

AN ANALYSIS OF COOPERATION AND COMPETITION AMONGST PREADOLESCENTS

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Cooperative behaviour has been defined in terms of sharing of a goal and working for it with the other individual(s), and competitive behaviour as working for the goal individually, and blocking the other(s) from attaining the goal.

COOPERATION

Attention to the concept of cooperation was first given by sociologists who defined it in social context. Fairchild (1944) defined cooperation as "the process by which individuals or groups combine their efforts in a more or less organised way, for the attainment of a common objective". Green (1956) defined cooperation as "continuous and common endeavour of two or more persons to perform a task or to reach a goal that is to be commonly cherished."

Later psychologists became interested in this area. English and English (1958) define cooperation as "the working together of two or more units to produce some common or joint effect." A similar definition is given by Anderson and Parker (1964). According to them cooperation is a form of social action in which two or more individuals or groups work together jointly to produce a common goal. Cooperation (rather cooperative response) seems to Zajonc (1966) as one's choice which enhance the likelihood that others as well as oneself will be rewarded.

Cooperation is thus the form of interaction which makes unified social attainment possible because it is a form of a social action in which all participants are benefited (almost equally) by attaining their goals. It

usually refers to a style of behaviour characterized by fairness, equality and sharing (Kahn, Hottes and Davis, 1971).

The initiation of cooperative behaviour requires trust, whenever the individual by his choice to cooperate, places his fate partly in the hands of others. In the co-operative situation the goals of the individuals are predominantly interdependent in which individuals are so linked together that there is a positive correlation between their goal attainments (Deutsch, 1949).

COMPETITION

Competition is the form of social interaction in which members strive or struggle against each other for the possession or use of some limited material or non-material goods (Fairchild, 1944).

English and English (1958) define it as "a striving on the part of two or more persons for the same object especially for the goal of being superior".

According to Green (1956) "in competition, two or more parties strive for the same goal, which none is prepared or expected to share with the others."

It is a force which compels people to act against one another, it may be said, as a natural outcome of the universal struggle for existence. Sociologists believe that it occurs when there is an insufficient supply of anything that human beings desire — insufficient in the sense that all cannot have as much of it as they want.

A competitive choice implies an attempt to block the other person from achieving a positive outcome (Zajonc, 1966) or it may

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be described as an effort to outdo the other person in achieving some mutually desired goal. Its aim is not to vanquish or destroy the opponent; roughly speaking, competition implies a reward that can be obtained only by one social unit (a person, a segment of group, or an entire group).

Competition gets its strength from the ego and social needs of the individual who comes to value his place in a particular group or groups and who strives to maintain that place or better it (Blair, Jones and Simpson, 1962).

In this situation, the goals for the individuals are interdependent — in which individuals are so linked together that there is a negative correlation between their goal attainments. (Deutsch, 1949).

Experimental social psychologists have used game situations to study cooperative and competitive behaviour, and their various dimensions. One such method is the Maximizing Differences Game (McClintock and Nuttin, 1969). The development of cooperative and competitive behaviour, as reflected in the game, in three age groups has been discussed in detail elsewhere (Pareek and Banerjee, in press). Cooperative and competitive behaviour are treated as dichotomous, in the game situation. An individual is either cooperative or he is competitive—he cannot be high or low on both these dimensions at the same time. However, there are probably a very few life situations, which are purely either cooperative or competitive. Most situations of every day involves a complex set of goals and subgoals, so competition and cooperation do not exist separately, i.e., they are not purely dichotomous and often exist together in the same situation (Philips and Devault, 1957). It may be useful to test these assumptions. The present study has made an attempt to analyse the nature of cooperation and competition in a group of preadolescents.

