio-economic status students in this study may be understood in the light of the theoretical framework proposed by Harvey, Hunt and Schroder (1961). They suggest that as individual's concepts are ordered according to certain patterns of organisation, the degree of conceptualization or abstractness varies from person to person. A person at a high level is more likely to explore situations and to be creative and adaptable when faced with a changing environment. In contrast, a person at a low level, manifests thinking which is stereotyped, overlearned and dominated by rules of authority. Researches conducted by Cross (1966), Cropley (1967), and Haroman and Sugarman (1967) have provided empirical evidence confirming Harvey's theory.

5.3.0 Creative Thinking and School Climate :

The t-test Approach was also employed to test

the null hypothesis relating to school climate in order to find out the significance of difference between means of creative thinking of open school climate group and closed school climate group. This has been done for the total sample and each of the two sets of Indian and Thai students separately. Significance of difference between means of creative thinking of open school climate group and closed school climate group is shown in Tables 5.6 to 5.8.

TABLE 5.6 SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORES OF CRITERION VARIABLE OF CREATIVE THINKING FOR DIFFERENT GROUPS OF SCHOOL CLIMATE (N = 600)

SCHOOL CLIMATE	VAR	M	SD	N	<u>t - VALUES</u> (df = 598)
Open		21.662	6.985	290	
	SP				7.907**
Closed		17.116	7.087	310	
Open		18.345	5.566	290	
	UF				3.119**
Closed		16.948	5.400	310	
Open		11.976	3.613	290	
	UX				2.260*
Closed		11.294	3.772	310	
Open		26.531	11.742	290	
	UO				1.119
Closed		25.506	10.689	310	
Open		57.224	38.436	290	
	UC				1.237
Closed		53.623	32.342	310	
Open		19.921	6.562	290	
	CF				3.585**
Closed		17.932	6.995	310	

TABLE 5.6 (Contd.)

SCHOOL CLIMATE	VAR	M	SD	N	t - VALUES (df = 598)
Open	CO	11.934	6.695	290	2.664**
Closed		10.723	4.252	310	
Open	CC	30.562	10.788	290	3.151**
Closed		27.742	11.110	310	
Open	CY	109.483	35.552	290	5.248**
Closed		94.800	32.974	310	
Open	FP	19.110	6.835	290	1.368
Closed		18.394	5.991	310	
Open	FX	15.214	5.848	290	1.198
Closed		14.681	5.044	310	
Open	FO	21.972	7.627	290	.305
Closed		21.784	7.530	310	
Open	FE	54.031	28.052	290	.925
Closed		56.242	30.484	310	
Open	FC	106.014	46.099	290	.162
Closed		106.597	42.285	310	
Open	VF	44.276	13.816	290	1.117
Closed		43.010	13.935	310	
Open	VX	35.517	12.284	290	1.428
Closed		34.097	12.075	310	
Open	VO	37.572	12.474	290	.649
Closed		36.906	12.652	310	
Open	VC	117.655	54.786	290	.859
Closed		113.865	53.301	310	

** Significant at .01 level

* Significant at .05 level

Table 5.6 shows the result of t-test between open school climate group and closed school climate group for total sample in the context of eighteen criterion variables. The Seeing Problems (SP), Unusual Uses Fluency (UF), Unusual Uses Flexibility (UX), Consequences Fluency (CF), Consequences Originality (CO), Consequences Creativity (CC), and Creativity Total (CY) have shown significant mean difference between the two groups. The mean Seeing Problems for open school climate group was 21.662 and SD 6.985, while the mean Seeing Problems for closed school climate group was 17.116 and SD 7.087. The t-ratio (7.907) was significant at .01 level (Garrett, 1969). Similarly the M and SD for Unusual Uses Fluency (UF) relating to the open school climate group of high school students were 18.345 and 5.566, and for the closed school climate group 16.948 and 5.400 respectively. The t-ratio (3.119) was significant at .01 level. In the same way, the open school climate group of high school students was found to have higher mean for Unusual Uses Flexibility (UX) and the t (2.260) was significant at .05 level. Similarly the open school climate group of high school students was also found to have higher significant means for Consequences Fluency (CF), Consequences Originality (CO), Consequences Creativity (CC), and Creativity Total (CY) which yielded the t-ratios of 3.858,

2.664, 3.151 and 5.248 (all t-values were significant at .01 level).

On the other hand, the means for Unusual Uses Originality (UO), Unusual Uses Creativity (UC), 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) were not found to be significant at .05 level between the open school climate group and closed school climate group of the high school students.

TABLE 5.7 SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORES OF CRITERION VARIABLE OF CREATIVE THINKING FOR 300 INDIAN STUDENTS WITH REGARD TO THEIR SCHOOL CLIMATE (N = 300)

SCHOOL CLIMATE	VAR	M	SD	N	t - VALUES (df = 298)
Open	SP	19.978	5.623	138	6.872**
Closed		15.549	5.513	162	
Open	UF	17.688	4.675	138	2.501*
Closed		16.352	4.562	162	
Open	UX	11.623	3.956	138	2.252*
Closed		10.642	3.588	162	
Open	UO	20.826	6.977	138	1.960*
Closed		22.648	8.818	162	
Open	UC	45.928	14.311	138	1.043
Closed		49.080	35.216	162	

TABLE 5.7 (Contd.)

