

*Social Dilemma is a teaching game designed to put players in an n-person Prisoner's Dilemma. The game's nondyadic character makes it an interesting and realistic model for many mixed-motive social situations. The game is fun and quite manageable in a class of 50-minute duration with as many as sixty students. Several applications and two variations are suggested.*

## **Social Dilemma**

### **A Teaching Game**

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### **OBJECTIVES**

Social Dilemma is a game designed to show how individuals are related to each other in society and why individuals do not always act in their own, collective best interest. The game teaches students to recognize (1) the reward structure leading to social dilemmas, (2) the individualistic (rather than collective) strategy people follow in social dilemmas, (3) the inefficacy and hypocrisy of communication in social dilemmas, and (4) the emergent and coercive nature of social norms.

### **DESCRIPTION OF SETTING**

Social Dilemma can be played by students of almost any age. Class size may be as small as five or as large as seventy to eighty people. The classroom, however, must have moveable (rather than bolted-down) chairs. The game was designed for use in college-level group dynamics and social psychology classes, but it

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is appropriate for many other classes (such as introductory sociology, social problems, collective behavior, and social organization) and for training sessions by extension personnel. The game takes about 30 to 45 minutes to complete.

### **DESCRIPTION OF STRATEGY**

The game Social Dilemma follows these steps:

- (1) Form class into groups, distribute materials, introduce the game.
- (2) Conduct trials 1-10.
- (3) Pause 5 minutes while players write messages.
- (4) Conduct trials 11-15.
- (5) Pause 10 minutes while groups discuss the game.
- (6) Conduct trials 16-20.
- (7) Lead debriefing discussion with the class.

#### **STEP 1**

Participants should be divided into groups of five to eight people. In these groups, players should arrange their chairs to form a closed circular chain; each player should face forward so that he or she is unable to view the activities of the player behind. Each player should be supplied with a sheet of notebook paper, a pencil, a legal-size manila envelope, and a stack of about ten 3×5-inch index cards. Five of the index cards should be of one color and five of another color. The index cards referred to in this report will be green and yellow, but any other pair of colors would do equally well (such as white and yellow, red and blue, unlined white and lined white). Players should be kept in ample supply of cards and told to ask for more of one color or another if they ever run low.

Players should be told that the game involves passing the colored index cards around the circle of players and gaining points according to the color of the card sent and the color of the card received. Players calculate the points they have gained by

referring to this payoff schedule (which should be posted on a blackboard for everyone to see):

- Give yellow, get yellow: 0
- Give yellow, get green: +25
- Give green, get yellow: -15
- Give green, get green: +10

The object of the game is to accumulate as many points as possible. The instructor should urge players to gain as many points as possible, without implying any particular strategy for doing so. Players must be allowed to discover for themselves that maximizing their own point values need not be at the expense of others; the only reasonable strategy for gaining points is to ensure that everybody else is gaining points as well. Players should be told to refrain from talking during the trials of the game.

#### STEP 2

Every trial of Social Dilemma follows the same pattern. First, players decide which color card they will pass and insert that card into their manila envelopes. Then, as the instructor calls out the trial number (and perhaps writes that trial number on the blackboard), all players *simultaneously* pass their envelopes forward, over the shoulders and into the hands of the players in front. When the envelope passing is completed, players open their envelopes, note the color of the card received, calculate the points they have gained on that trial, and record the point values on their sheets of notebook paper. The payoff schedule conforms to the ordinary mixed-motive, Prisoner's Dilemma game structure. However, what makes Social Dilemma more interesting than the usual mixed-motive game is its nondyadic character. Players of Social Dilemma are bound together in a pattern very much like Malinowski's Kula Ring exchange: the person to whom I, as a player, give cards does not give cards to me; the person on whom I depend does not depend on me; I cannot directly reciprocate or retaliate. I cannot control with my behavior (for example, tit-for-

tat) the behavior of those who determine my outcomes. Just as actors in society are rarely involved in pure cooperation or pure competition, the players of Social Dilemma are bound together in a complex n-person social dilemma; they form an interdependent collective whose best interest will not be served unless powerful social norms force its members to abandon their individualistic perspectives.