METHODOLOGY

Several variables were measured in this study. These variables are defined as below:

Cooperation (Coop): Responding to share the reward with the other person (game behaviour)

Competition (Comp): Responding defection, to deprive the other of the reward (game behaviour)

Cooperative disposition (D Coop): A tendency to share the attainment of a goal and its rewards (self descriptive statement)

Competitive disposition (D Comp): A tendency to achieve the goal without anyone's help (self descriptive statement)

Cooperative proneness (P Coop): An orientation to share the attainment of a goal and its rewards (projective statement)

Competitive proneness (P Comp): An orientation to achieve the goal and deprive the other of its attainment (projective statement)

Trust (T): Cooperation following defection by both (game behaviour)

Trustworthiness (Tr): Cooperation following cooperation by both (game behaviour)

Forgiveness (F): Cooperation following a combination of cooperation by self and defection by other (game behaviour)

Repentance (R): Cooperation following a combination of defection by self and cooperation by other (game behaviour)

Retaliation (Re): Defection following a combination of cooperation by self and defection by other (game behaviour)

Exploitation (E): Defection following cooperation by both (game behaviour)

Three devices were used for measuring the variables mentioned above.

GAME

To measure Coop, Comp, T, Tr, F, R, Re, and E Maximizing Difference Game (MDG) (McClintock and Nuttin, 1969) was used. It is a two-person game where a S wants either to maximize the difference in gain between partner and himself (competition) or to facilitate his partner also to get equal points (cooperation). The details of the game and scoring are described elsewhere (Pareek and Banerjee, submitted) as also Developmental Patterns (Pareek and Banerjee, in press.) The game is played in dyad. The two partners are not visible to each other, and they play 100 moves. In each move each player decides to choose a cooperative (C) response, or a defecting or competing (D) response. These are recorded for each move for each subject. The pay-off depends on the combination of responses: if both responses, are cooperating (CC), the pay off is 6-6; if both are defecting (DD), the pay off is 0-0. If one subject defects and the other cooperates, the pay off is 5-0, the defecting subject getting 5, and the cooperative subject getting 0. Scoring of other variables are mentioned against them in the list given above.

COOPERATIVE AND COMPETITIVE DISPOSITION INVENTORY (CCDI)

A self-checking inventory was developed to measure cooperative and competitive dispositions. Cooperative and competitive dispositions are not regarded as dichotomous, or exclusive of each other. So two sub-inventories, one for cooperative disposition and the other for competitive disposition, were prepared. After editing statements, 20 statements each for cooperative disposition and competitive disposition were given to judges for rating on a 5-point scale the extent to which the statements showed the disposition. Ten

items each for cooperative and competitive dispositions, having high scale values and low Q values were selected for the Inventory. In the Inventory a subject is asked to respond on a 4-point scale on the item being applicable to him, scores of 0, 1, 2, and 3 being given for not applicable, applicable to some extent, applicable to a great extent, and fully applicable. Thus, a person can get a maximum score of 30 on each of the two dispositions. Test-retest reliability (after 2 weeks); was found to be .59 (N=19).

COOPERATIVE AND COMPETITIVE PRONENESS INSTRUMENT (CCPI):

P Coop and P Comp were measured by a scale consisting 5 items, each item having 3 alternate responses. Each item described a classroom situation, and of the three alternatives, one showed cooperative proneness, another competitive proneness, and the third was a neutral one. The items were selected on the basis of unanimity of the judges on showing such proneness. Each response is then scored either for competitive or for cooperative proneness, and it could get a 0 (neutral). The maximum score, therefore, on either competitive or cooperative proneness could be 5, and minimum could be 0. The test-retest reliability (after 2 weeks) was found to be .496 (N=19). The statements contained in CCDI and CCPI are reproduced in the Appendix.

SAMPLE

The study was conducted on preadolescents studying in Class 8 of Government and private schools of Udaipur. The sample included children from all the major communities of Udaipur: Hindus, Jains, Bohras, and Tribes (Bhils and Meenas). The details of the sample are given in Table 1.

TABLE 1

RESULTS AND DISCUSSION

DETAILS OF THE SAMPLE

	Hindu	Jain	Bohra	Tribes	Total
Boys	20	20	20	10	70
Girls	20	20	20	20	80
Total	40	40	40	30	150

Mean values and SDs of the total sample as well as for boys and girls on various variables i.e. cooperation (Coop), competition (Comp), competitive disposition (D Comp), cooperative disposition (D Coop), cooperative proneness (P Coop), cooperative proneness (P Comp), trust (T), trustworthiness (Tr), forgiveness (F), repentance (R), retaliation (Re) and exploitation (E) are given in the Table 2.