SCHOOL CLIMATE	VAR	M	SD	N	t - VALUES (df = 298)
Open	CF	19.592	5.847	138	2.394*
Closed		17.778	6.687	162	
Open	CO	11.674	4.797	138	.598
Closed		11.364	4.173	162	
Open	CC	29.232	9.823	138	1.645
Closed		27.247	10.894	162	
Open	CY	99.957	37.231	138	3.812**
Closed		84.617	32.472	162	
Open	FF	15.804	5.216	138	.963
Closed		16.426	5.853	162	
Open	FX	13.058	5.395	138	.978
Closed		13.636	4.831	162	
Open	FO	19.072	6.189	138	2.021*
Closed		20.716	7.660	162	
Open	FE	45.913	16.230	138	2.654**
Closed		53.327	30.911	162	
Open	FC	83.638	29.695	138	2.855**
Closed		97.457	49.816	162	
Open	VF	39.261	12.694	138	.885
Closed		37.969	12.517	162	
Open	VX	31.565	11.155	138	.478
Closed		30.938	11.484	162	
Open	VO	33.819	11.397	138	.331
Closed		33.364	12.211	162	
Open	VC	100.630	34.896	138	.254
Closed		101.784	43.646	162	

** Significant at .01 level

* Significant at .05 level

In the Table 5.7, the results of t-test between the open school climate group and closed school climate group of Indian high school students for eighteen dimensions of creative thinking are given. The Seeing Problems (SP), Unusual Uses Fluency (UF), Unusual Uses Flexibility (UX), Unusual Uses Originality (UO), Consequences Fluency (CF), Creativity Total (CY), Figural Elaboration (FE) and Figural Creativity (FC), have shown significant mean difference between two groups. The open school climate group of Indian high school students was significant higher mean scores in comparison to that of the closed school climate group in the cases of Seeing Problems (SP), Unusual Uses Fluency (UF), Unusual Uses Flexibility (UX), Consequences Fluency (CF), Creativity Total (CY) while the closed school climate group was significant higher in the cases of Unusual Uses Originality (UO), Figural Originality (FO), Figural Elaboration (FE) and Figural Creativity (FC). The t-ratios of Seeing Problems ($t = 6.782$), Creativity Total ($t = 3.812$), Figural Elaboration ($t = 2.654$) and Figural Creativity ($t = 2.855$) were significant at .01 level. The t-ratios of Unusual Uses Fluency ($t = 2.501$), Unusual Uses Flexibility ($t = 2.252$), Unusual Uses Originality ($t = 1.960$), Consequences Fluency ($t = 2.394$), and Figural Originality ($t=2.021$) were found to be significant at .05 level. There

was no significant difference between the open school climate group and closed school climate group of the Indian high school students for the remaining nine dimensions of Unusual Uses Creativity (UC), Consequences Originality (CO), Consequences Creativity (CC), Figural Fluency (FF), Figural Flexibility (FX), Verbal Fluency (VF), Verbal Flexibility (VX), Verbal Originality (VO) and Verbal Creativity (VC).

TABLE 5.8 SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORES OF CRITERION VARIABLE OF CREATIVE THINKING FOR 300 THAI STUDENTS WITH REGARD TO SCHOOL CLIMATE

SCHOOL CLIMATE	VAR	M	SD	N	t - VALUES (df = 298)
Open	SP	23.099	7.220	152	4.892**
Closed		18.926	7.555	148	
Open	UF	18.849	5.889	152	1.720
Closed		17.696	5.712	148	
Open	UX	12.204	2.756	152	.304
Closed		12.101	3.083	148	
Open	UO	31.618	11.889	152	2.184*
Closed		28.730	10.985	148	
Open	UC	67.388	33.566	152	1.817
Closed		61.689	18.936	148	
Open	CF	20.184	6.929	152	2.450*
Closed		18.196	7.126	148	
Open	CO	12.079	7.884	152	2.666**
Closed		10.115	4.317	148	

TABLE 5.8 (Contd.)

SCHOOL CLIMATE	VAR	M	SD	N	t - VALUES (df = 298)
Open		31.678	11.212	152	
Closed	CC	28.378	11.149	148	2.555*
Open		118.039	31.116	152	
Closed	CY	106.041	29.017	148	3.452**
Open		22.020	5.692	152	
Closed	FF	20.642	4.194	148	2.382*
Open		17.079	4.656	152	
Closed	FX	15.919	4.274	148	2.247*
Open		24.513	7.076	152	
Closed	FO	23.047	6.713	148	1.840
Open		64.941	32.292	152	
Closed	FE	59.338	21.107	148	1.783
Open		126.237	48.109	152	
Closed	FC	116.696	28.339	148	2.086*
Open		48.737	12.493	152	
Closed	VF	48.622	12.343	148	.080
Open		39.013	11.540	152	
Closed	VX	37.649	11.050	148	1.046
Open		40.888	11.855	152	
Closed	VO	40.878	11.206	148	.007
Open		133.020	43.822	152	
Closed	VC	129.182	33.767	148	.851

** Significant at .01 level

* Significant at .05 level

The open school climate group of Thai high school students (N = 152) has shown higher mean for all dimensions 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) as compared to the closed school climate group. Out of eighteen dimensions of creative thinking, nine dimensions of creative thinking were found significant. The t-ratios of Seeing Problems ($t = 4.892$), Unusual Uses Originality ($t = 2.184$), Consequences Fluency ($t = 2.450$), Consequences Originality ($t = 2.666$), Consequences Creativity ($t = 2.555$), Creativity Total ($t = 3.452$), Figural Fluency ($t = 2.382$), Figural Flexibility ($t = 2.247$) and Figural Creativity ($t = 2.086$) were found to be significant at either .05 or .01 level. From the results given in Table 5.8, it is indicated that there was no significant difference between the open school climate group and closed school climate group of the Thai high school students for Unusual Uses

Fluency (UF), Unusual Uses Flexibility (UX), Unusual Uses Creativity (UC), Figural Originality (FO), Figural Elaboration (FE), Verbal Fluency (VF), Verbal Flexibility (VX), Verbal Originality (VO) and Verbal Creativity (VC).

Discussion

The Tables 5.6 to 5.8, show that most of the t-ratios between open school climate group and closed school climate group were found significant in the case of the dimensions of creativity as measured by the Passi Tests of Creativity but not be so in the dimensions of the Torrance Tests of Creative Thinking (Figural Version Form A and Verbal Version Form B). According to the Total group (N = 600), the open school climate group was found to have significant higher mean for Seeing Problems (SP), Unusual Uses Fluency (UF), Unusual Uses Flexibility (UX), Consequences Fluency (CF), Consequences Originality (CO), Consequences Creativity (CC), and Creativity Total (CY). The remaining dimensions of creative thinking show no significance t-values between the open school climate group and closed school climate group.

Similarly, there were significant difference between the open school climate group and closed school climate group for Seeing Problems (SP), Unusual Uses Fluency (UF), Unusual Uses Flexibility (UX),

Unusual Uses Originality (UO), Consequences Fluency (CF), Creativity Total (CY), Figural Originality (FO), Figural Elaboration (FE), and Figural Creativity (FC). The significant higher means for all these variables are in favour of the open school climate group. The other dimensions of creative thinking were not found to be significant.

