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## Working Paper

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INTERGROUP COLLABORATION:
MAXIMIZING YOUR RESOURCE GAME

By

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# Introduction

Behaviour simulation has been used for teaching various concepts. The paper describes a game which can be used to teach the dynamics of inter-group collaboration. It gives details about the game, how to use it in the class room, how to process the experiences people have while playing the game and what variations can be used. It also discusses several conceptual dimensions of development of collaboration.

# Intergroup Collaboration: Maximising Your Resources Game

Udai Pareek

## The Nature of the Game

Prisoner's Dilemma as a non-zero-sum game attracted the attention of psychologists in 50's, and since then thousands of researches have been done with this game. Rappaport (1955) used it as a strategy to deal with a problem. We are used to zero-sum games. The sum of the pay-offs to the two players (gains and losses) is zero (since the gain of one player is the loss of the other); hence the term "zero-sum". But there are some games in which the sum of the pay-offs to both players need not be zero. These are called non-zero-sum games. Prisoner's Dilemma is one such game. It is usually played by two players. It is based on the dilemma two prisoners faced when they were caught while attempting to escape the prison. They were arrested and kept in two separate cells. Each one was given a choice. If he became the approver (and the other prisoner did not) he would be set free and rewarded, and the other prisoner would get mild punishments. It was obvious to the prisoners that if neither of them becomes an approver, nothing could be proved against them and both had a chance of being set free. Each prisoner was caught in the dilemma whether to become an approver (the temptation of freedom and reward) or not become one (have trust in and keep trust of the associate). Each one was not sure what the other would do. Hence the name of the game as Prisoner's Dilemma.

The PD game was first used in the early sixties as a training device to help people have an insight into the dilemma of temptation vs. trust building. Pfeiffer and Jones (1971) included it in their handbook. The game was then adapted with smaller groups and took several forms: Auctions (Pfeiffer & Jones, 1970), Decisions (Pfeiffer & Jones, 1972), Win As much As You Can (Pfeiffer & Jones, 1970). The present game is a similar one.

## Objectives

The main objectives of this game are as follows:

1. To help participants become aware of non-zero-sum game situations, as most of the time in our every day life situation we are re-lated to one another in a non-zero-sum way.

2. To help the participants experience the processes of competition and collaboration.

3. To provide insight to the participants in the functional and dysfunctional roles of competition and collaboration.

4. To help participants experience and become aware of the process of the development of collaboration, and the factors contributing to it.

5. To help participants experience the process of influencing, and the dynamics of negotiation.

## The Material

Some slips of papers and Maximising Your Resources Sheets.

## Time Required

About 30 minutes in playing the game and about 60 minutes in processing it.

## Conducting the Game

The trainer asks the participants to divide themselves into four groups; these are four Provinces of a country. The groups should not normally exceed 5. If there are a large number of participants, several countries can be formed, each country (consisting of 4 Provinces) playing the game independently.

The trainer distributes the Rules of the Game and the Account Sheet (see Appendix), and gives instructions to the group as indicated in there. He allows them to read the Rules and discuss amongst themselves for 3 to 4 minutes, and then asks them to make the first move. He does not answer any questions, but only clarifies what is written in the sheet. He encourages each Provincial Council to discuss whatever questions they have amongst themselves.

The game has five special bonus months (March, May, August, October, and December). The trainer reminds before a bonus month that in the next month the pay-off will be multiplied so many times. Each Province can send a representative or to meet with other Provincial Council; the trainer does not force them.

After the June messages have been announced, the trainer announces that there is an important message from the World Bank. He then distributes important message sheets (see Appendix). He arranges a meeting of the representatives and gives them 10 minutes

for discussion. It may be useful to name an observer in this meeting. If the Panel comes out with new rules, these are used for the next six months payoffs.

After collecting the messages for each month, the trainer records these in the Trainer Record Sheet. The game is over at the end of December. Then all participants assemble to process the game. At the end of the game those who functioned as representatives of their respective Provincial Councils may be asked to complete the Proforma or Negotiators.

