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A FUNCTION OF SEX, INTERNAL-EXTERNAL CONTROL,
AND PSYCHOLOGICAL EFFECTIVENESS.

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1972

INTERPERSONAL COOPERATION OR EXPLOITATION AS A
FUNCTION OF SEX, INTERNAL-EXTERNAL CONTROL, AND
PSYCHOLOGICAL EFFECTIVENESS

by

Elizabeth Warren Hines Welker

A dissertation submitted to the Graduate Faculty
in Clinical Psychology in partial fulfillment of
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Abstract

Interpersonal Cooperation or Exploitation as a Function of Sex, Internal-External Control, and Psychological Effectiveness.

by

Elizabeth Welker

Advisor: Morton Bard, Ph.D.

Two hundred and forty college students selected for belief in Internal vs. External control of reinforcement to themselves played 100 trials of Prisoner's Dilemma in a face-to-face encounter in which the choice was to cooperate with or try to exploit the other. Prisoner's Dilemma was presented as either a test of skill in interpersonal bargaining in which they were paid for their time, or as a gambling game in which penny payoffs could be parlayed into New York State Lottery tickets. Dyads alike in Internal or External control played in male-male, female-female, and male-female pairs, in a 2 X 2 X 3 factorial design.

Subjects also filled out MMPI answer sheets, which were computer-scored and interpreted by Roche Psychiatric Service Institute.

Hypotheses were that Internals would be psychologically better functioning than Externals; and that Internals would be more cooperative than Externals, particularly under the skill condition. Sex differences were expected.

The first hypothesis was supported by multivariate analysis of variance of ten measures from the MMPI in which sex and IE control were both significant ($P < .001$) for the vector. Internals (male and female) had more ego strength, more control of emotional distress, less maladjustment, less anxiety, and were less dependent than Externals.

Internals were more cooperative than Externals only for the mixed sex pairs playing under a skill condition. Both sex and control were significant ($P < .02$) and the triple interaction was nearly so ($P < .07$). Using individual per cent of cooperation as the measure, rather than achievement of joint cooperation, presumably a measure of personality predisposition and behavioral choice, Internal-External control accounted for nearly all the variance, in the expected direction ($P < .004$).

Significant sex differences were: more pathology and more control of it for males, also more anxiety, more dependence, and more opposite sex interests. Females had more ego strength.

In addition, Internals tended to be conditionally cooperative, thus, even though they preferred a joint gain, they were willing to risk sanctions against an exploitative partner, to get him to mend his ways.

ACKNOWLEDGMENTS

To City College and the vision of its leadership I owe a particular kind of training, relevant to a society and a profession in upheaval. Their belief that University best serves its heritage by providing leadership for necessary change marked every aspect of my training. This climate, with its breadth and diversity, its insistence on excellence, on careful scientific work applied to important human problems, open to anyone willing to fight to be part of such an undertaking, has moulded whatever I am and will become as a psychologist. No shibboleth stood unchallenged, the values of the marketplace were disregarded. Hihilism found few supporters. Problems at the forefront of this society's survival were our daily bread at City College and we shared them as a university community, in spite of our subway status. The worse things were, the more this was true. My experience there was unforgettable.

To my mentor, my committee, and my professors, whose personality, scholarship, guidance, insight, warmth, support, and absolute insistence on hewing to a worthy cause, however differently they may have defined "worthy," I am indebted for some of the supply of perseverance that led me to make the crucial "one more try."

To my parents, neither of whom is alive, and to my religion, I am indebted for the values that dignify lonely effort.

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Chapter I

The Problem

This study is concerned with the personality determinants of a cooperative interaction between two people, an interaction in which trust is extended, mutual gain is the goal, and both persons eschew a greater individual gain even if they are able to successfully exploit the other.

The achievement of cooperation is accompanied by felt satisfaction, increased self-esteem and heightened regard for the other. However, in a competitive, achieving, upwardly mobile society, each such choice, with all of its satisfactions, is in conflict with the motivation toward individual gain. It is the thesis of this study that the decision for cooperation is the mark of the psychologically effective person. Individuals who feel they are active in and responsible for what happens to them for good or ill are expected to be more trusting, more trustworthy, and more cooperative than persons who believe that rewards and punishments are handed out randomly, largely independent of their effort, wishes, or personality. The contribution of sex differences to a cooperative two-person interaction has been little studied, particularly in conjunction with personality variables. A few studies hint at differences, but the question has not been systematically explored.

The importance to the persons and to the larger group of which they are a part--the family, the community, the corporation, the nation--of the

outcome, of those variables which lead to collaboration, rather than exploitation or mutual destruction before compromise, is immeasurable. The investigation of such a question cannot be carried out in a framework of individual dynamics alone, or situational factors alone, nor can it be assumed that there is one general law for interacting persons, without regard for the sex or personality of the partners. The present study is, then, a laboratory analogue designed to explore these questions.

The personality variable is Internal vs. External Control of reinforcement, as described above. The situational variable is the presentation of exactly the same task as either skill- or chance-controlled. Interacting pairs are male-male, female-female, or male-female. The laboratory game is Prisoner's Dilemma, in which each person chooses to cooperate with the other, or to try to exploit him or her and benefit unilaterally. Each cooperative choice is either an expression of trust because the cooperator may be safely betrayed by the other, who then wins both shares, or a decision to avoid loss, rather than risk applying sanctions against the exploiter. Tapes of each interaction and clinical interview make clear the strategy and motivation of each partner, so that exploitation vs. defensive interaction can be clearly determined. Confounding of the two is thus eliminated. The researcher asks the question, what are the determinants of a choice so crucial to the outcome of human interaction. Because Prisoner's Dilemma is played over a series of trials, each interaction protocol is a miniature relationship, with a beginning, a testing period, try-out of various strategies, and a resolution that includes individual preference for outcome, but is also determined by the nature of the interaction.

The study will investigate the interpersonal relationships of men and women who believe that what happens to them in life occurs by chance (Generalized Expectancy; for External Control of Reinforcement), compared with those who believe in personal control through the exercise of skills. (General belief that control of reinforcement is Internal.)

It will also be concerned with whether or not interpersonal relationships of Internals and Externals can be generalized without regard to the sex of the interacting persons. The study intends to explore whether an Internal or External attitude has the same meaning and dynamics for men as for women. Rather than believing that things just happen to one, an Internal is engaged in acting on persons and events to facilitate or abort outcomes that are perceived as desirable or undesirable in terms of life goals. This would seem to reflect attitudes and experiences of adequacy and competence. For example, in grossly deprived settings an External attitude is good reality testing. The conflict for many girls between achievement and a concept of femininity has been documented by Kagan and others in terms as concrete as an IQ drop in puberty. For the male, aggressive assertion is culturally reinforced except in deviant or pathological families, but unless success follows those efforts, an External attitude may be a compensation for experienced failure or a projection of the responsibility for it. In addition, individual family dynamics and expectations may conflict with or reinforce general cultural expectancies with regard to sex roles.