Referring to the Thai sample, the open school climate group and the closed school climate group differed significantly with regard to Seeing Problems (SP), Unusual Uses Originality (UO), Consequences Fluency (CF), Consequences Originality (CO), Consequences Creativity (CC), Creativity Total (CY), Figural Fluency (FF), Figural Flexibility (FX) and Figural Creativity (FC). The open school climate group has more creative thinking in these dimensions than the closed school climate group. The other dimensions of creative thinking were no significant t-values between these two groups.

It led to conclude that the null hypothesis ~~of "the school climate of the high school students within and between groups of Baroda City and Bangkok City has no effect on their creative thinking"~~ ^{there is no relationship between school climate and creative thinking of Indian students (Baroda) and Thai students (Bangkok)} was partially rejected and partially retained. The discrepancy of the results may be explained on the basis that the PTC and TTCT to some extent do not

measure the same traits of creative thinking. Anderson (1962), Hallman (1963) and Torrance (1963) said that the openness and closeness of school environment have effects on the development of student creativity.

The propitious environment for creativity is the "Open System" (Anderson, 1962). As distinguished from closeness, openness designates those characteristics of the environment, both the inner and the outer, the personal and the social, which facilitate the creative person's moving from the actual state of affairs which he is in at a given time toward solutions which are only possible and as yet undetermined (Hallman, 1963). Children can be helped to inculcate and preserve such characteristics and conditions and thereby develop creativity by non-authoritarian attitudes on the part of parents and teachers and by providing a responsive environment. A responsive environment means "building an atmosphere of receptive listening, relieving the fears of the overtaught and overguided, fending off devastating disparagement and criticism, stirring the sluggish and deepening the superficial making sure that every sincere effort brings enough satisfaction to assure continued effort, heightening sensory awareness, and keeping alive the zest for learning and thinking" (Torrance, 1963).

In his studies of social climates in ten high

schools, Coleman (1961) found in the social climate evidences of forces that inhibit and facilitate various kinds of achievement among pupils. There is another and more recent work on creative school environments by Walker (1967 ; 1969). In comparison with traditional schools, he found that high creative schools have psychological environments characterized by high aspiration level, high intellectual climate, high student dignity, high academic achievement, low group life, low academic organization, low social form, and low school climate. The teachers in these schools were found to be less authoritarian, more adaptive, flexible, outgoing, permissive and nurturant.

Goyal (1972) has designed the study to determine the influence of differing high / higher secondary school climates on the creative development of children. He found that the more the 'open system' of education and the more the 'responsive' and - 'stimulating' environment in a school, the more evidence of the development of creativity.

5.4.0 Creative Thinking and Classroom Behaviour

To test the null hypothesis 'There is no relationship between classroom behaviour of teachers and creative thinking of Indian students (Baroda) and Thai students, (Bangkok)',
 ... the technique

of significance of difference between means was employed. Different criterion variables of creative thinking for different sub-groups of High indirect behaviour, Average indirect behaviour and Low indirect behaviour identified by means of indirect behaviour/direct behaviour ratio (i/d ratio) have been compared. The results for Total sample, Indian sample and Thai sample are given in Tables 5.9 to 5.11.

TABLE 5.9 SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORES OF CRITERION VARIABLE OF CREATIVE THINKING FOR DIFFERENT GROUPS OF CLASS-ROOM BEHAVIOUR
(N = 600)

Classroom Behaviour (indirect/ direct ratio)	VAR	M	SD	N	t-Values		
					df=384 Gr.1/2	df=408 Gr.2/3	df=402 Gr.1/3
High Indirect		22.468	7.275	190			
Average Indirect	SP	18.781	6.978	196	5.083**	2.597**	7.753**
Low Indirect		17.000	6.894	214			
High Indirect		18.416	5.591	190			
Average Indirect	UF	18.005	5.318	196	.740	2.680**	3.340**
Low Indirect		16.570	5.502	214			
High Indirect		12.084	3.812	190			
Average Indirect	UX	11.888	3.661	196	.516	2.559*	3.022**
Low Indirect		10.972	3.583	214			
High Indirect		27.558	12.196	190			
Average Indirect	UO	25.949	10.564	196	1.387	1.215	2.532*
Low Indirect		24.668	10.746	214			

Classroom Behaviour (Indirect/ direct ratio)	VAR	M	SD	N	t-Values		
					df=384 Gr.1/2	df=408 Gr.2/3	df=402 Gr.1/3
High Indirect		59.216	32.237	190			
Average Indirect	UC	57.214	36.936	196	.568	1.334	2.203*
Low Indirect		53.248	20.011	214			
High Indirect		20.200	6.852	190			
Average Indirect	CF	19.816	6.724	196	.555	4.468**	4.968**
Low Indirect		16.888	6.541	214			
High Indirect		12.547	5.106	190			
Average Indirect	CO	11.061	7.245	196	2.323*	1.107	4.734**
Low Indirect		10.435	3.835	214			
High Indirect		31.805	11.546	190			
Average Indirect	CC	29.474	10.797	196	2.049*	2.999**	5.032**
Low Indirect		26.369	10.168	214			
High Indirect		108.205	36.717	190			
Average Indirect	CY	107.092	35.863	196	.301	4.775**	5.015**
Low Indirect		91.537	30.035	214			
High Indirect		19.168	6.670	190			
Average Indirect	FF	18.658	6.754	196	.747	.359	1.177
Low Indirect		18.435	5.859	214			
High Indirect		15.305	6.190	190			
Average Indirect	FX	14.816	5.236	196	.839	.183	1.049
Low Indirect		14.724	4.922	214			

TABLE 5.9 (Contd.)