## Rationale

Maximising Your Resources is a non-zero-sum. If all the four Provincial Councils give D (defection or competition) messages in the 12 rounds, the country (Yamuni), consisting of 4 Provinces, can lose $6 million; if all the four Provinces give C (collaboration) messages in all the 12 rounds, the country can have the maximise its resources to 1000 million, each Province sharing equally $50.00. Therefore, the game is suitable for analysis of competitive and collaborative behaviours.

A question may be asked about the role of the special bonus rounds. These rounds have dual functions. On the one hand they test the temptations to multiply resources by ditching other Provinces (even after they have agreed to cooperate), on the other hand these rounds give opportunities to the Provinces to wipe off their previous losses and restart building resources, if they cooperate even at a late stage.

Another question relates to communication and negotiations. Before the special bonus rounds, communication is allowed. This may provide opportunity to the representative and the Provincial Councils to evolve an understanding about the nature of the game, that winning depends on cooperation. Communication is not kept compulsory; the natural tendency of being disgusted with obstinancy of a particular Province, or the fear that negotiation will force a Province to concede to cooperate should come out in a natural way, and should be processed.

In the midpoint of the game, representatives of the four Provinces are invited to review the rules of the game. This may give an opportunity to the participants groups to modify the rules to provide incentive for cooperation (or disincentive for defection or competition), and to process experience as to how groups with differential resources approach the issues of making rules.

## Processing the Game

The following are the various stages of the processing of the game:

1. ## Recording the data

The data from the Trainers Record Sheet may be transferred to the board or the flip chart. If more than one country have played the game, it may be useful only to reproduce the last column of the total scores for each round, and the final total for the country (consisting of 4 Provinces).

## 2. The first move

After the game when all the participants reassemble, it may be suggested that the various Provinces may sit together. The trainer may then start discussion on the rationale of the first move — why a Province opened the game with a D, or with a C message. Usually the interviews may reveal the following reasons.

Reasons for move D: Usually the following reasons are mentioned for opening the game with a D message.

a. The Provincial Council does not know the other Councils, and are not sure whether they will send D or C message. So the first move is out of lack of any understanding or trust.

b. The Province wants to play safe, and is not prepared to take any risk.

c. The Province plays the strategy of minimising the loss of its revenue. Sending D message it can lose only $1 million, whereas the C move can result in a loss of $3 million.

d. The Province plays D because of a possibility of adding up to $3 million to its resources. If all the other 3 teams send C message, the Province sending a D message can get $3 million.

Sending a D message is a win-lose strategy (winning at the cost of others). The trainer through further interviews may help the participants see that the first two reasons are part of a temporary

exploratory strategy, while reasons 3 and 4 fall in a different category. Reason 3 indicates more an avoidance rather than an approach strategy. Can a person have high achievement if he uses a negative, an avoidance strategy of minimising the loss? The last reason may be probed further by asking the Province to estimate the "psychological probability" of other Provinces sending C messages. Getting such messages from other Province after one Province has sent a D message is certainly allowing the one Province increase its resources at one's own cost. Normally would a Province be willing to lose and allow another team to gain at its cost? It may be clear that the "psychological probability" of increasing its resources through D message strategy is extremely low.

Reasons for move C messages: Usually the following reasons are given for opening the game with a C message.

a. The Provincial Council discussed the rules of the game, and came to the conclusion that C move may help all the Provinces to maximise their resources.

b. The Province can gain in this game only if other Provinces allow it to gain, and by sending a C message the Province may get C messages in reciprocation.

c. The Province wants to signal to other Provinces that it is prepared to trust them. Even if it loses in the beginning it will have sent a message to other Provinces in its first move.

The trainer may like to examine what effect the C message had on other teams, and may help the participants realise that the C message is both potential move for collaboration, as well as unrealistic and rather premature for that purpose.

The trainer then may probe with the teams on their messages sent in other months up to June, and their payoffs.