TABLE 2

MEANS AND SDS FOR ALL VARIABLES FOR THE TOTAL SAMPLE AND BOYS AND GIRLS

Variables	Total Sample (N=150)		Boys (N=70)		Girls (N=80)	
	Mean	SD	Mean	SD	Mean	SD
D Comp	16.733	5.728	16.414	4.410	17.250	7.470
D Coop	21.213	4.248	20.530	4.220	21.035	4.500
P Comp	1.213	3.837	1.285	0.842	1.240	0.849
P Coop	2.440	1.074	2.630	1.453	2.400	1.105
Coop	51.087	29.674	55.921	28.170	48.350	28.170
Comp	48.913	29.674	44.079	30.230	52.650	30.230
F	9.960	15.247	8.914	14.600	7.212	16.100
R	6.367	6.825	5.264	6.200	8.087	8.050
T	9.493	8.107	8.285	9.100	10.550	7.820
Tr	21.780	26.199	28.671	30.990	15.875	22.716
Re	8.600	7.154	7.414	6.860	9.637	8.210
E	6.967	7.549	5.517	6.320	8.137	8.544

Mean values show that the sample is consistently high on cooperative disposition (D Coop), cooperative proneness (P Coop), and in cooperative game behaviour (Coop) than in competitive disposition (D Comp), proneness (P Comp), in competitive game

behaviour (Comp). Also mean on trustworthiness (Tr) is very high which is supposed to be related to cooperation.

Table 3 and 4 give means and standard deviations of the various groups on different variables.

TABLE 3
(See Table 4 on the following page)

MEAN AND SD FOR VARIOUS SUB-CULTURAL GROUP

Variables	Hindu (N=40)		Jain (N=40)		Bohra (N=40)		Tribes (N=30)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
D Comp	15.850	5.275	16.600	5.879	18.525	5.896	16.500	5.722
D Coop	20.550	4.019	9.450	4.119	21.950	4.618	21.167	4.332
P Comp	2.675	1.163	1.100	0.778	1.575	0.844	1.167	0.949
P Coop	3.100	1.194	2.225	1.025	2.350	1.026	2.533	1.074
Coop	54.325	26.987	53.975	32.121	43.250	32.433	53.370	25.627
Comp	45.675	26.987	46.025	32.121	56.750	32.433	46.630	25.267
F	8.475	11.573	15.550	23.103	6.100	6.594	9.633	13.387
R	6.625	6.558	6.875	8.467	4.225	5.141	8.200	6.397
T	11.600	9.774	6.925	6.783	9.075	7.258	10.667	7.867
Tr	26.700	29.203	23.200	26.906	3.000	25.948	17.633	21.356
Re	8.575	7.772	6.700	6.737	8.600	7.142	11.167	8.330
E	9.450	9.312	6.500	8.190	4.675	5.332	7.333	5.791

Table 2 reveals that girls were high on competitive and cooperative disposition (M=17.25 and 21.03 respectively) but in actual game behaviour boys showed more cooperative behaviour (M=55.92) than girls (M=48.35) did. Also mean score on trust-worthiness of boys was greater than that of girls. But analysis of variance did not show any significant difference between boys and girls (Table 5) on these variables.

TABLE 5

ANALYSIS OF VARIANCE OF VARIOUS VARIABLES FOR TOTAL SAMPLE

(N=150)

Variables	F Ratio	
	Sub-cultural Groups	Sex
D Comp	1.889	0.503
D Coop	0.764	3.523
P Comp	3.800*	0.190
P Coop	1.363	0.316
Coop	1.379	3.020
Comp	1.379	3.020
F	2.870*	0.675
R	1.963	2.051
T	2.453	2.660
Tr	0.794	8.455**
Re	1.764	2.436
E	2.867*	4.639*

F Ratio significant at .05 level = *

F Ratio significant at .01 level = **

Difference was found significant only on trust and exploitation where boys were found to be higher on trust (M=28.67) than girls (M=15.875) and the girls showed more exploitation (M=8.137) than boys (M=5.17) and t ratios in both the cases were significant at .01 and .05 level respectively.