Another focus of the study will be the relationship of the IE Control dimension to what has been variously called personality integration, well being, ego strength, emotional health, or psychological adjustment. Freud epitomized this concept as the capacity "to love and to work," in a famous reply to the question, "What should a normal person be able to do well?"

This study is designed to investigate the effect of an active (Internal) attitude toward gaining gratification as a determinant of cooperative interpersonal interactions, and the relationship of this active

attitude to effective action in reality and psychological health. The differential socialization of males and females is expected to produce sex differences in the meaning and dynamics of an active compared to a passive (External) orientation.

In summary, the problem is delineation of the personality, situational and sex role determinants of an interpersonal relationship characterized by trust, cooperation, and mutual gain. The study is expected to make a contribution to personality theory and to the clinical understanding of men and women who believe themselves to be helpless or competent.

Brief Review of the Literature

Theoretical Background

The assumption of this research, in line with modern ego psychology (Hartman, 1958), the work of Erikson on identity (1959), White's competence motivation (1960), and the animal studies of Harlow (1950), Butler (1953), and Berlyne (1957, 1966) is that it is a property of the healthy, rested organism to be active in pursuit of mastery of reinforcements to the self. Vigorous, flexible, reality-oriented pursuit of goals is characteristic of healthy psychological functioning. Therefore, an Internal attitude is expected to reflect this orientation and to be related to realistic interpersonal trust, preference for cooperation, and ego strength, autonomy, adjustment and control of emotional difficulties as measured by the psychological report and the clinical and research scales of the Minnesota Multiphasic Personality Inventory.

Erikson sees the outcome of successful mastery of age appropriate developmental tasks as: a psychologically mature person who trusts himself and other people; who can exercise autonomy, show initiative, work

effectively; and who is capable of intimacy, fidelity, and responsibility toward the development of the next generation.

Rapaport concluded (1967) that the move away from passivity to activity was the sine qua non of gratification in reality. This is consonant with his formulation of the origin of secondary process thought (1950). Because passivity and hallucination are not adequately gratifying, it is necessary to form a conception of reality, in order to operate effectively upon it. This is also in line with theoretical advances in ego psychology that postulate an independent energy from the beginning for the development of ego functions (Hartman, 1939). Interaction with the environment was no longer to be thought of as dependent on instinctual sources for energy, nor to be constrained by the biological goal of drive reduction.

In a major reformulation of motivation theory, Robert White insisted on the importance at all stages of development of activity whose only goal is the exercise and development of competence in transactions with the environment, self-actualizing (Maslow, 1962), and achieving (McClelland, 1961).

The relevance of these theoretical concepts to the Internal-External Control dimension is that the person is once more conceived of as an actor in the realization of his own goals, self-actualizing (Maslow, 1962), and achieving (McClelland, 1961). Thus favorable developmental experiences lead to an Internal expectancy, and the existence of an External Expectancy is to be explained, whether in terms of malicious environment or otherwise. At the forefront of child development research is the effort to teach an Internal Expectancy to lower socio-economic class children.

Research by DeCharms (1968) indicates that for an Internal, intrinsic and extrinsic motivation do not summate; the Internal is "turned off" by extrinsic reward, in which he lacks feelings of free choice and commitment, and is placed in a dependent position relative to the source of the reward.

The Internal-External Control Dimension

The Internal-External Control dimension has been established experimentally. Its developmental antecedents have been investigated. The impact of social and economic class difference has been explored (Lefcourt, 1965), but studies to date have not clarified whether or not the meaning of external control is different for females than it is for males, particularly in interpersonal relations.

The rationale underlying Rotter's Generalized Expectancy for Internal Vs. External Control of Reinforcement Scale (1966), derived from his theory of social learning, is that the individual in the course of development builds up an expectancy, based on his particular reinforcement history, that his actions are either related or unrelated to major life gratifications. This expectancy is then generalized so that he either assumes or denies a causal relationship between his actions and what happens to him as a consequence. This generalized expectancy then interacts with cause and effect expectancies that have been learned in specific situations. The role the generalized expectancy plays in a behavioral outcome depends on how clearly the culture defines the situation as chance versus skill controlled. Internals are most motivated where rewards are perceived as due to their own skill. Externals who do not expect effort to be rewarded or even related to success or failure have

been shown to be more motivated by situations which are culturally defined as chance-controlled.

On this theoretical base, the inference is made that active, reality-oriented attempts to master the environment are psychologically adaptive, and will occur in the absence of malevolent heredity or of destructive interpersonal or social experience. The expectancy that the control of reinforcement to the self is externally versus internally controlled has been extensively studied (Rotter, 1966, and Lefcourt, 1966). Rotter labels as External those who see what happens to them as accidental, beyond their control, or actively directed by powers whom they are helpless to influence. He labels as Internal, persons who feel that their own effort, skill, and competence can determine the outcome of events in the world. Internals take moderate risks in pursuit of their own goals, are motivated by the need to achieve, and resist influence by others if it is perceived as an attempt to remove the locus of control from the self.

Sex Difference Findings for I-E Control

Men and women are exposed to differential socialization pressures with regard to attitudes and behaviors of helplessness versus competence. Biological destiny presents the boy or girl with a different role model for emulation. A girl may come to feel that self-assertion, let alone autonomy, is unfeminine. If, as Karen Horney suggests (1967), the major problem of women is the need to be loved, then a degree of submissiveness may seem the inescapable price. To compound the girl's developmental problems, society often equates passivity and dependence with essential psychological "femaleness." The conflict thus engendered between autonomy and feminine self-concept can be severe, as has been concretely documented

by studies which show an IQ drop at puberty for girls (Kagan et al., 1965). Adult passivity and dependence on a love object are predictable from birth to age three for boys, whereas the same behaviors for girls are predictable from school age and not from earliest childhood (Kagan, 1962).

The boy may experience equally severe problems in meeting the role expectations of society. While self-assertion and aggressiveness are sanctioned and encouraged, if his efforts in this direction are not met by success, what is his attitude toward himself to be? He has the option of displacing the blame for his failure onto the actions or powers of others, thus avoiding a painful confrontation between his level of aspiration and his ability, between magic and reality.

In a study of belief in the Warren Commission Report (Hamscher et al., 1967), External Control predicted suspicion and distrust for males, but not for females. External Control also predicted interpersonal distrust on Rotter's Interpersonal Trust Scale for males but not for females (1967). A children's scale measuring IE control predicted free play achievement behavior and test scores for boys but not for girls (Crandall et al., 1962).

This study hopes to make an assessment of the validity of these findings, and to clarify their dynamics and meaning. For males, an External attitude should be related to suspicion, dependence, prejudice, and psychological distress. This relationship is not expected to be so strong for women Externals; that is, their responses to the IE scale are assumed to reflect, in addition, the components of differential socialization and feminine self-concept.