3.   The Negotiations

The negotiations need special attention and processing. Negotiations are allowed before the messages in March and May. The representatives of the various Provinces may be interviewed in details to reveal the dynamics of negotiations. The negotiations have filled out forms. They may read out aloud their responses. The discussions may reveal the following conditions for successful negotiations:

a.  Clarity about the objective of negotiation - what is to be achieved. For example, a Provincial Council may decide that they would like to help other Provinces to realise that cooperation is necessary for maximising resources, or get their deficit reduced etc.

b.  Briefing the representative. The Provincial Council may brief their representative with various strategies of influencing other representatives, and how much he can commit himself to a decision.

c.  Trust in the representative. Although a Council can thoroughly brief its representative, they need to have enough trust in him that he can make changes in the plans agreed in the Council, if he is convinced, and the Council would accept his decisions.

d. Honouring the representative's commitment the Council has to accept whatever commitment the representative made during the negotiation, even if they do not agree with his decision. In some Councils if the representative commits his Province to send C message, the Council may decide to send a D message, and ignore his commitment. This may damage influencing and negotiating strength of the Council in the future.

4. Post-Negotiation Behaviour

The trainer may like to examine in details how different Councils behaved after the negotiations. The consequences of such behaviour on one's resources may also be explored.

5. Preparations of rules

The trainer may help in detailed analysis of the dynamics of the meeting of the Panel in Washington. How much consideration was shown to look at the country as a whole, and what strategies were used by the Provinces having larger resources, and by those having deficits or low resources?

6. Analysis of D and C Messages and Strategies in Life

It may be useful if the trainer after the exercise is over forms small groups which discuss the various example of D and C messages people give to others in their lives and in their organizations. This may help them to get further insight into the application and implications of this game and learning from it.

## Development of Collaboration

The Trainer may help the participants get insight into the process of the development of collaboration amongst individuals and groups. The following dimensions are suggested in this regard.

## Bases of Collaboration: Power and Trust

One important condition which contributes to the development of collaboration in a group is the perception of power. Power can be of both kinds: power to reward and power to punish. Reward and punishment are used in a wider sense. Punishment may be in the form of depriving the other person or group of the rewards which he or his group is likely to get. Everyone in the system has at least the negative power of depriving the other person of something which is desirable to him. In this game one group may decide to deprive others groups from winning together. Thus even one group or one individual can use such negative power. Negative power can be used by holding back information, or misleading the other person and so on. Even the person at the lowest level in the organisation can use his negative power by creating annoying situations, delaying matters, holding back information, giving information which creates misunder-standing etc. Every person in the system seems to have some kind of power. The power should be perceived very clearly, and it should also be demonstrated. If in a situation people do not perceive the other person's power they are likely to use the power in a competi-tive framework. On the other hand, if a person involved is not de-monstrating power this can also lead to continued exploitative activity

(use of competition by the other party). Pareek (forthcoming) has reported results to indicate that unconditional cooperation does not lead to the development of collaboration. Unconditional coope- ration by one party may communicate lack of power. If this happens, the other party will find it more and more difficult to get into a collaborative relationship. For effective collaborative behaviour the perception of power of both is essential. This was dramatically demonstrated in one experience with four groups composed of educa- tionalists from six Asian countries. These groups played "Win As Much As You Can", a game similar to Maximising Your Resources. One of the four groups consistently made cooperative moves, and as was revealed in the later interview and discussion, this group was fully convinced that, looking at the nature of the game and the rules implicitly involved, only cooperative behaviour could help all the groups to maximise their gains. However, the unconditional coope- ration by this group blocked the emergence of cooperation amongst other groups, and this group was exploited by the other three groups. The final result of the game was that the cooperating group snapped communication with the other three groups, and the other groups also refused to come for negotiation, as they saw themselves in a more powerful and advantageours position, which could be threatened by negotiation. Many other researches have shown that cooperation emerges after some competitive moves by the groups concerned, in this process the various parties or individuals involved in the situation demonstrate to each other the power they have, and their ability to use power. Researches have also shown that competitive move or some

kind of stalemate in relationship can result in collaboration, particularly in situations in which the parties concerned are competitive by mature. In situations where parties are collaborative by nature, stalemate of negotiation and relationship goes against collaboration.