Among the various sub-cultural groups (Table 4) where Bohras were found to have a higher tendency for cooperative disposition (M=21.95) and competitive disposition (M=18.52), while the Hindus were higher on competitive proneness and cooperative proneness. In the game behaviour the Bohras were found to be mostly competitive (M=56.75) whereas Hindus were found to be more cooperative (M=54.32). Analysis of variance revealed that these sub-cultural groups differed significantly in competitive disposition. Also they were found to differ on forgiveness and exploitation. On competitive proneness Hindus were the highest (M=2.675) followed by Bohras (M=1.575), Tribes (N=1.167) and Jains (M=1.118). t test reveals that Hindus differed from Jains ($P < .01$), Bohras ($P < .05$) and Tribes ($P < .05$). Jains were found to differ from Bohras ($P < .05$) but tribes were not found to have any significant difference with Jains and Bohras on the competitive proneness (Table 6).

TABLE .

MEANS AND STANDARD DEVIATION FOR SEX GROUPS OF VARIOUS SUB-CULTURAL GROUPS

Variables	Hindu Boys		Jain Boys		Bohra Boys		Tribes Boys		Hindu Girls		Jain Girls		Bohra Girls		Tribe Girls	
	N = 20		N = 20		N = 20		N = 20		N = 20		N = 20		N = 20		N = 20	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
D Comp	16.650	4.568	15.600	4.346	17.150	5.254	16.000	3.431	15.050	5.907	16.400	7.192	19.900	6.307	16.750	6.648
D Coop	20.000	3.866	19.800	3.833	23.200	3.708	17.700	3.743	21.100	4.191	22.550	4.012	20.700	5.172	22.900	3.538
P Comp	1.200	0.833	1.100	0.788	1.500	0.827	0.700	0.674	0.800	0.523	1.100	0.788	1.650	0.875	1.400	0.995
P Coop	2.800	1.196	2.250	1.019	2.250	1.118	2.800	0.919	2.550	1.146	2.200	1.056	2.450	0.944	2.400	1.142
Coop	62.550	30.205	55.800	25.822	44.150	34.276	62.500	26.726	46.100	20.980	52.150	38.002	42.350	34.346	48.800	24.457
Comp	37.450	30.205	42.200	25.822	55.850	34.276	37.500	26.726	53.900	20.980	47.850	28.002	57.650	34.346	51.200	24.457
F	6.550	11.227	13.950	17.966	4.100	4.712	13.200	20.644	10.400	11.880	17.150	27.703	8.100	7.656	7.850	7.849
R	6.350	7.541	6.800	6.590	2.275	3.462	6.000	4.447	6.900	5.590	6.950	10.185	5.700	6.140	9.300	7.019
T	8.050	8.382	9.000	6.696	9.350	7.372	5.200	5.370	15.150	9.964	4.850	6.368	8.800	7.324	13.400	7.536
Tr	40.450	33.897	23.800	26.373	17.800	28.003	35.600	29.262	12.950	14.266	22.600	28.102	19.300	24.426	8.650	5.976
Re	6.300	7.197	8.600	6.081	8.350	7.471	5.400	5.358	10.830	7.829	4.800	6.970	8.850	6.983	14.050	8.127
E	7.700	8.844	5.650	5.018	3.550	4.696	5.200	4.341	11.200	9.660	7.350	10.534	5.800	5.800	8.400	6.219

TABLE 6
SUB-CULTURAL DIFFERENCES ON SOME VARIABLE

Groups	Cooperative and competitive proneness		Forgiveness		Exploitation	
	Mean	t Ratio	Mean	t Ratio	Mean	t Ratio
Hindu	2.675		8.475		9.450	
Jain	1.110	2.670**	15.550	1.730	6.500	2.001*
Hindu	2.675		8.475		9.450	
Bohra	1.575	1.980*	6.100	1.111	4.675	2.816**
Hindu	2.675		8.475		9.450	
Tribes	1.167	2.573*	9.637	0.360	7.333	0.116
Jain	1.110		15.550		6.500	
Bohra	1.575	2.553*	6.100	2.490*	4.675	1.130
Jain	1.110		15.550		6.500	
Tribes	1.167	0.311	9.633	1.330	7.330	0.500
Bohra	1.575		6.100		4.675	
Tribes	1.167	1.860	9.633	1.330	7.330	1.960

t Values significant at .05 level = *

t Values significant at .01 level = **

On forgiveness, t test showed that only Jains and Bohras differed in this regard ($p < .05$) but rest of the groups did not show any significant difference among themselves, t test for exploitation showed Hindus to differ from Bohras and Jains but not with tribes (at .05 and .01 level respectively) significantly. Rest of the groups did not indicate any significant difference.