Prisoner's Dilemma Research

The experimental situation used was Prisoner's Dilemma (Rapaport and Chammah, 1968), an interpersonal conflict resolution problem from game theory which has been widely used to study the determinants of cooperation versus exploitation (Annual Review of Psychology, 1967). The most important feature of the game is that each cooperative choice exposes the person to betrayal of his trust and makes it possible for the other player to benefit at his expense. Thus, Prisoner's Dilemma is an analogue of all important dyadic relationships. Neither of the two partners has independent control of the outcome to himself, but must share it with another. Rapaport also suggests a time course for Prisoner's Dilemma, so that 100 trials is a minimum test of interactions. Subjects typically begin cooperatively, test each other out, and then the joint choices tend to cluster at either the cooperative or uncooperative pole for the pair. Interaction is not neutral. It is either for better or for worse, for the dyad. This is the rationale for using choices of the pair as the unit of analysis.

Deutsch (1960) has found that authoritarian personality as measured by the F scale (Adorno, 1950) is correlated to play on Prisoner's Dilemma that is uncooperative and/or exploitative. Low F scale scorers are reliably trusting and trustworthy. Thus, High F scorers are similar to the defensive External male of the Rotter studies (1967) in that both are distrustful in interpersonal relations.

Terhune (1968) found the following relationships between motivational dynamics and play on Prisoner's Dilemma: persons who need power play exploitatively against others; those with a need for affiliation play most

cooperatively, whereas those who need achievement are only conditionally cooperative, that is, not particularly cooperative in the absence of cooperation from the other. It seems appropriate to call this last behavior reality-oriented trust, and to hypothesize that it is related to ego strength. The relationship of IE control to psychological health has not been studied, although Rotter regards normal as probably in the middle of the range. If, however, as his studies indicate, Internals are also Need Achievers, they ought to trust only when it is realistic to do so, and not show dependence, submissiveness, or exploitation in play on Prisoner's Dilemma. Terhune (1968) has found that Need Achievers are cooperative, contingent upon cooperation from the other. Internals are Need Achievers (Rotter, 1966); therefore, the inference is that Internals will be conditionally cooperative (reality-oriented) and that this behavior, rather than "blanket" trust, is associated with psychological "health." The study proposes to make a direct test of the inference.

Terhune (1968) found that while achievement-dominated subjects are the most disposed to cooperate, they do not do so in the absence of cooperation and trustworthiness on the part of the other. He also found that initial experience in the game had an important influence on subsequent play. Other experimenters have not found such an effect, possibly because of differences in the length of the run. Terhune also corroborated Deutsch's (1958) finding that the opportunity for communication increased cooperation, due to, he concluded, reduction of ambiguity of intentions. Statements of subjects supported the behavioral findings that Need Achievers emphasized mutual interests and that power-dominated subjects were out to win for themselves. A strategy in which one is initially competitive and shifts to a cooperative strategy is more effective in

eliciting cooperation than consistently cooperative play. Therefore, the strategy of the Need Achiever (and by inference the Internal) is not only more reality-oriented but more effective in controlling the interaction in the direction of his preferred outcome (Scodel, 1962; Hartford and Solomon, 1967).

In studies of attitude variables, Wrightsman (1966) corroborated Deutsch's finding that subjects who play cooperatively are also altruistic and trustworthy.

In a small and possibly atypical sample of the University of Kentucky (medical students), Marlowe (1963) found cooperative choice to be greater for passive-dependent (N abasement, deference) subjects. Aggressive, independent (N aggression, autonomy) subjects preferred to maximize their own gain, and were therefore more exploitative.

Maintaining a cumulative score that is available to the players increases competitiveness (McClintock and McNeel, 1966). Players who know or like each other are more cooperative than strangers, with the caveat that best friends in some colleges are least cooperative (McClintock and McNeel, 1967).

Very few studies have looked directly at the effect of psychopathology on play in game situations. An important finding for this research is that of Bixenstine and Douglas (1967) that pathology-free and pathology-indicated subjects did not differ in play on a six-person game under standard conditions. However, when the opportunity for communication was presented, only the pathology-free squads used the opportunity to increase cooperation. Psychopathology status was determined by MMPI profiles.

Cooperation, then, in the mixed motive game of Prisoner's Dilemma is a function of the interaction of three main classes of variables: the

properties of the task (the particular payoff matrix), the personality of the players, and the characteristics of the situation including instructions, set, and reward structure.

Sex Differences in Game Play

The above variables are also affected by sex differences. In his discussion of the effect of personality variables on game play, under which he includes sex differences, Vinacke (1969) states that research in this area has not been systematic, in spite of a large number of studies, and the findings are contradictory. He himself has regularly found sex differences which he attributes to greater exploitativeness of males and greater accommodation by females, with the laboratory situation attenuating real differences.

Kagan and Wallach's (1964) findings suggest that females are less inclined to take risks. Girls at age 7, 13, and 18-22 are similarly accommodative, whereas males are increasingly competitive.

Marlowe studied subjects from bureaucratic compared to entrepreneurial family backgrounds, finding that males from entrepreneurial families were more cooperative than their female counterparts, with no sex difference for those with bureaucratic backgrounds. There was an interaction between family background and level of aspiration, such that realistic entrepreneurs were more competitive than bureaucrats. This difference did not hold up for maladjusted subjects who were characterized by wishful aspiration and avoidance of self-evaluation.

Authoritarianism was found to interact with sex (McKeown et al., 1967), especially for what was called a "masochistic pattern." The game was an asymmetric matrix which gave one player a power position relative

to the other, that is, matrix entries gave him the larger payoff. In this situation, cooperation decreased when players were shifted to the strong position. There was an interaction with sex, such that highly authoritarian males were found to be the most masochistic, with the opposite true for females.

In a program of research on the developmental aspects of IE expectancy, Reimanis (1971) reports data on two hypotheses: that a warm, supportive, consistent, and stable home environment is positively related to Internal Control, and that an individual's observation and experience of behavior effect contingencies give rise to more internality. In general, this was supported as measured by the father's occupation, parents' positive view of child's behavior, concern for child's welfare and future, the degree to which punishment was planned, rather than dependent on parents' mood, and the amount of training used to control the child's feelings.

There were, however, the following sex differences. The correlation between internality and residential mobility was significantly negative for girls, and significantly positive for boys. The explanation given was that since residential mobility is most often associated with job changes for the father, the boy, identifying with him, may see the change as a step upward for the family. The girl, identifying with the mother, may experience residential mobility as creating a temporary chaos over which the female members of the family have no control.

The correlation between internality and number of children in the family was significantly negative for boys and significantly positive for girls. The explanation was that the father of a large family cannot provide enough consistent interaction for all his children. The traditional female role of dependency is thought to be less likely to be acquired in a large family.

Again, in contrast to the general findings, for third grade girls, there was a significant negative relationship between responsibility for academic success and stable home environment.

In a study of community college students, results from 47 males supported the relationship between stable home and internality. However, for females, there were only four significant relationships of the 52 items, and two were in the opposite direction. For the girl, "Having a mother who acts as if she does not care for me," and "Having a father whom I have little in common," showed a significant relationship with internality.