CLASSROOM BEHAVIOUR (indirect/ direct ratio)	VAR	M	SD	N	t-VALUES		
					df=384 Gr.1/2	df=408 Gr.2/3	df=402 Gr.1/3
High Indirect		22.100	8.182	190			
Average Indirect	FO	21.811	7.692	196	.357	.108	.488
Low Indirect		21.734	6.898	214			
High Indirect		54.237	32.549	190			
Average Indirect	FE	55.602	20.393	196	.452	.381	.166
Low Indirect		54.696	21.163	214			
High Indirect		105.532	49.537	190			
Average Indirect	FC	107.179	48.934	196	.329	.234	.165
Low Indirect		106.220	33.266	214			
High Indirect		44.174	13.687	190			
Average Indirect	VF	44.556	13.945	196	.272	1.654	1.377
Low Indirect		42.276	13.953	214			
High Indirect		35.447	11.768	190			
Average Indirect	VX	35.316	12.686	196	.105	1.317	1.465
Low Indirect		33.706	12.068	214			
High Indirect		38.342	12.603	190			
Average Indirect	VO	36.775	12.610	196	1.221	.098	1.351
Low Indirect		36.654	12.471	214			
High Indirect		118.921	50.423	190			
Average Indirect	VC	118.179	51.572	196	.101	1.023	.844
Low Indirect		113.561	38.108	214			

** Significant at .01 level

* Significant at .05 level

Table 5.9 reveals that the high indirect behaviour group and the average indirect behaviour group differ significantly for Seeing problems (t-ratio = 5.083 significant at .01 level), Consequences Originality (t = 2.323, significant at .05 level), and Consequences Creativity (t = 2.049, significant at .05 level). The high indirect behaviour group of total high school students were superior to the average indirect behaviour group in the above mentioned variable namely, Seeing Problems (SP), Consequences Originality (CO) and Consequences Creativity (CC). The remaining dimensions of creative thinking were not found to be significant with regard to the high indirect behaviour group and average indirect behaviour group.

The results of t-test between the sub-groups of average indirect behaviour and low indirect behaviour of total high school students were found significant for Seeing Problems (t = 2.597, significant at .01 level), Unusual Uses Fluency (t = 2.680, significant at .01 level), Unusual Uses Flexibility (t = 2.559, significant at .05 level), Consequences Fluency (t = 4.468, significant at .01 level), Consequences Creativity (t = 2.999, significant at .01 level), Creativity Total (t = 4.775, significant at .01 level). All these dimensions of creative thinking are -

significant higher mean scores in favour of the average indirect behaviour group. The other t-values of Unusual Uses Originality ($t = 1.215$), Unusual Uses Creativity ($t = 1.334$), Consequences Originality ($t = 1.107$), Figural Fluency ($t = .359$), Figural Flexibility ($t = .183$), Figural Originality ($t = .108$), Figural Elaboration ($t = .381$), Figural Creativity ($t = .234$), Verbal Fluency ($t = 1.654$), Verbal Flexibility ($t = 1.317$), Verbal Originality ($t = .098$) and Verbal Creativity ($t = 1.023$) were not found to be significant at .05 level between the average indirect behaviour group and the low indirect behaviour group of the total high school students.

In the case of high indirect behaviour group and low indirect behaviour group, the results of the significance of the difference between means of various dimensions of creative thinking have shown to be significant for Seeing Problems ($t = 7.733$), Unusual Uses Fluency ($t = 3.340$), Unusual Uses Flexibility ($t = 3.022$), Unusual Uses Originality ($t = 2.532$), Unusual Uses Creativity ($t = 2.203$), Consequences Fluency ($t = 4.968$), Consequences Originality ($t = 4.734$), and Consequences Creativity ($t = 5.032$) which were significant at either .05 level or .01 level. The higher mean scores are in the favour of the high indirect behaviour group of the total high school students. No other t-value was

found to be significant at .05 level.

It is interesting to note here that no dimensions of creative thinking as measured by the TTCT (Figural Form A and Verbal Form B) differentiate between high indirect behaviour, average indirect behaviour and low indirect behaviour.

TABLE 5.10 SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORES OF CRITERION VARIABLE OF CREATIVE THINKING FOR 300 INDIAN STUDENTS WITH REGARD TO THEIR CLASSROOM BEHAVIOUR

CLASSROOM BEHAVIOUR (indirect/ direct ratio)	VAR	M	SD	N	t-VALUES		
					df=185 Gr.1/2	df=204 Gr.2/3	df=205 Gr.1/3
High Indirect		20.553	5.793	94			
Average Indirect	SP	16.495	5.770	93	4.799**	.611	5.811*
Low Indirect		16.018	5.417	113			
High Indirect		17.819	4.477	94			
Average Indirect	UF	17.151	4.716	93	.994	1.596	2.687**
Low Indirect		16.106	4.641	113			
High Indirect		11.957	4.303	94			
Average Indirect	UX	11.344	4.020	93	1.007	2.451*	3.579**
Low Indirect		10.168	2.847	113			
High Indirect		22.362	8.699	94			
Average Indirect	UO	21.882	7.879	93	.395	.542	.939
Low Indirect		21.292	7.692	113			
High Indirect		52.511	31.225	94			
Average Indirect	UC	49.677	14.058	93	.802	1.090	1.432
Low Indirect		47.513	14.318	113			

TABLE 5.10 (Contd.)

CLASSROOM BEHAVIOUR (indirect/ direct ratio)	VAR	M	SD	N	t-VALUES		
					df=185 Gr.1/2	df=204 Gr.2/3	df=205 Gr.1/3
High Indirect		19.745	6.558	94			
Average Indirect	CF	19.839	6.662	93	.097	3.863**	3.793**
Low Indirect		16.584	5.433	113			
High Indirect		13.149	5.481	94			
Average Indirect	CO	10.333	3.938	93	4.030**	1.498	3.257**
Low Indirect		11.106	3.462	113			
High Indirect		30.904	11.621	94			
Average Indirect	CC	28.280	10.542	93	1.617	1.865	3.624**
Low Indirect		25.779	8.704	113			
High Indirect		95.628	37.752	94			
Average Indirect	CY	100.247	39.998	93	.812	4.076**	3.204**
Low Indirect		81.327	26.232	113			
High Indirect		16.138	5.861	94			
Average Indirect	FF	15.731	5.255	93	.500	.979	.425
Low Indirect		16.478	5.597	113			
High Indirect		13.096	5.762	94			
Average Indirect	FX	12.989	4.498	93	.141	1.383	1.093
Low Indirect		13.912	4.971	113			
High Indirect		19.160	7.474	94			
Average Indirect	FO	19.430	6.385	93	.266	1.710	1.867
Low Indirect		21.062	7.151	113			

TABLE 5.10 (Contd.)