Along with the perception of power, it is important that the parties concerned perceive that the power that the other party has will not be used against it. This is a part of trust. Some amount of mutual trust is likely to lead to cooperation. Trust indicates the high probability that the power of the concerned party or individual will not be used in a malevolent way.

A combination of perceived power and a minimum level of trust leads to cooperation. This is shown in Figure 1.

Perceived Power (Who has Power?)

| | | Only I | Only He | Neither | Both |
|---|---|---|---|---|---|
| Trust | Low | Coercion Exploitation | Submission Compliance | Indifference | Competition or Individualistic task |
| | High | Nurturance | Dependence | Mutual sympathy | Cooperation |

As is shown in the figure, collaboration results from a combination of perceived power of both minimum trust in each other. In no trust condition there may be coersion and exploitation if the other person is seen as weak; or submission or compliance if he is seen as having power;

if the perception is that neither have power, there may be inu... ence to each other; perception that both have power may lead to either competition or individualistic behaviour. Under conditions of high trust perception of the partner having low power may lead to nurturance (paternalistic attitude); perception that he has power may result in dependency; perception that neither have power may generate mutual sympathy. It is only when both perceive, as well as it is clearly demonstrated that both have power, and there is enough trust in each other that collaboration emerges.

Figure 2 shows that collaboration results from three main factors - the perception that the goal is shareable by both (or all) concerned, the perception that both (or all) involved have power, and a minimum level of trust prevailing amongst those involved in the task. Absence of these may result in low (or absence) of cooperation. We thus see that trust interacts both with power and superordinate goal. This is discussed elsewhere in the light of research findings (Pareek, forthcoming).

Fig 2: Cooperation as a function of Shareable Goal, Perceived Power and Trust
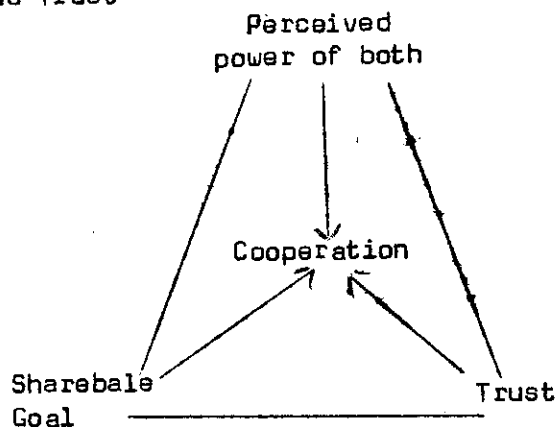
## The Role of Communication

Another factor contributing to the development of collaboration is communication between or amongst the various parties involved in the situation. Pareek and Dixit (1977) have reported the results of experiments conducted on adult groups to show the role of communication in the development of collaboration. This exercise and various other experiments have demonstrated that when representatives of the groups or the total groups have an opportunity to communicate with each other or amongst themselves, chances of collaboration increase. This is the purpose of negotiations in the exercise at four stages. Such an opportunity opens the possibility of discussing the consequences of the behaviour of playing C moves, Communication also helps the groups to discuss with each other their perception of each other's power, and also that the power they have, which they are using against each other (of sending D message, and thus not allowing the other groups to win) can be turned into a positive force for the benefit of all concerned. In the absence of communication such sharing of concerns is not possible. Communication helps in perception of power and more in the development of trust. The experiments showed that communication also tend to produce repentant behaviour in those who have been exploiting and using power against the other party. When individuals communicate as representatives, it is important that the groups who send these representatives have enough trust in them, and that the representatives are sure that what they commit will be honoured by their teams. When the team has trust and confidence in the representatives, and honours the commitment made by them, collaboration becomes easier.