Reimanis concludes:

"Warm accepting families raise daughters to be more dependent on others. Boys may internalize cultural norms, which girls see as external restrictions. Where the home environment is rejecting, the daughter is forced to be more independent, and thus has to learn her own behavior-effect contingencies in order to satisfy her wants."

Children reinforced in an operant conditioning paradigm for internal expectancy, in counseling sessions, changed in the direction of greater academic effort, even though there was no achievement improvement after a year. For college students, there was a significant increase in internal expectancy during training sessions; after seven months the increase held up for males, but had disappeared for females.

Sex differences appear chiefly in experiments which leave subjects free to negotiate and reach decisions, that is, to behave in accord with their:

".....wishes, perceptions and expectations.....females represent a number of puzzling kinds of behaviors..... whereas males typically appear to treat the game as a competition in which individual gain is salient, associated with a desire to win at whatever cost, females appear to treat the game as an interaction situation in

which equitable outcomes are sought....Especially striking is the tendency by female triads to establish triple alliances and make altruistic offers, a phenomenon that almost never occurs in male triads."
(Vinacke, 1969)

He does not conclude from this that women do not enjoy competition and winning, but that their tendency in conflict resolution is to be accommodative, rather than exploiting. No male subject (total N = 422) gave this experimenter the reason for cooperation given by a female subject: "Since he wanted to win so much, since it was so important to him, I wanted him to win."

Cross cultural studies of game play underscore the importance of socialization. For example, the play of Micronesian triads (Saunders, 1960) is more accommodating than the most accommodating of American female triads and less exploitative than any American male triads. Vinacke's comment on one study is worth noting: "All subjects were of Japanese ancestry, a fact that makes the results hard to interpret."

In a prior study for the present thesis, male and female subjects were asked for their one trial, or normative solution to Prisoner's Dilemma given six conditions of their perception of the intentions of the other (Aggressive, Vindictive, Cooperative, Dependent, and Double Bind, with a control condition of no information). Collapsing the six conditions to three (maximum ambiguity about the intentions of the other, maximum certainty of cooperation, and maximum certainty of exploitation), no differences were significant for men. The reality of the payoff matrix seemed to control their choices. Women, however, changed their per cent of cooperative choice as a function of the perceived intention of the other at extremely high levels of significance. Both sexes showed the

greatest increase in per cent of cooperative choice from a chance level of 50% in the double bind, that is, maximally ambiguous condition.

In summary, Prisoner's Dilemma is considered established as a "meaningful avenue to the empirical treatment of problems of conflict..... Games are social interaction situations in which negotiation is a crucial feature.....where it is permitted to occur, personality variables very probably will emerge more sharply." (Vinacke, 1969) An additional caveat is that generalization from laboratory findings should not be made without regard to group size; for example, male groups have been found to be increasingly competitive with size.

Thus the decision to be cooperative in an interpersonal relationship is related conceptually and empirically to the IE Control dimension, while the meaning of this dimension does not seem to be the same without regard to sex. Furthermore, the relationship of IE Control to psychological effectiveness and health needs to be clarified.

The experimental variable of the study is a replication of Rotter's finding of the differential effect of a skill or gambling instruction on the behavior of Internals and Externals in laboratory achievement situations (Rotter and Mulry, 1965). This paradigm is modified in that the task is an interpersonal conflict resolution game (Prisoner's Dilemma) to be presented as subject to the exercise of interpersonal skill, with the subjects paid for their time, or as a gambling game with New York State Lottery tickets to be won or lost. Male-male, female-female, and male-female Internal and External pairs made 100 cooperative or exploitative choices in Prisoner's Dilemma (n = 120 subject pairs), under one instruction or the other. These differences in the situation were expected to be differentially motivating for the two

personality orientations: the expectation for Internal or External control of reinforcement.

Interaction of IE pairs was not the concern of the study. Its aim was clarification of the meaning of Internal and External control for men and for women, and its relationship to interpersonal relations and psychological effectiveness. Therefore, subjects were restricted to the extremes (in IE scores) of a somewhat homogenous sample in order to highlight differences on this dimension.

Hypotheses

1. When an interpersonal conflict resolution game (Prisoner's Dilemma) is structured as skill-controlled by the experimenter compared to chance-controlled, both male and female Internal subjects will make more active attempts to lead the interaction in the direction of maximized joint gain, than they do when Prisoner's Dilemma is presented as a gambling game whose outcome is determined by chance.

2. External male subjects are not affected by the structuring of the game by the experimenter and will play competitively, uncooperatively, and exploitatively.

3. External female subjects will play with more variability than all other subjects, with some modification of these extremes under the skill but not the chance condition.

4. Among males, External Control is positively related to the personality variable of suspiciousness and distrust.

5. Among females, External Control is positively correlated with distrust, but significantly less so than for males.

6. Internal Control and trust are positively correlated with psychological effectiveness.

7. External subjects will show a greater degree of psychopathology on clinical measures than will Internals.

Chapter II

Methods and Procedure

The Sample

Subjects were selected from undergraduate psychology classes at City College, CUNY, on the basis of scores on Rotter's IE Scale. The intent was to exclude the middle 68%, or one sigma range from the mean, in order to study subjects who were clearly Internal or External. (Total N: 435 males and 381 females.) Score range for Internals was zero to nine, and for Externals, 15 to 23. Students represented all the ethnic, socio-economic, and religious diversity of the city of New York. The 240 subjects thus selected were randomly assigned to pairs and to the conditions of the experiment.

Experimental Design

Sixty Internal pairs and sixty External pairs were formed such that 20 were male-male pairs, 20 were female-female pairs, and 20 were mixed sex dyads. Figure 1 is a diagram of the experimental design.

Figure 1
Diagram of Experimental Design

Data Analysis: 2 X 2 X 3 Analysis of Variance				
	Skill	Condition	Chance	Condition
Sex of player pairs	Internal	External	Internal	External
Male-Male	n _j = 10	10	10	10
Female-Female	10	10	10	10
Male-Female	10	10	10	10
N _{TOT} = 120 pairs		Subject Total = 240		

Experimental Scales: Administration

All students took the IE scale in introductory psychology classes. It was presented as part of a lecture on either principles of psychology test construction or elementary statistical concepts. Students were to fill in the questionnaire and score their own scale before discussion. Telephone numbers were obtained (post test), and students told they might be asked to participate in either a gambling or a social interaction dissertation experiment.

Rotter's Interpersonal Trust Scale (1967) was administered to students in one of two ways: either just before the experimental session, without comment by the experimenter, or in conjunction with classwork as described above. The reason for the difference was to have IT scale information on a larger portion of the correlation between IT and the IE scale, in order to assess the correlation between the two scales for the extremes of the IE distribution. The possibility of a triangular correlation for the larger sample can then be discounted.

The purpose of the administration of the IT scale was to provide a measure of predisposition toward trusting interpersonal relations, independent of the experimental situation. This is an attitude scale tapping the subject's belief or expectation that others, persons or institutions, can be relied upon. Evidence for the stability of the IT scale score over time and different methods of administration is excellent (Rotter, 1967), therefore, no effect of this difference was expected.