CLASSROOM BEHAVIOUR (indirect/ direct ratio)	VAR	M	SD	N	t-VALUES		
					df=185 Gr.1/2	df=204 Gr.2/3	df=205 Gr.1/3
High Indirect		49.872	37.342	94			
Average Indirect	FE	48.559	15.423	93	.315	1.265	.277
Low Indirect		51.522	18.196	113			
High Indirect		87.894	40.798	94			
Average Indirect	FC	87.527	29.428	93	.050	2.476*	1.103
Low Indirect		93.708	33.764	113			
High Indirect		39.574	12.282	94			
Average Indirect	VF	38.699	12.811	93	.477	.609	1.124
Low Indirect		37.611	12.711	113			
High Indirect		32.138	10.608	94			
Average Indirect	VX	30.903	11.669	93	.757	.103	.889
Low Indirect		30.735	11.650	113			
High Indirect		34.638	11.955	94			
Average Indirect	VO	33.312	11.624	93	.769	.248	1.041
Low Indirect		32.903	11.926	113			
High Indirect		108.617	42.792	94			
Average Indirect	VC	104.903	35.602	93	.645	.964	1.535
Low Indirect		100.062	36.165	113			

**Significant at .01 level

*Significant at .05 level

In the Table 5.10, the results of significance of difference between means of criterion variables of creative thinking of high indirect behaviour, average indirect behaviour, and low indirect behaviour.

The Seeing Problems (SP) and Consequences Originality (CO) have shown significant mean difference between the high indirect behaviour group and average indirect behaviour group of Indian high school students. The mean of Seeing Problems (SP) for high indirect behaviour group was 20.553 and SD 5.793, while the mean average indirect behaviour group was 16.495 and SD 5.770. The t-ratio (4.799) was significant at .01 level. Similarly the M and SD for Consequences Originality (CO) relating to high indirect behaviour group were 13.149 and 5.481, and for the average indirect behaviour 10.333 and 3.938 respectively. The t-ratio (4.030) was significant at .01 level. The sixteen dimensions of creative thinking of Unusual Uses Fluency (UF), Unusual Uses Flexibility (UX), Unusual Uses Originality (UO), Unusual Uses Creativity (UC), Consequences Fluency (CF), 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) have shown no

significant difference between high indirect behaviour group and average indirect behaviour group.

Referring to the t-test results of various dimensions of creative thinking between average indirect behaviour group and low indirect behaviour group, four dimensions have shown significant difference, namely, Unusual Uses Flexibility (UX), Consequences Fluency (CF), Creativity Total (CY), and Figural Creativity (FC), which were significant at either .05 or .01 level.

The higher means for Unusal Uses Flexibility (UX), Consequences Fluency (CF) and Creativity Total (CY) were in the favour of the average indirect behaviour group while in the case of Figural Creativity (FC) was in the favour of the low indirect behaviour group. The remaining dimensions of creative thinking were not found to have significant difference at .05 level.

The means of Seeing Problems (SP), Unusual Uses Fluency (UF), Unusual Uses Flexibility (UX), Consequences Fluency (CF), Consequences Originality (CO), Consequences Creativity (CC), and Creativity Total (CY) were found significantly higher for the high ^{indirect} ~~classroom~~ behaviour group of the Indian students.

All the t-ratios for above mentioned criterion variables were significant at .01 level. The remaining dimensions of creative thinking were not found to have significant difference at .05 level.

TABLE 5.11 SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORES OF CRITERION VARIABLE OF CREATIVE THINKING FOR 300 THAI STUDENTS WITH REGARD TO CLASSROOM BEHAVIOUR

CLASSROOM BEHAVIOUR (indirect/ direct ratio)	VAR	M	SD	N	t-VALUES		
					df=197 Gr.1/2	df=202 Gr.2/3	df=195 Gr.1/3
High Indirect		24.323	7.470	96			
Average Indirect	SP	20.748	6.658	103	3.569**	2.515*	5.652**
Low Indirect		18.218	7.679	101			
High Indirect		18.979	6.130	96			
Average Indirect	UF	18.680	5.296	103	.370	1.870	2.060*
Low Indirect		17.208	5.935	101			
High Indirect		12.188	2.881	96			
Average Indirect	UX	12.282	2.629	103	.241	.707	.451
Low Indirect		11.990	3.236	101			
High Indirect		32.625	12.109	96			
Average Indirect	UO	29.524	10.622	103	1.923	.618	2.407*
Low Indirect		28.564	11.569	101			
High Indirect		64.802	19.969	96			
Average Indirect	UC	67.534	35.805	103	.671	1.639	1.372
Low Indirect		60.901	19.926	101			

TABLE 5.11 (Contd.)

CLASSROOM BEHAVIOUR (indirect/ direct ratio)	VAR	M	SD	N	t-VALUES		
					df=197 Gr.1/2	df=202 Gr.2/3	df=195 Gr.1/3
High Indirect		20.625	6.866	96			
Average Indirect	CF	19.699	6.689	103	.963	2.392*	3.231**
Low Indirect		17.347	7.349	101			
High Indirect		11.938	4.706	96			
Average Indirect	CO	11.621	9.010	103	.307	1.842	3.364**
Low Indirect		9.802	4.200	101			
High Indirect		32.667	11.222	96			
Average Indirect	CC	30.456	10.689	103	1.423	2.141*	3.426**
Low Indirect		27.149	11.370	101			
High Indirect		120.500	30.426	96			
Average Indirect	CY	113.175	30.150	103	1.705	2.431*	4.104**
Low Indirect		103.079	29.153	101			
High Indirect		22.115	4.803	96			
Average Indirect	FF	21.204	5.961	103	1.181	.641	2.152*
Low Indirect		20.743	4.134	101			
High Indirect		17.448	4.853	96			
Average Indirect	FX	16.369	4.505	103	1.626	1.032	2.679**
Low Indirect		15.752	4.009	101			
High Indirect		24.958	6.934	96			
Average Indirect	FO	23.864	7.517	103	1.065	1.312	2.531*
Low Indirect		22.604	6.116	101			

TABLE 5.11 (Contd.)