Table 4 shows that Bohra boys scored more on competitive ($M=17.150$) and cooperative ($M=23.200$) disposition, whereas the Hindu girls scored least on competitive disposition ($M=15.05$) and Tribal boys

($M=17.700$) scored least on cooperative disposition. Bohra girls were high on competitive proneness ($M=1.650$) whereas the Hindu boys and tribal boys were having high cooperative proneness ($M=2.80$) and Jain girls ($M=2.20$) were least cooperative prone and Tribal boys were least competitive prone. In game behaviour Bohra girls showed the highest competition ($M=57.650$) among various groups. Hindu and Tribal boys ($M=62.550$ and 62.500 respectively) showed almost equal cooperation in the game behaviour and highest among various groups. t test between the boys and girls of various sub-cultural groups showed that

these groups did not differ on competitive disposition significantly. Jain girls and tribal girls showed more cooperative disposition than Jain and Tribal boys ($P < .01$ and $.05$ respectively), but Bohra boys showed more cooperative tendency than Bohra girls. On proneness instrument only tribal girls showed significant difference in the competitive proneness than tribal boys ($P < .01$). Rest of the groups did not show any significant difference in the competitive proneness. No significant difference was found between sex groups of various sub-cultural groups on their proneness for cooperation and in their game behaviour.

For sex differences in different sub-cultural groups, t test revealed that on competitive disposition there was no difference, but Jain girls ($M=22.550$) differed from Jain boys ($M=19.80$) significantly ($P < .05$) and tribal girls ($M=22.900$) from tribal boys ($M=17.700$), which was significant at $.01$ level, showing a higher disposition for cooperation, while the Bohra boys exhibited more disposition for cooperation than Bohra girls, the difference being significant at $.01$ level. Tribal boys had lower competitive proneness than tribal girls ($P < .01$) but no significant difference was observed on cooperative proneness and in game behaviour in sex groups of various sub-cultural groups (Table 7).

TABLE 7
SEX DIFFERENCES IN DIFFERENT SUB-CULTURAL GROUPS ON VARIOUS VARIABLES

Variables	Hindu		Jain		Bohra		Tribes		
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
D Comp	Mean	16.650	15.050	15.600	16.400	17.150	19.900	16.000	16.750
	t	.935		.420		1.419		.005	
D Coop	Mean	20.000	21.100	19.800	22.550	23.200	20.200	17.700	22.900
	t	.840		2.162*		2.056*		4.688**	
P Comp	Mean	1.200	0.800	1.100	1.100	1.500	1.650	0.700	1.400
	t	1.788		0.000		.172		7.000**	
P Coop	Mean	2.800	2.550	2.250	2.200	2.250	2.450	2.800	2.400
	t	.684		.150		.600		1.000	
Coop	Mean	62.550	46.100	57.800	52.150	44.150	42.350	62.500	48.800
	t	1.949		.536		.155		1.300	
Comp	Mean	37.450	53.900	42.200	47.850	55.850	47.650	37.500	51.200
	t	1.949		.536		.155		1.300	
F	Mean	6.550	6.900	13.950	6.950	4.100	5.700	13.200	9.300
	t	.093		.922		.770		.548	
R	Mean	6.350	6.900	6.800	6.950	2.275	5.100	6.000	13.400
	t	.255		.058		1.765		3.380**	
T	Mean	8.050	15.150	9.000	4.850	9.350	8.880	5.200	15.400
	t	2.254*		2.083*		.230		3.300**	
Tr	Mean	40.450	12.950	23.800	22.600	17.800	19.300	35.600	8.650
	t	3.258**		.135		.176		2.527*	
Re	Mean	6.300	10.850	8.600	4.800	8.350	8.850	5.400	14.050
	t	1.865		1.800		.213		3.351**	
E	Mean	7.700	11.200	5.650	7.350	3.550	5.800	5.200	8.400
	t	1.154		.636		1.310		1.400	