The MMPI was given at the conclusion of the experimental session if the student's schedule permitted it. If not, he was permitted to take it home and return the completed IBM answer sheet. The Dahlstrom and Welch Handbook (1960) indicates no difference for the two types of administration. The following ten measures from the MMPI scales were used to assess psychological status:

1. Sigma score range above the mean (1 to 5).
2. Number of critical items (zero to 38).
3. Barron's Ego Strength Scale (Es). Standardized by Hathaway and Briggs as a broad measure of adaptability, personal resourcefulness, and effective functioning.
4. Control (CN). (Standardized by Hathaway and Briggs). These items discriminate hospitalized patients from those with the same profiles who are outpatients. High score represents control of emotional difficulties. They are realistic, relatively sophisticated, and aware of their own problems.
5. Maladjustment (MT). This research scale discriminates maladjusted college students who require psychological help from those who do not.
6. Factor A. (Standardized by Hathaway and Briggs). A set of interrelated items reflecting anxiety, discomfort, and emotional distress.

7. Paranoia (PA). The only one of the original ten clinical scales to be used in the study is the Paranoia Scale because of its relevance to an understanding of the External attitude and interpersonal distrust.

8. Prejudice (Pr). (Standardized by Hathaway and Briggs). These items differentiate persons high and low on a measure of antisemitism. Content suggests a bitter, distrustful, resentful, and constricted person who becomes a social isolate as a result of these traits.

9. Masculine-Feminine Interests Scale (MF).

10. Dependency (Dy). (Standardized by Hathaway and Briggs). High scores are obtained by psychiatric and ulcer patients. Content reflects feelings of inadequacy, low self-confidence, conformity, and passivity.

The Experimental Situation - Procedure

The subjects were introduced. Close friends were rescheduled, but acquaintances were retained as pairs. Not only were they naive, but the experimenter at the time of the laboratory session could identify them by name only so that she was not aware of their IE status. The experiment was introduced either as a social interaction or gambling study for the pair.

The room set-up included a standard office table, three chairs and a two-sided center display of the payoff matrix of Prisoner's Dilemma, with the four possible outcomes to each subject clearly visible for reference, three cash boxes, and a small tape recorder. A running score was not available to subjects and was not given on request. The diagram (Fig. 2) was reversed for the two subjects, so that color keying and instructions were geared for each. The following is the diagram and instructions for B.

You are B. You choose either Column 1 or 2. This diagram shows the four possible outcomes of your choice to you and to A. Your outcome is above the diagonal. Choice is simultaneous, independent, and with complete information.

Figure 2

Diagram of the Payoff Matrix

		B	
		1	2
A	1	+1 ----- +1	2 ----- 0
	2	0 ----- 2	-1 ----- -1

Care was taken through demonstration to insure that each subject understood the consequences to himself and to the other of his choice.

In front of each was a cash box with 100 pennies; in front of the experimenter, a box with 300 pennies. In the Skill Condition, the pennies were tokens. In the Chance Condition, the pennies represented counters toward lottery tickets. In both cases, actual play of the four outcomes, with exchange of pennies between the boxes was used to demonstrate the outcomes. During this period the aim of the experimenter was to establish rapport with the subjects, alleviate anxiety, and make certain that the outcomes were understood. Procedure was as flexible as necessary to accomplish this aim.

The subjects were then taken into another room to play a series with the experimenter to "make sure they understood the choices." The purpose was a measure of disposition toward cooperation against two programmed strategies of experimenter, cooperative and uncooperative. Each subject

played ten trials against a cooperative experimenter and ten trials against an uncooperative experimenter, randomized across subjects.

The instructions emphasized understanding the four possible outcomes resulting from the two independent choices. "You must share the control of what happens to you with another person who has equal power over the outcome."

In the experimental session itself, Prisoner's Dilemma was then presented as either Skill- or Chance-controlled by tape. In general, the tone was neutral with wording selected to reiterate the particular set. The experimenter was extremely careful in both conditions not to use casual wording incongruent with the conditions; for example, words such as "players," "game," and "payoff" were to be avoided or used. In the Skill condition, pennies were presented as counters representing utility or value of the outcome, rather than as a concrete amount to be won or lost. Pay was independent of their choices. Prisoner's Dilemma was to be presented as a laboratory analogue of many kinds of situations requiring interpersonal skill.

In the Chance condition, Prisoner's Dilemma was structured as a gambling game with pennies to be escalated into New York State Lottery tickets, or lost.

In both conditions subjects were started with 100 pennies. Without this, 100 trials per subject pair might not be possible. The intent was to replicate the idea that persons come to an interpersonal encounter with something to lose as well as something to gain.

The series was then begun with the statement that there would be 100 trials, with breaks between them. No information was given as to cumulative score, but questions as to the number of trials remaining were

answered. Subjects were left to make their own assumption about the nature of permitted communication during the breaks, or the play.

The series was run with interaction during the breaks recorded by tape, in the following format:

10 trials.	30 second break.	
10 trials.	30 second break.	
10 trials.	2 minute break.	Experimenter encouraged interaction by restating permission, commenting on their exceptional silence, etc.
20 trials.	1 minute break.	Experimenter again encouraged interaction if there had been none.
20 trials.	1 minute break.	No further intervention.
10 trials.	30 second break.	
10 trials.	30 second break.	Experimenter announced the last 10 choices.
10 trials.		

The intervention procedure was in the same tradition as the Wechsler administration of the Similarities sub-test, in which the subject is encouraged twice to respond to the set, and then is left to follow his own preference. An effort was made to maintain the interaction at as low a level of anxiety as possible, by the establishment of sufficient rapport before this series was run.

At the conclusion of the 100 trials, the experimenter recorded a structured interview with both subjects present. The intent was to elicit free, undefensive response, covering the following content:

1. A rationale statement from each subject as to why and how he chose his strategy of play. These were scored for three motives: maximize own gain, relative gain, or joint gain.
2. A religious statement: "How would you describe yourself if asked if you are religious? An atheist? Agnostic?" If this was not sufficient to elicit response, a further inquiry of the following sort was made: "I don't necessarily mean conventionally religious. Would you say you

have any kind of trust or faith in something outside of yourself?" The purpose of the inquiry was to assess generalized trust.

3. A trust statement: "How many times would you trust a friend who let you down?"

4. Preferred risk strategy: "Have you ever gambled?" Various locations were suggested if necessary. "Do you like to gamble? How do you figure your bets? Do you play long shots, chalk, or the names of relatives?" If the subject claimed he had never gambled, a question of study habits was included: "If you don't have time to prepare adequately for an exam that is important to you, and you know what type of exam it will be (essay, short fill-in, multiple choice), how would you use the time that you do have?" If necessary, choices were suggested. Questions were aimed at the subject's typical attitude and behavior in situations of risk and importance.