CLASSROOM BEHAVIOUR (indirect/ direct ratio)	VAR	M	SD	N	t - VALUES		
					df=197	df=202	df=195
High Indirect		58.490	16.104	96			
Average Indirect	FE	62.476	34.924	103	1.045	.991	.044
Low Indirect		58.366	23.267	101			
High Indirect		123.781	28.587	96			
Average Indirect	FC	124.825	35.288	103	.230	1.524	1.424
Low Indirect		117.980	28.562	101			
High Indirect		48.656	12.791	96			
Average Indirect	VF	49.748	11.923	103	.623	1.246	.578
Low Indirect		47.614	12.525	101			
High Indirect		38.667	11.357	96			
Average Indirect	VX	39.204	11.577	103	.303	1.301	.954
Low Indirect		37.149	10.975	101			
High Indirect		41.948	11.522	96			
Average Indirect	VO	39.806	12.148	103	1.274	.721	.613
Low Indirect		40.970	10.858	101			
High Indirect		128.990	35.218	96			
Average Indirect	VC	132.485	43.424	103	.625	1.235	.655
Low Indirect		125.782	33.542	101			

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

The results of the significance of difference between means of creative thinking of high indirect behaviour (N = 96), average indirect behaviour (N = 103) and low indirect behaviour (N = 101) for Thai sample as given in Table 5.11, has demonstrated significant difference only for Seeing Problems (SP) in the case of high indirect behaviour group and average indirect behaviour group. The M and SD of high indirect behaviour group were 24.323 and 7.470 ; while for average indirect behaviour group 20.748 and 6.658 respectively. The 't' value was found to be 3.569 which was

significant at .01 level. The high indirect behaviour students are having better fluency in Seeing Problems (SP) than the average indirect behaviour students.

The 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) show no significant mean scores between the high indirect behaviour group and average indirect behaviour group of the Thai high school students.

With regard to the average indirect behaviour group and low indirect behaviour group, the obtained t - ratios for Seeing Problems ($t = 2.515$), Consequences Fluency ($t = 2.392$), Consequences Creativity ($t = 2.141$) and Creativity Total ($t = 2.431$) were found to be significant at .05 level.

The average indirect behaviour group is having higher means than the low indirect behaviour. The remaining dimensions of creative thinking namely,

Unusual Uses Fluency (UF), Unusual Uses Flexibility (UX), Unusual Uses Originality (UO), Unusual Uses Creativity (UC), Consequences Originality (CO), 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), were not found to be significant for mean differences between the average indirect behaviour group and low indirect behaviour group.

However, the average indirect behaviour group of Thai students have higher means scores than the low ones.

As regards, the results of the significance of difference between means of various dimensions of the high indirect behaviour group and the low indirect behaviour group the means of Seeing Problems ($t = 5.652$), Unusual Uses Fluency ($t = 2.060$), Unusual Uses Originality ($t = 2.407$), Consequences Fluency ($t = 3.231$), Consequences Originality ($t = 3.364$), Consequences Creativity ($t = 3.426$), Creativity Total ($t = 4.104$), Figural Fluency ($t = 2.152$), Figural Flexibility ($t = 2.679$) and Figural Originality ($t = 2.531$) were significantly higher for the high indirect behaviour students in comparison to that of

the low indirect behaviour students. The t-ratios for Seeing Problems ($t = 5.652$) Consequences Fluency ($t = 3.231$), Consequences Originality ($t = 3.364$), Consequences Creativity ($t = 3.426$), Creativity Total ($t = 4.104$), and Figural Flexibility ($t = 2.679$) were significant at .01 level with $df = 195$. The 't' values of Unusual Uses Fluency ($t = 2.060$), Unusual Uses Originality ($t = 2.407$), Figural Fluency ($t = 2.152$), Figural Originality ($t = 2.531$) were found to be significant at .05 level.

The remaining dimensions of Unusual Uses Flexibility (UX), Unusual Uses Creativity (UC), Figural Elaboration (FE), Figural Creativity (FC), Verbal Fluency (VF), Verbal Flexibility (VX), Verbal Originality (VO), and Verbal Creativity (VC) were found to have no significant mean difference between the high and low indirect behaviour of the Thai students.

Discussion

Tables 5.9 to 5.11 revealed that the different indirect behaviour groups did not differ significantly for the most of criterion variables of creative thinking. These findings explicitly seem to be contrary to the general hypothesis floated in literature the indirect teacher behaviour tends to foster pupil creative thinking. The discrepancy

between the observed facts and general hypothesis may be explained, on the basis of the marked smallness of the sample for teaching situations. Perhaps, had it been some larger sample a verdict of significance would have been encountered. On the contrary to the present study, Turner and Denny (1969); Birkin (1970); Ishler (1973); and Chambers (1973) found that indirect teacher influence results in a great incidence of thought - provoking questions by students and is also more problem solving. It would appear, for example, that warm, pupil-centered teacher behaviour tends to foster pupil creative thinking as opposed to task-oriented, aloof behaviour.

Ishler (1973) has conducted a study on the classroom behaviour of high and low Creative English and social studies student teachers. He has concluded that the creative student teachers exhibited more use of certain verbal behaviours considered conducive to a creative climate than did the less creative student teacher, such as using more indirect behaviour, and asking more divergent questions. The verbal behaviour of the creative student teacher encouraged more pupil talk and in turn foster the creative thinking of students. The creative student teachers exhibited more flexibility and originality through the use of a variety of interactional patterns.

Chambers (1973) has compared facilitating and inhibiting teachers and found that facilitating teachers encouraged students to be independent by serving as a model while inhibiting teachers discouraged students ideas, creativity, etc. and they were insecure.

Among the institutional environment factors affecting creative abilities, the role of classroom interaction between the teacher and the pupils is very important (Soar, 1968; Flanders, 1970; Rappel, 1970; Johnson, 1970; Martin, 1971; Penick, 1973; Gupta, 1975). The question-asking behaviour of teacher (which may be either divergent or convergent depending on whether narrow factual 'reproductive' or open 'productive' questions are asked) seems to have a direct bearing on creativity (Burkhart, 1962; Torrance and Hansen, 1965; Flanders, 1970).