t Values significant at .05 level = *

t Values significant at .01 level = **

Hindu boys ($M=40.450$) showed more trustworthiness than girls ($M=12.950$) at .01 level of significance but Hindu girls ($M=15.15$) were significantly high ($P < .05$) on trust than Hindu boys ($M=8.050$). Jain boys ($M=9.00$) were high ($P < .05$) on trust than girls ($M=4.850$). Also tribal girls showed more repentance ($M=13.4$), retaliation ($M=13.4$) and trustworthiness ($M=8.650$), than tribal boys ($M=6.00, 5.400, 5.200$ respectively), the difference was significant at .01 level but tribal boys exhibited more trust ($M=35.600$) than tribal girls ($M=8.6500$), the significance level was .05.

RELATIONSHIP AMONGST THE DIFFERENT VARIABLES

Table 8 gives the values of correlations amongst the different variables (See on the following page).

Most of the correlations are small and are not significant statistically. However, the values of correlations amongst game behaviour and disposition and proneness are both interesting and baffling. Competitive disposition was found to have significantly positive correlation with competitive proneness ($r=.269$) but the same is not true of cooperative disposition and proneness ($r=.082$). It seems that competition as revealed in the disposition and proneness items has something common, but this is not so with cooperation. Again, there is a negative and significant correlation between P Comp and P Coop ($-.423$), showing that competitive and cooperative proneness, as revealed in the projective statements, are opposite of each other. The value of the negative correlation is higher even than that of the correlation between competitive and cooperative game behaviour ($-.010$). In fact, the latter correlation, almost of zero value, indicates a strong possibility of competition and cooperation between two independent varia-

bles, and not two poles of the same variable. Competitive game behaviour has a significant negative relationship with P Coop ($-.218$). In summary, it appears that while competition and cooperation are not dichotomous, P Coop as measured by the Instrument seems to reveal cooperative behaviour, and that both D Comp and P Comp scores show a different kind of competition than that revealed in the game behaviour. It may be mentioned here that defection in game behaviour shows a tendency to gain at the cost of (or, more appropriately even not gain but cause loss to) the partner in the game. The competition, on the other hand, implied in the two tests of disposition and proneness is of a different kind.

Regarding other variables of game behaviour F and Tr show positive correlation with Coop ($r=.442$ and $.722$) but Coop strangely enough has negative correlation with T ($r=-.164$). Also T was found to be negatively correlated with Tr ($r=-.424$) positively to Re ($r=.844$), and E ($r=.240$) Exploitation was positively related with repentance ($r=.786$), but negatively to forgiveness ($r=-.174$). Trustworthiness also showed a negative relationship with retaliation. Rest of the correlations are not significant statistically.

Some of the correlations are apparently baffling. However, these do reveal some interesting dynamics. Let us take trust (T). Trust is a kind of initial move, a testing move to indicate to the partner that the subject is willing to cooperate. In this sense, it is not a move of blind trust. In the same sense, competition (Comp) is an initial move. We find that both have some positive correlation ($.164$). If, however, the partner does not show response with cooperation, or after some cooperative moves, he switches to defection, the subject is likely to react strongly; we find a highly significant correlation between trust and retaliation

INTERCORRELATION MATRIX

Variables	D Comp.	D Coop.	P Comp.	P Coop.	Coop.	Comp.	F	R	T	Tr	Re	E
D Comp	—	.081	.269**	-.126	.159	-1.57	.097	-.003	-.092	.071	-.134	.035
D Coop	—	—	-.061	.082	-.096	.096	-.057	-.004	.052	-.147	.090	-.029
P Comp	—	—	—	-.423**	-.053	.053	.026	.024	.029	-.047	.016	.012
P Coop	—	—	—	—	.218**	-.218**	.075	.037	.028	.087	.059	-.025
Coop	—	—	—	—	—	-.010	.442**	.113	-.164*	.722**	-.170*	.047
Comp.	—	—	—	—	—	—	-.442*	-.113	.164*	-.722**	.170*	-.047
F	—	—	—	—	—	—	—	-.134	.055	-.015	.114	.174*
R	—	—	—	—	—	—	—	—	-.017	.020	.049	.786**
T	—	—	—	—	—	—	—	—	—	-.424**	.844**	.240**
Tr	—	—	—	—	—	—	—	—	—	—	-.427**	.057
Re	—	—	—	—	—	—	—	—	—	—	—	-.018