At the conclusion of the session, subjects' questions were answered if this could be done without jeopardizing the security of the experiment.

Each subject was then to fill out an MMPI answer sheet, which was computer-scored and computer-interpreted by Roche Psychiatric Service Institute, Nutley, New Jersey. The session concluded with subjects' payment according to the condition to which they were assigned.

Chapter III

Results

The total sample from which the subject population was selected (Rotter's IE Scale) included 435 males and 381 females; total 816. Mean score for males was 12.28, with a standard deviation of 4.65. Mean score for females was 11.34, with a standard deviation of 4.58. This difference is significant at the $p .006$ level of confidence. ($t = 2.88$)

A total of 371 persons filled out the Rotter Interpersonal Trust Scale. For 176 females the mean was 62.89, with a standard deviation of 9.3. For 195 males the mean was 62.68, with a standard deviation of 10. There is no sex difference in Trust as measured by this instrument for the larger sample.

The experimental group was composed of persons (Internals) with scores of zero to 9 on the IE scale and persons with scores of 15 to 22 (Externals). Although one subject of the 816 scored zero, no one obtained the maximum score, 23, meaning that all items were answered in the direction of no influence on outcomes to the self. For Means and Standard deviations for the male and female Internals and Externals, see Table 1.

TABLE 1
 Mean and Sigma, IE and IT Scale
 for the Four Experimental Groups

		Internal Males	Internal Females	External Males	External Females
IE Scale	M	6.37	6.89	17.92	18.12
		2.12	2.37	1.74	1.83
IT Scale	M	65.83	67.13	61.24	58.86
		9.47	10.64	9.23	6.25

The correlation for the pilot sample of this study was the same obtained by Rotter, $r = -.29$, of the IE and the IT Scales. Table 2 shows this correlation for the four groups of the experiment.

TABLE 2
 Correlation of the IE and IT Scales
 for the Four Experimental Groups

$n=240$ $n_j=60$

	Internal	External
Male	$r = - 0.04$	$r = - 0.07$
Female	$r = 0.25$	$r = - 0.18$

The correlation for female Internals approaches significance ($r=0.27$ at the $p<.05$ level of confidence) and is in the opposite direction from that for the entire distribution. The correlation for External females is in the expected direction. The correlation for males is approximately zero. Testing differences between the correlations, two at a time, female Internals are significantly different from female Externals. ($p<.05$). No other differences are significant.

The first part of the experimental session was the familiarization series for the two Prisoner's Dilemma choices and the four possible outcomes of those choices. In random order, each subject played against a stable strategy of the experimenter, 10 cooperative and 10 competitive trials. The results of a 2 x 2 multivariate analysis of variance, using per cent of cooperative choice as the measure for the factors of sex and control, are presented in Table 3. The statistic asks the question: Do the two scores for each subject (per cent cooperative choice against a cooperative compared to a competitive strategy) differ significantly as a function of sex or control?

TABLE 3

Cooperative Choice Against Two Known
Strategies of the Experimenter

$N_{TOT} = 240$	$N_j = 60$	Coop.	E	Uncoop. E
Internal	Females	M	50% 22%	54% 19%
External	Females	M	46% 18%	50% 18%
Internal	Males	M	49% 25%	45% 21%
External	Males	M	51% 19%	51% 18%

Table 4 shows the F values for the tests of the main factors and their interaction.

TABLE 4
 Multivariate Analysis of Variance for
 Cooperative Choice Against a Known Strategy

Sex	M.S.	F	P <
Male	200.68	0.45	0.50
Female	492.50	1.39	0.24
		Overall 1.23	0.29
<hr/>			
Control			
Internal	112.14	0.25	0.62
External	8.45	0.02	0.87
		Overall 0.70	0.50
<hr/>			
Interaction Sex and Control			
Control	515.20	1.16	0.28
Sex	1299.99	3.66	0.057
		Overall	0.14

No differences were significant, although females tend to decrease risk by playing cooperatively against an uncooperative examiner. Internal males tend to return competitiveness, and there is no change for External males.

Correlating each person's per cent of cooperative choice with a cooperative experimenter compared to that with an exploitative experimenter, the data indicate that Internals are relatively uninfluenced by the strategy of the other (the correlation between their choices in the two conditions is significantly higher); correlation between the choices of Externals in the two conditions is only random. They are more apt to change in cooperation as a function of the strategy of the other person, but not necessarily in a given direction.

It should be remembered that these data are based on a short run-- the 20 preexperimental familiarization trials. Table 5 presents these data.

TABLE 5
 Correlation of Subjects' Choice Against
 a Cooperative and an Uncooperative Experimenter

Control	Sex	E Coop.	E Uncoop.	r	P <
Internals	Females	50%	54%	r .46	.01
	Males	49%	45%	r .32	.05
Externals	Females	46%	50%	r .14	n.s.
	Males	51%	51%	r .06	

$N_{TOT} = 240$

$N_j = 60$

At issue in this study is the relationship between a behavioral measure of trust and an attitude measure. Do people in fact practice the attitudes they endorse on paper-and-pencil questionnaires? For the four groups of the present study, Table 6 presents for each group the Trust Scale score and the actual per cent of individual cooperative choice in interaction with another person. For the experimental groups separately, the correlation is insignificant; in fact, close to zero. The correlation for the entire distribution is $r = .06$, N.S.).

TABLE 6

Correlation of Trust as Measured by Attitude Scale
to Behavior in an Interpersonal Game: Prisoner's
Dilemma for the Four Experimental Groups

		Internals		Externals	
		Male	Female	Male	Female
Interpersonal	M	65.83	67.0	61.24	58.86
Trust Scale		9.47	10.57	9.23	6.25
Coop.Choice					
<u>Prisoner's</u>	M	61%	62%	54%	51%
<u>Dilemma</u>		28%	25%	19%	20%
	r	0.07	0.01	- 0.07	0.11
	p	n.s.	n.s.	n.s.	n.s.

The main test of the experimental condition, a 2 X 2 X 3 analysis of variance, indicated no effect for the Skill compared to the Chance condition. IE Control and Sex of the player pairs were both significant for the pair at the $p < .02$ level of confidence. The triple interaction was not significant ($p < .07$). Thus, although other experiments show a significant effect of Chance and Skill set for Internals and Externals, personality variation overrides situational determinants, where the experimental design makes it possible to demonstrate this. Table 7 shows the mean per cent of cooperative choice over 100 Prisoner's Dilemma trials for the male-male, female-female, and male-female Internal and External dyads playing under a Chance or Skill instruction.

TABLE 7
Cooperative Choice Over 100 Trials of Prisoner's Dilemma

	<u>Skill</u>		<u>Chance</u>	
	I	E	I	E
MM	30%	31%	49%	28%
FF	36%	26%	43%	25%
MF	67%	37%	44%	47%

Standard deviation in each cell: 17 to 35 %

Mean for all subject pairs under the Chance condition was 39% cooperative choice; under the Skill condition it was 38%. Mean cooperative choice for Internal pairs was 45%; External pairs were cooperative 32% of the time. Male-male dyads cooperated 35% of the time; female-female pairs, 33% of the time, and male-female pairs, 49% of the time.