The first ten trials should be conducted in rapid succession. During these trials, groups will establish a pattern of passing only yellow cards. Any player who attempts to pass green cards will soon realize the futility of such action and will be forced to join the group's pattern if only in self-defense.

### STEP 3

After the tenth trial, the instructor should ask the players to pause, remove the index cards from their manila envelopes, and tear off a corner of the notebook paper on which they have been keeping score. On this slip of paper, players should write a "personal message" to the player sitting immediately behind. Players should write about anything they want, put the message in the manila envelope, pass it over their shoulders and into the hands of the person sitting behind. These messages often provoke laughter and typically exhort or beg the player sitting behind to send more green cards.

### STEP 4

After all messages have been delivered and read, the trials resume. Trials 11-15 should follow in rapid succession. During these trials, the pattern of passing only yellow cards will almost invariably reemerge. Players will give little heed to the messages they received.

### STEP 5

After the fifteenth trial, players should once again be asked to pause and remove the index cards from their envelopes. During

this pause, players should turn their chairs inward, toward each other, and talk freely among themselves about their experiences in this game. They should be encouraged to think about what they are doing and how they might go about gaining more points on the remaining five trials. Most groups decide that everyone should pass only green cards.

At this point in the game, the instructor should mill around the room and listen to the various group discussions. The instructor should be alert to the emergence of social norms in these groups (for example, players deciding on a *group* strategy, attempting to get commitment from members to follow the group decision, considering the possibility of defection and enforcement). Direct quotes and specific examples from these group discussions are helpful in the debriefing period. After allowing sufficient time for discussion (about ten minutes), the remaining trials of the game should be conducted.

#### STEP 6

Trials 16-20, which follow the discussion period, can be the most lively trials. Most players pass green cards during these trials, although spontaneous exclamations such as "you creep" or "cheater" can be heard as players discover that others are defecting from the agreed-upon strategy. These exclamations can be used as examples in the debriefing period to show how the moral definition of passing yellow cards changes during the group's discussion.

#### STEP 7

Debriefing follows the twentieth trial. Debriefing may begin by asking the class various questions. Who gained the most (least) points in the game? How did the others around that person do? What characterized people's behavior during the first ten trials? What was the content and the effect of the "personal message" sent to the player behind? What was the content and effect of the group discussion? Why did some people continue to send yellow cards after the group discussion? During this debriefing discussion, the instructor should make sure that students understand (1)

the property of the payoff structure that caused players to pass yellow cards (it was a mixed-motive structure so that each player's best interest was not his or her best joint interest), (2) why the pleas for green cards went unheeded (the pleas did nothing to change the payoff structure controlling their behavior), and (3) why the group discussion focused on a *group* strategy and was effective in improving point values during the last five trials (social norms emerged in order to promote the collective best interest and were effective because they modified the payoff structure with interpersonal sanctions).

### STRONG POINTS

- (1) The game is fun.
- (2) The game can be played in classes of various types and sizes.
- (3) The game requires little preparation and very few materials.
- (4) The game is more realistic and more interesting than most mixed-motive games.

### PROBLEMS

- (1) The classroom must have movable chairs.
- (2) The players must pass their envelopes simultaneously in order for the game to work.
- (3) A single instructor may not be able to coordinate the game when the class size is sixty or larger.

### APPLICATIONS AND EXTENSIONS

Because Social Dilemma models such a basic, common pattern of social relations, the game lends itself to a variety of interesting applications. One set of applications has to do with the problem of collective action, the provision of public goods, and the

existence of free riders. This problem occurs in social life whenever attaining some benefit for the group as a whole requires the efforts (or "contributions") of many, but not all, group members. If the benefit, once attained, can be enjoyed by every group member regardless of contribution, then it is likely that the benefit will not be attained at all. Most group members will sit back, hoping to take advantage of the efforts of others. This kind of mixed-motive game is very common in social life and has been used to explain people's failure to engage in prosocial behavior (such as contributing to charity, bystander intervention, altruism) and civic behavior (such as turning out to vote, being honest on tax returns); people's difficulty in organizing themselves bodies for collective action (unions, committees, and task forces, for example); and people's frustration and poor performance when working together on a group task (such as goldbricking and social loafing).