## The Final Step in Building Collaborations

In the final analysis cooperation results from the initiative taken by one person or one group to cooperate. This is a kind of risk taking on the part of the individual or the groups. This is also making oneself vulnerable. This turns the win-lose strategy into win-win strategy. Win-lose strategy can only be a temporary strategy; it changes into either a lose-lose strategy or a win-win strategy. In a nonzerosum game, like this exercise the individual or the group who makes the cooperative move (C) runs the risk of losing a great deal, and have lower pay off. This risk, the initiative, demonstrating the courage to lose initially for the benefit of all the parties concerned, taken by an individual or a group is the key to the development of cooperation. However, this has to be after the other parties concerned perceive the power this group or the individual has. This risk taking is important in combination with trust and demonstration of each other's power. It is only after this has been achieved that both mutual trust and mutual power lead to risk taking tendency, but not the other way round. Only the risk move leads to cooperation. So that the team which takes the initiative, making itself vulnerable, is able to start the process of change towards collaboration. This inner strength of the team to be able to make such a move helps to build collaborative relationship. This is shown in Figure 3.

Fig 3: Cooperation as a Function of Individual Risk
Taking

Perception of
Mutual Power

Cooperation

Trust          Risk taking
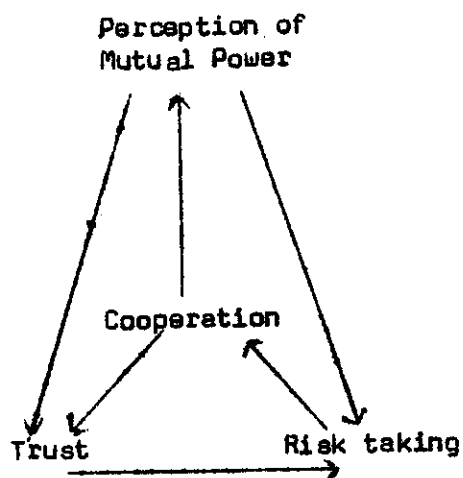
The various interventions that can help build collaboration
amongst groups in an organization have been discussed elsewhere
(Pareek, 1981).

## Variations

Several variations can be made in the game on the following
dimensions:

a.  Number of rounds. The game can be extended 1½ to 2 years.
The advantages of a game with a more longer time perspective
is that the final patterns emerge clearly. However, it
takes more time and may produce a feeling of dragging on.

b.  Playing with money. Participants can create a pool, by
contributing a cover charge, $1 equivalent of $10 million.
Then the game is played with actual money, rather than ima-
ginery money. Involvement of the participants may be higher
in this variation.

c.  Payoff matrix. The payoff matrix as shown in the sheet may also be altered. If more than one group are playing the game, different matrices can be used to demonstrate the effect of payoff systems on behaviour. Several matrices are available in the literature on such games.

d.  Process observation. Process observers can be appointed for each Provincial Council, negotiations, and the Panel meeting, and they can give their observations the end of the game to the whole groups.

e.  Processing the experience. Each Provincial Council can spend about 10 minutes at the end of the game and analyse what they have learnt from the experience, and may report their analysis and learnings to the whole groups.

f.  Playing with different psychological sets. A psychological set can be created by giving different briefing to different groups (countries), if more than one group play the game. For example, four Provinc.. f one country can be given briefing to creative a collaborative set, another a competitive set etc. The processing may discuss the effect of a mental set on collaborative behaviour.

g.  In the last month each Council may be asked to predict the move of the other three Provinces, and these may be posted before announcing the actual choices.

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## Maximising Your Resources

### Rules of the Game

Yamuni is a small developing country.  It consists of four provinces: Northern Province (N) Souther Province (S), Eastern Province (E), and Western Province (W).  You represent the top administrative council of your province.  Your main goal is to maximise your resources by the end of the current year.  Now is January, the beginning of the year.