Internal male and female pairs were more competitive under a Skill instruction. External male and female pairs were relatively uninfluenced by the experimental condition under which they played.

In contrast to this, the male-female Internal pairs were strikingly more cooperative under the Skill instruction than either male or female pairs. In fact, male-female pairs overall were more cooperative than all combinations except male Internals playing under a Chance set. Table 8 presents the Analysis of Variance for the experimental condition.

TABLE 8
 Analysis of Variance: Experimental Condition
 Skill cp. Chance

Source	SS	DF	MS	F	P
Within Cells	88773.41	112	792.62		
Chance-Skill	90.38	1	90.38	0.11	0.74
IE Control	4415.36	1	4415.36	5.57	0.019
Sex-MM,FF,MF	6255.84	2	3127.92	3.95	0.02
CI	8.19	1	8.19	0.01	0.92
CS	1277.55	2	638.77	0.81	0.45
IS	95.39	2	47.69	0.06	0.94
CIS	4439.51	2	2169.76	2.74	0.07

Since neither the double nor the triple interactions are significant, the effects of two of the main factors can be generalized. Co-operativeness of player pairs is significantly affected ($p < .02$) by the sexes of the player pairs and by the Internal-External Control status. Mixed-sex dyads are more cooperative than like-sex pairs. Internal pairs are more cooperative than Externals. Male-female Internal pairs are the most cooperative of all.

Repeating the comparison, this time using as the measure of cooperative behavior the number of times per hundred that each individual in the experimental session made the cooperative choice, rather than the number of times the pair achieved a joint cooperative choice, Internals were more cooperative at the $p < .004$ level of confidence. Tables 9, 10, and 11 present these data.

TABLE 9
Individual Cooperative Choice Over
100 Trials of Prisoner's Dilemma

	Skill		Chance	
	I	E	I	E
Males	58%	54%	64%	55%
Females	63%	50%	59%	51%

Standard deviation each cell: 18 to 25% N=240 nj=30

TABLE 10
Mean Cooperative Choice for Each of the Factors

Sex	Experimental Set		Control	
Females	56%	Skill 57%	Internal	61%
Males	58%	Chance 57%	External	53%

Internal-External Control determines cooperation, with very little effect for either sex or experimental condition. Table 11 summarizes this comparison.

To assess the possibility of differential contribution of individual cells to the main effects, two additional tests were computed, Scheffe and Newman-Keuls. These comparisons treat the means as separate treatments in a one-way analysis of variance. None of these differences were significant. Because of the large N and the superior power of the factorial design, the analysis of variance of Table 11 is highly significant ($p = .004$). Thus predisposition toward cooperation, expressed in cooperative choice, is determined by personality, rather than sex or situation.

TABLE 11
 Analysis of Variance for Individual
 Cooperative Choice - 100 Trials

Source	SS	DF	MS	F	P <
Within	127,596.33	241	529.45		
Chance-Skill	35.62	1	35.62	0.067	0.795
Internal-Ext.	4,451.56	1	4451.56	8,407	0.004
Sex	216.31	1	216.31	0.408	0.523
CI	0.106	1	0.106	0.000	0.99
CS	275.76	1			0.479
IS	330.00				0.430
CIS	459.36				0.352

It is interesting to note that the group operating 61% of the time, achieved joint cooperation outcome to both persons only 45% of the time. (Data derived from Tables 7 and 10, averaging over sex of the player for the experimental condition for the latter figure.)

Each subject in the study was asked to fill out an MMPI; many did so at the end of the experimental session; others returned them at their convenience. Out of a possible 240, 181 were returned and were computer-scored and analyzed by Roche Psychiatric Service Institute. N in each cell ranged from 42 to 49. A 2 X 2 multivariate analysis of variance was performed. For each subject in each of the four groups, male and female Internals and Externals, ten dependent scores were utilized.

These were:

1. Number of standard deviations above the mean for the highest score or scores.
2. Number of critical items of 33 considered pathognomic by the Roche Service, based on MMPI research.
3. ES. Barron's Ego Strength Scale developed to measure response to psychotherapy. The correlates of the scale suggest that it also provides a rough estimate of adaptability, personal resourcefulness, and effective ego functioning.
4. CN. Caudra's Control Scale, developed to differentiate identical profiles of outpatients compared to inpatients, as an empirical criterion of control of emotional distress. Realistic self-appraisal seemed to characterize those who could function on an outpatient basis.
5. Mt. This Maladjustment Scale discriminates a normal college population from those in need of treatment.
6. A. Derived through factor analysis, this scale measures difficulty in thinking, including slowness, inability to concentrate, doubt, dysphoria, lack of energy, pessimism, and personal sensitivity. Anxiety is prominent.
7. Pa. This scale is a measure of overt and blatant paranoid symptomatology. High score indicates willingness to admit to such items, including ideas of reference, feelings of persecution, grandiose self-concept, suspiciousness, interpersonal sensitivity, and rigidity of opinions and attitudes. The scale misses cautious paranoids, but there are few false positives.
8. Pr. Gough's Prejudice Scale. This scale, validated against the Anti-Semitism Scale (Adorno, et al., 1950), indicates a resentful, querulous, constricted, disillusioned, embittered, distrustful, rancorous, and apprehensive person. These traits are almost paranoid in intensity, lacking only excessive circumstantiality and self-delusion.
9. MF. A scale developed on the basis of interests of homosexual compared to heterosexual men. The scale correlates highly with one that differentiated female homosexuals from heterosexuals.
10. Dy. Dependency. High scores are more characteristic of ulcer and psychiatric patients than of normals. Items suggest inadequacy, low self-esteem, conformity, passivity, and overdependence.

Table 12 presents the basic data for this analysis. (Table 13 presents a verbal summary of Table 12.) Table 14 shows the overall significance for each of the factors, and their interaction. Since the

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It is interesting to note that individual Internals, cooperating 61% of the time, achieved joint cooperation and a favorable outcome to both persons only 45% of the time. (These figures are derived from Tables 7 and 10, averaging over sex of the player pairs and experimental condition for the latter figure.)

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Table 12 presents the basic data for this analysis. (Table 13 presents a verbal summary of Table 12.) Table 14 shows the overall significance for each of the factors, and their interaction. Since the

interaction of IE Control and Sex is not significant, the effects of the main factors can be generalized. Both sex of subject and IE Control are significantly different for the vector of 10 scores at the P .001 level of confidence. Tables 15, 16, and 17 present the univariate F tests for the main factors and their interaction.