The results of the present study, however, it is felt, should not deter further efforts in this direction since study reported is nothing more than an exploration. Further, in view of the seemingly irrefutable validity in the theoretical premise of the exploration, it should not unnerve researchers in this area; but instead it should embolden the intending inquirers.

5.5.0 Creative Thinking and Sex :

Even though the variable of sex was not taken

into consideration as the primary aim of the present study. However, while determining the score, it was thought desirable to know the trends of creative thinking and its subscores in the groups classified on the basis of sex. Bhavnani and Hutt (1972) chided research workers in the field of divergent thinking and "creativity" for their apparent neglect of the topic of sex differences. They claim that there exists a general assumption, explicit or implicit that sex differences in performance on divergent thinking tests do not exist. Studies which have looked at this question have produced a confusing patterns of results.

With regard to the sample of the present study, there are single sex schools in both the countries. By and large, the situational factors of environmental conditions in schools and homes of India and Thailand were in the favour of boys. The boys as compared to girls enjoy more freedom, encouragement and challenge which foster creativity. Keeping these in mind, the sex as controlled variable was also undertaken in order to see the implications of different sex schools towards students' creative thinking.

To this effect, subscores of creative thinking as well as total creative thinking as measured by the PTC (Verbal Form) and the TTCT (Figural Form A and Verbal Form B) were analysed by employing the techniques of

significance of difference between means by involving (i) total boys and total girls; (ii) Indian boys and Indian girls and (iii) Thai boys and Thai girls. The results of t-ratios based on the values of M_s and SD_s have been given in Tables 5.12 to 5.14.

TABLE 5.12 SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORES OF CRITERION VARIABLE OF CREATIVE THINKING FOR BOYS AND GIRLS (N = 600)

SEX	VAR	M	SD	N	t-VALUES (df=598)
Boys	SP	19.597	7.723	290	.908
Girls		19.048	7.067	310	
Boys	UF	17.541	5.574	290	.351
Girls		17.700	5.478	310	
Boys	UX	11.631	3.338	290	.049
Girls		11.616	4.030	310	
Boys	UO	25.762	10.921	290	.506
Girls		26.226	11.493	310	
Boys	UC	54.952	18.712	290	1.311
Girls		57.619	35.459	310	
Boys	CF	18.814	6.694	290	.275
Girls		18.968	7.014	310	
Boys	CO	11.155	4.353	290	.648
Girls		11.452	6.554	310	

TABLE 5.12 (Contd.)

SEX	VAR	M	SD	N	t-VALUES (df=598)
Boys	CC	28.976	10.622	290	.277
Girls		29.226	11.427	310	
Boys	CY	100.283	32.636	290	1.093
Girls		103.406	37.055	310	
Boys	FF	18.897	6.004	290	.578
Girls		18.594	6.788	310	
Boys	FX	15.034	5.417	290	.418
Girls		14.848	5.486	310	
Boys	FO	21.917	7.144	290	.132
Girls		21.835	7.962	310	
Boys	FE	55.521	20.253	290	1.101
Girls		57.655	35.683	310	
Boys	FC	104.803	33.045	290	.811
Girls		107.729	52.443	310	
Boys	VF	43.614	13.947	290	.013
Girls		43.629	13.841	310	
Boys	vx	34.555	11.904	290	.443
Girls		34.997	12.461	310	
Boys	VO	37.997	12.433	290	1.450
Girls		36.510	12.656	310	
Boys	VC	115.214	37.702	290	.573
Girls		117.084	45.739	310	

In Table 5.12, the result of t-test between total boys and total girls for eighteen dimensions of creative thinking are given. The total boys were found to have higher means for Seeing Problems (SP), Unusual Uses Flexibility (UX), Unusual Uses Originality (UO), Figural Fluency (FF), Figural Flexibility (FX), Figural Originality (FO), and Verbal Originality (VO) while the girls were found to have higher mean scores in the cases of Unusual Uses Fluency (UF), Unusual Uses Creativity (UC), Consequences Fluency (CF), Consequences Originality (CO), Consequences Creativity (CC), Creativity Total (CY), Figural Elaboration (FE), Figural Creativity (FC), Verbal Fluency (VF), Verbal Flexibility (VX) and Verbal Creativity (VC). All of these eighteen dimensions of creative thinking were not ^{found} to have significant difference mean scores with regard to sex. Based on these results (Vide Table 5.12), some general statements can be made that the total boys and total girls in the present study did not excel each other with regard to their creative - thinking. In other words, the total boys and total girls are similar in their creative thinking.

TABLE 5.13 SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORES OF CRITERION VARIABLE OF CREATIVE THINKING FOR 300 INDIAN STUDENTS WITH REGARD TO SEX

SEX	VAR	M	SD	N	<u>t-VALUES</u> (df=298)
Boys	SP	18.396	5.890	139	2.192
Girls		16.888	5.984	161	
Boys	UF	17.245	4.449	139	.961
Girls		16.727	4.826	161	
Boys	UX	11.209	3.068	139	.489
Girls		10.994	4.321	161	
Boys	UO	21.626	7.132	139	.367
Girls		21.969	8.807	161	
Boys	UC	46.079	13.474	139	1.248
Girls		48.969	25.564	161	
Boys	CF	18.964	5.445	139	.962
Girls		18.255	7.064	161	
Boys	CO	11.806	3.940	139	1.078
Girls		11.248	4.872	161	
Boys	CC	28.712	8.651	139	.850
Girls		27.683	11.783	161	
Boys	CY	90.950	30.765	139	.327
Girls		92.298	39.247	161	

TABLE 5.13 (Contd.)