· The World Bank is providing financial support.  Each province has been given initial resources of \$200 million.  It will follow some rules to distribute the funds.  The rules are given below.  It will release the funds every month of the year.  You may keep a record of your own receipts and contributions.  You will not communicate with other Provinces, unless meetings are arranged from time to time.  During some months the World Banks will have additional funds, and the pay-offs (both receipts and payments or contributions will be multiplied several times.  These are indicated in parantheses after some months.  For example, the payoff in March is 3 times the normal payoff, so if you receive funds you receive 3 times, and if you have to contribute, your contributions will be 3 times.

You are required to send a message "C" or "D" to the World Bank every month.  Depending on the following rules, the Bank will either give you funds during that month or ask you to contribute a specific sum from your resources.  Sometimes the World Bank may have additional funds and this information will be announced in advance.

You will have 3 minutes to discuss your strategy for sending the January message. Subsequently you will have only 1 minute every month to decide what message to send. The message will be sent on behalf of the Province.

### Rules of Payoff Distribution

| No. of C Messages | No. of D Messages | Payoff for C Messages | Payoff for D Messages |
|---|---|---|---|
| 4 | – | Will get $1 million each | – |
| 3 | 1 | Will contribute $1 million | Will get $3 million |
| 2 | 2 | Will contribute $2 million | Will get $2 million |
| 1 | 3 | Will contribute $3 million | Will get $1 million |
| – | 4 | – | Will contribute $1 million each |

### Account Sheet

Your Province _____

| Months | Your Message (Circle) | | Combination | | Your Payoff | Balance |
|---|---|---|---|---|---|---|
| Opening Bal | C | D | C— | D— | | $200 million |
| January | C | D | C— | D— | | |
| February | C | D | C— | D— | | |
| March (3) | C | D | C— | D— | | |
| April | C | D | C— | D— | | |
| May (4) | C | D | C— | D— | | |
| June | C | D | C— | D— | | |
| July | C | D | C— | D— | | |
| August (6) | C | D | C— | D— | | |
| September | C | D | C— | D— | | |
| October (10) | C | D | C— | D— | | |
| November | C | D | C— | D— | | |
| December (20) | C | D | C— | D— | | |

## Important Message

In July the World Bank has decided to set up a new panel to disburse funds to your country. Each Province has been asked to nominate a member to work on the panel. These representatives will meet in Washington to discuss any changes needed in the rules followed in the disbursement of funds. This meeting will be for 10 minutes. The panel is to recommend changes in the rules and procedures of disbursement of funds for the next six months. No change can be made in the requirement of sending a confidential message of C or D every month by each Province. However, rules can be changed regarding payoff for these messages. The recommendations have to be unanimous. If unanimity is not achieved, the old rules will be used in disbursing funds.

Please discuss for 3 minutes in your Executive Committee and nominate a member to work on the World Bank Panel.

# Maximising Your Resources

## Trainer Record Sheet

| | Combinations | | Payoff to Provinces | | | | |
| Rounds | C | D | E | W | N | S | Total |
|---|---|---|---|---|---|---|---|
| January | – | – | | | | | |
| February | – | – | | | | | |
| March | – | – | | | | | |
| April | – | – | | | | | |
| May | – | – | | | | | |
| June | – | – | | | | | |
| July | – | – | | | | | |
| August | – | – | | | | | |
| September | – | – | | | | | |
| October | – | – | | | | | |
| November | – | – | | | | | |
| December | – | – | | | | | |

TOTAL       $ + $800 = million     Maximum Possible Total $1000 M

# MAXIMISING YOUR RESOURCES

## Proforma for Negotiators

1.  In which round did your represent your team? ————————————

2.  How much was your role as a representative discussion in your team before you went out for negotiation's? Enough —————— ———————— Somewhat ———————————— Not enough ————————————

3.  How clear were you about your brief from your team? Enough ———————————— Somewhat ———————————— Not enough ————————

4.  How much trust did you feel your team had in you? (How much commitment could you make on behalf of your team?) Enough ———————————— Somewhat ———————————— Not enough ————————

5.  How much did your team accept your recommendations, and was prepared to honour any commitment you had made? Completely ———————————— Doubtful —————————— Did not accept ————————