Another set of applications of Social Dilemma has to do with the so-called commons problem. This kind of problem occurs in social life whenever a public resource exists but group members so selfishly take advantage of their right to use the public good that it is ultimately depleted as a resource for anyone. This kind of mixed-motive game has been used to explain the misuse of common grazing land, patterns of energy consumption, depletion of natural resources, pollution, crowding, overpopulation, and the like.

Both these kinds of mixed-motive games are made worse as group size increases. A simple variation in the Social Dilemma game can easily demonstrate the relationship: In Step 1 of the game, the instructor can form some very small groups (consisting of three or four members) and some very large groups (twelve or thirteen members) and will observe that the small groups attain cooperation much more easily than the large groups.

A third area of application of Social Dilemma has to do with symbolic interaction in mixed-motive situations. Apart from the issue of how actors behave, there is the issue of how actors define and justify their behavior in mixed-motive settings. Mixed-motive settings are, after all, precisely the kind of settings in which behavior is most problematic and in most need of explanation.

As an interesting variation of the Social Dilemma game, the instructor could ask players to write a message to the player seated *in front*, as well as to the rear. A comparison of the message sent forward (accounts, excuses, justifications for sending yellow cards) with the message sent behind (demands and pleas for more green cards) provides an interesting example of situated actions and the vocabularies of motives.

### RELATED LITERATURE

An instructor does not need to read any particular literature in order to conduct the Social Dilemma game successfully. However, a familiarity with the defining properties of games, the sense in which games can explain social life, and the characteristics of the Prisoner's Dilemma and other mixed-motive situations would be helpful. For an excellent, readable survey of game theory as it applies to social life, I would particularly recommend the following books.

- DAVIS, M. D. (1970) *Game Theory: A Nontechnical Introduction*. New York: Basic Books.
- HAMBURGER, H. (1979) *Games as Models of Social Phenomena*. San Francisco: Freedman.

For instructors particularly interested in the problem of collective action, the problem of the commons, or the vocabulary of motives, the following references may prove useful.

### THE PROBLEM OF COLLECTIVE ACTION

- LATANE, B., K. WILLIAMS, and S. HARKINS (1979) "Many hands make light the work: The causes and consequences of social loafing." *Journal of Personality and Social Psychology* 37: 822-832.
- OLIVER, P. (1980) "Rewards and punishments as selective incentives for collective action: Theoretical investigations." *American Journal of Sociology* 85: 1356-1375.
- OLSON, M., Jr. (1968) *The Logic of Collective Action: Public Goods and the Theory of Groups*. New York: Schocken.
- SCHELLING, T. C. (1978) *Micromotive and Macrobehavior*. New York: Norton.
- (1973) "Hockey helmets, concealed weapons, and daylight saving: a study of binary choices with externalities." *Journal of Conflict Resolution* 17: 381-428.



### THE PROBLEM OF THE COMMONS

- EDNEY, J. J. (1980) "The commons problem: alternative perspectives." *American Psychologist* 35: 131-150.
- HARDIN, G. (1968) "The tragedy of the commons." *Science* 162: 1243-1248.
- and J. BADEN [eds.] (1977) *Managing the Commons*. San Francisco: Freedman.

### THE VOCABULARY OF MOTIVES

- MILLS, C. W. (1940) "Situated actions and the vocabulary of motive." *American Sociological Review* 5: 904-913.
- SCOTT, M. B. and S. M. LYMAN (1968) "Accounts." *American Sociological Review* 33: 46-62.

Finally, for instructors interested in learning more about the use and effectiveness of games for teaching social theory, the following references are of note.

- BREDEMEIR, M. and C. S. GREENBLAT (1981) "The educational effectiveness of simulation games: a synthesis of findings." *Simulation and Games* 12: 307-332.
- GREENBLAT, C. S. (1980) "Group dynamics and game design." *Simulation and Games* 11: 35-58.
- and R. D. DUKE (1975) *Gaming-Simulation: Rationale, Design, Applications*. New York: John Wiley.

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