SEX	VAR	M	SD	N	t-VALUES (df=298)
Boys	FF	16.360	5.605	139	.634
Girls		15.950	5.547	161	
Boys	FX	13.755	5.738	139	1.218
Girls		13.037	4.464	161	
Boys	FO	20.295	7.129	139	.763
Girls		19.671	7.006	161	
Boys	FE	49.086	17.102	139	1.159
Girls		51.807	23.431	161	
Boys	FC	90.266	32.174	139	.317
Girls		91.820	49.469	161	
Boys	VF	39.022	13.298	139	.585
Girls		38.168	11.981	161	
Boys	VX	31.511	11.831	139	.403
Girls		30.981	10.889	161	
Boys	VO	33.935	11.934	139	.492
Girls		33.261	11.760	161	
Boys	VC	100.532	36.728	139	.276
Girls		101.876	42.890	161	

In Table 5.13, the results of t-test between Indian boys and Indian girls for eighteen dimensions of creative thinking are given. The Indian boys were found to have higher means for Seeing Problems (SP), Unusual Uses Fluency (UF), Unusual Uses Flexibility (UX), Consequences Fluency (CF), Consequences Originality (CO), Consequences Creativity (CC), Figural Fluency (FF), Figural Flexibility (FX), Figural Originality (FO), Verbal Fluency (VF), Verbal Flexibility (VX), and Verbal Originality (VO) while the Indian girls were found to have higher means for Unusual Uses Originality (UO), Unusual Uses Creativity (UC), Creativity Total (CY), Figural Elaboration (FE), Figural Creativity (FC), and Verbal Creativity (VC).

Out of these, Seeing Problems was significant at 0.05 level ($t = 2.192$).

TABLE 5.14 SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORES OF CRITERION VARIABLE OF CREATIVE THINKING FOR 300 THAI STUDENTS WITH REGARD TO SEX

SEX	VAR	M	SD	N	<u>t-VALUES</u> (df=298)
Boys	SP	20.623	8.625	151	.950
Girls		21.463	6.554	149	
Boys	UF	17.735	6.218	151	1.637
Girls		18.832	5.354	149	

TABLE 5.14 (Contd.)

SEX	VAR	M	SD	N	$\frac{t\text{-VALUES}}{(df=298)}$
Boys	UX	11.940	3.034	151	1.274
Girls		12.369	2.788	149	
Boys	UO	29.490	11.664	151	1.064
Girls		30.906	11.374	149	
Boys	UC	59.199	19.931	151	.771
Girls		62.047	33.900	149	
Boys	CF	18.596	7.601	151	1.498
Girls		19.819	6.489	149	
Boys	CO	10.477	4.692	151	1.719
Girls		11.752	7.794	149	
Boys	CC	29.139	12.069	151	1.410
Girls		30.973	10.387	149	
Boys	CY	108.795	31.485	151	1.900
Girls		115.490	29.490	149	
Boys	FF	21.152	4.277	151	.648
Girls		21.530	5.735	149	
Boys	FX	16.132	4.124	151	1.452
Girls		16.886	4.839	149	
Boys	FO	23.331	6.272	151	1.156
Girls		24.255	7.525	149	

TABLE 5.14 (Contd.)

SEX	VAR	M	SD	N	t-VALUES (df=298)
Boys	FE	60.364	20.563	151	1.157
Girls		64.054	33.132	149	
Boys	FC	118.106	26.867	151	1.502
Girls		125.000	49.492	149	
Boys	VF	47.762	12.508	151	1.293
Girls		49.611	12.258	149	
Boys	VX	37.278	10.731	151	1.643
Girls		39.416	11.793	149	
Boys	VO	41.656	11.010	151	1.170
Girls		40.101	12.002	149	
Boys	VC	129.728	33.377	151	.852
Girls		133.597	44.440	149	

Significance of difference between means of creative thinking of the Thai boys and Thai girls are shown in Table 5.14. The Thai boys were found to have higher mean only for the dimension of Verbal Originality (VO). The Thai girls were found to have better mean scores than the Thai boys in the remaining cases of 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), and Verbal Creativity (VC).

None of the eighteen dimensions of creative thinking have shown significant difference between the Thai boys and the Thai girls.

Discussion

The results in Table 5.12 to 5.14 led to conclude that the null hypothesis of 'there is no significant difference in the creative thinking of Indian students (Baroda) and Thai students (Bangkok) with respect to sex' was not rejected. It means that there did not exist sex differences in creative thinking of the subjects under study. These results are similar to those of Phatax (1962) ; Ruth and Russel (1968), Micheal (1970); Joshi (1970) and Vullope (1976). But these results are contrary to those of Anne Roe (1959); Klausmair (1962); Torrance (1963 a) ; - Klausmier and Wiersma (1969) ; Passi (1971) ; Bierbrayer (1973). In the exploratory study of Passi (1971), significant sex differences have been found only when scores on verbal and non-verbal scores were

treated separately. On verbal creativity difference between mean scores for total girls and total boys (including urban - rural) were found significant at .05 level in case of Seeing Problems (SP) and Consequences Creativity (CC), while t-ratios on Unusual Uses Creativity (UC) and Creativity Total (CY) were not significant. The results of this study may be explained on the basis of practical considerations of school situation within and between countries, both the sexes may be treated and rewarded equally.

It is clear that some of these discrepancies must arise from differences between the studies in terms of sampling of subjects, nature of tests used; conditions of administration and so on. A more fruitful approach to the problem sex differences might be to extend the scope of enquiry beyond the straightforward "ability testing" analyses attempted so far, and to investigate styles, as well as levels, of test performance (Hargreaves, 1974). It may well be that sex differences in the content of divergent test responses are more clear-cut than those in overall measures of ability. If sex-typed patterns of response content can be demonstrated empirically, two further questions arise : to what extent is each sex capable of adopting the opposite - sex style when instructed to, and how might such a capability

relate to divergent thinking ability ?

5.6.0 Conclusion

In the light of the t-test results, the general conclusions can be drawn :

1. There exists significant difference in the mean creativity between the Indian students (Baroda) and the Thai students (Bangkok). On an average, the Thai students (Bangkok) are more creative than the Indian students (Baroda).
2. Socio-economic status has impact on creative thinking score of the high school students in Baroda City and Bangkok City.
3. School climate plays no important role in creative thinking scores as measured by the TTCT of the students for Total, Indian and Thai samples but the results are reverse in the case of creative thinking scores as measured by the PTC (Verbal Form).
4. Classroom behaviour has no effect on the creative thinking scores of the students for all the Total, Indian and Thai samples.
5. There exists no significant differences in creative thinking scores with regard to sex for all the Total, Indian and Thai samples.