r Value significant at .05 level = *

r Value significant at .01 level = **

(.844). Trust (as a testing move) has negative correlation ($-.424$) with trustworthiness (having blind trust). Trustworthiness seems to contribute to cooperation ($r=.722$), and is obviously opposite of retaliation ($r=-.427$). Strangely, repentance (R) and exploitation (E) have a very high positive correlation (.786). Both R and E are non-reciprocal moves, Tr and Re being reciprocal moves. It is interesting that there is a high correlation between R and E showing a tendency of a subject using one to use the other also — a tendency to respond against

the partner's move, may be a tendency to express deviance, Repentance has no significant correlation with any other variable, and thus shows that it is more an expression of deviance than anything else. Forgiveness also seems to play the same role, although it is positively correlated with cooperative game behaviour ($r=.442$).

The above results are based on the analysis of data from a limited sample. A more detailed study is needed to reveal the dynamics of cooperation and competition.

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APPENDIX

ITEMS FOR CCDI AND CCPI

CCDI

1. Being given any work on the class, I always help others so that they can also finish that with me.
2. In the class when two of us have solved the problem simultaneously, even then I wish that the teacher should see mine first and praise me.
3. Whenever there is a problem in the class, I want to solve it jointly.
4. I enjoy accomplishing a work, if I feel that others also have done equally good.
5. I want that there should be competition in the class and I must get the highest mark.
6. Whenever there is a problem in the class, I want to solve it myself.
7. Generally, I like to work with those people whom I think that they are better than me in two or three things.
8. While playing, I want to play the best and win.
9. I like to do better than others on any task.
10. At the time of examination I want to help my friends along with me.
11. While playing, I wish that my teammates should win the game.
12. Sometimes when I see that other boy is fairing equally good, I feel depressed.
13. I wish that others should also get reward, along with me on any rewarding task.
14. At the time of examination, I want to study alone, so that I can stand first.
15. Being given any work in the class I want to finish it by joining others.

16. I want to top the class in studies.
17. I always think how to surpass others.
18. I like playing after making team.
19. I like to take parts in competitions and also wish that I must do better than others.
20. To do a work well, I want to do it with others.

CCPI

1. Shyam went to play with his two friends in the game period. Teacher gave them some wooden blocks to make designs. The teacher only told them that today we will make designs with these blocks. Then what Shyam will do?
 - (a) Shyam will try quickly to make those designs alone without his friends.
 - (b) Shyam will like to finish those designs with his friends.
 - (c) He will ask the teacher to distribute equal amount of work to them.
2. Sohan and Pran were given a game to play, at the end of which they were supposed to get a toffee for each 20 marks. These could be played in three ways (1) more marks, but distributed equally to both, (2) either of them may get, (3) neither of them may get. What will Sohan think in this situation.
 - (a) Sohan will like to score as much number as possible even if his friend gets equal marks.
 - (b) Sohan will like to score as much as possible but not let other partner get any.

- (c) He will go on play without any understanding.
3. Ram and Shyam are studying in the same class. Ram is good at Science and Shyam at Mathematics. Shyam always helps Ram in Mathematics but Ram never helps him willingly. What will Shyam Do?
- (a) In future, he will not give any help to Ram and would like to get more marks in Science than Ram.
- (b) Even when Ram is not helping, Shyam will help Ram.
- (c) Both will try to study by themselves.
4. On the occasion of School's annual function, the school was being decorated. All classes were distributed the work of preparing garlands. What Suresh of class VIII will think before starting the work.
- (a) I will work along with other boys of my class so that we can decorate the best.
- (b) I will do my work nicely and will not help others no matter the reputation of my class goes down.
- (c) I will ask my monitor what I should do?
5. Five boys of the class were asked to write slogans to be used in the election. They were told to make interesting and small slogans what will they do?
- (a) All will write some slogans together and those liked by all will be given to the teacher.
- (b) All the boys will write the slogans separately and will try that his slogans should be interesting and shorter than others.
- (c) They will ask the teacher what is the minimum number, of slogans, one has to write.