Table 12 indicates that, using score range as a criterion, the males of the study are more disturbed than the females. Using the number of critical items as the measure, Internal females show the least pathology of any of the groups, and External females the most. Corroborating this, Internal females are far ahead of all other groups in Ego Strength. However, males show the most control of emotional distress, and females, particularly Internal females, the least. In maladjustment compared to other college students, External females are the most maladjusted, and Internal females the least. Where anxiety is the measure, Internal females are the lowest scorers of all three, either experiencing or admitting to less anxiety than the others. Internal females are the least paranoid, and Internal males the most. External females are the most prejudiced, and Internal females are the least. All of the males of the study are extremely high in opposite-sex interests compared to the standardization sample; however, this is fairly typical of college-educated males, and no inference of homosexual concerns is warranted on this basis alone. Both female groups score below the mean in interests of the opposite sex. In Dependence, Internals, particularly females, score lowest, and Externals score highest.

TABLE 12

Means and Sigmas of the Four Groups on the 10 MMPI Measures

		1	2	3	4	5	6	7	8	9	10
	n	Score Range	Critical Items	Ego Strength	Control	Malad- justment	Anxiety	Para- noia	Pre- judice	Masc.- Fem.Int.	Depend- ence
Internal	47	M 2.40	3.21	60.70	54.96	61.71	45.81	55.62	45.77	46.28	45.49
Females		0.80	2.53	8.11	12.32	13.80	9.20	8.27	8.5	9.95	9.93
Internal	43	M 3.40	4.86	54.53	60.65	68.07	54.53	59.09	50.21	70.33	52.84
Males		1.16	3.94	9.65	12.91	13.01	10.87	12.67	7.84	9.80	9.92
External	42	M 2.41	5.26	53.83	62.74	71.60	54.36	57.45	53.14	44.52	54.71
Females		1.27	4.40	10.95	9.67	15.01	10.66	11.10	8.47	7.17	9.69
External	49	M 3.20	4.80	54.31	65.00	69.82	55.73	56.63	50.63	71.63	54.84
Males		1.29	4.00	9.86	11.99	15.66	12.62	11.33	9.93	10.21	11.67

$N_{TOT} = 181$ Measures 3-10 are K-corrected T scores

TABLE 13

Group MMPI Differences:
Verbal Summary of Significant Differences

Measure MMPI	Males		Females	
	Internal	External	Internal	External
Score Range	1	Most Disturbed		
Critical Items	2		Least Pathol.	Most Pathol.
Ego Strength	3		Most Ego Str.	
Control	4	Most Control		Least Control
Maladjustment	5		Least Mt.	Most Mt.
Anxiety	6		Least Anx.	
Paranoia	7	Most Paran.		Least Paran.
Prejudice	8		Least Prejud.	Most Prejud.
M-F Interests	9	High Opposite-Sex Interests		Low Opposite-Sex Interests
Dependence	10		Least Depend.	

TABLE 14
Multivariate Analysis of Variance:
MMPI Data

Factor	F	Df Hyp.	Df Error	P	R
IE Control	3.421	10	168	0.001	0.411
Sex of Subject	33.843	10	168	0.001	0.817
Control X Sex	1.299	10	168	0.234	0.267

TABLE 15
Univariate F Tests of the Control Factor

MMPI Measure		F	Mean Square	P	
Score Range	1	0.06	0.08	0.80	n.s.
Critical Items	2	3.27	46.25	0.07	Ext.=More Crit. Items
Ego Strength	3	6.52	608.66	0.01	Int.=More Ego Strength
Control	4	12.77	1783.55	0.001	Externals= More Control
Maladjustment	5	7.52	1571.33	0.006	Externals= More Maladj.
Anxiety	6	9.93	1186.69	0.001	Externals= More Anx.
Paranoia	7	0.03	3.22	0.869	n.s.
Prejudice	8	8.98	689.05	0.003	Ext.=More Prejudiced
M-F Interests	9	9.94	82.98	0.334	n.s.
Dependency	10	14.0	1511.81	0.001	Ext.=More Dependent

TABLE 16
Univariate F Tests of the Sex Factor

MMPI Measure		F	Mean Square	P	
Score Range	1	27.57	36.09	0.001	Males=Higher Score, More Pathology
Critical Items	2	1.10	15.54	0.295	n.s.
Ego Strength	3	3.88	362.36	0.05	Females=More Ego Strength
Control	4	5.09	710.98	0.025	Males=More Control
Maladjustment	5	1.12	234.28	0.291	n.s.
Anxiety	6	9.58	1144.39	0.002	Males=More Anxiety
Paranoia	7	0.66	78.60	0.418	n.s.
Prejudice	8	0.53	41.04	0.465	n.s.
M-F Interests	9	332.80	29501.52	0.001	Males=More Opp.-Sex Int.
Dependency	10	5.81	624.50	0.016	Males=More Dependent

TABLE 17
Univariate Tests for Interaction of CS

MMPI Measure		F	Mean Square	P <
Score Range	1	0.32	0.42	0.57
Critical Items	2	3.56	50.34	0.06
Ego Strength	3	5.32	496.78	0.02
Control	4	0.95	132.70	0.33
Maladjustment	5	3.58	747.79	0.06
Anxiety	6	5.09	608.51	0.03
Paranoia	7	1.74	207.92	0.19
Prejudice	8	1.19	544.81	0.008
M-F Interests	9	5.47	105.49	0.27
Dependency	10		588.24	0.02

Table 15 shows which of the scores of the vector are significantly different for Internal-External Control. Externals endorse more critical items, are more maladjusted, suffer more anxiety, are more prejudiced, more dependent, and have less ego strength than Internals. For this college-age sample, at least, they also exhibit more control of emotional difficulties.

Table 16 indicates the measures that are significantly different as a function of sex. The males of the study have higher T scores, less ego strength, more control of emotional difficulties, more anxiety, more dependency needs, and more opposite-sex interests than the females.

Table 17 shows that, although for the vector control X sex as a whole, the interaction is not significant, four of the scales show the

effect of the main contribution to the significance of the IE control factor to be due to the extremely deviant scores of the female Internals. The measures so affected are the Ego Strength, Anxiety, Prejudice, and Dependency Scales.

Following each experimental session, subjects were asked to express their strategy choice in words or, if they could not, to state a preference for maximizing joint gain, their own gain, or gain in relation to the other, even if this meant that both lost. N for this comparison is 187, and the Chi Square is not significant. Table 18 gives the cell frequencies.

TABLE 18

Stated Strategy Preference on Prisoner's Dilemma

Subjects		MJG	MOG	MRG
Male	I	24	10	8
	E	21	12	9
Female	I	20	18	12
	E	33	9	11

An attempt was made to determine trust by asking the number of times each subject would allow himself to be let down in something important by a close friend and still trust again. Subjects varied from, "Let me down once, and you're through," to "There are really no circumstances under which you reject a true friend even if he or she lets you down." Needless to say, the majority of persons were inclined to trust again from one to five times, but there were no significant differences using either Chi Square or analysis of variance for the four groups of the experiment.

Since Rotter's data in developing the Interpersonal Trust Scale (1967) indicated that belief in God was part of a generalized predisposition to trust, subjects were asked, in the postexperimental interview, so as to elicit, but not suggest, belief or nonbelief in a power outside of oneself. Table 19 gives the cell frequencies for six categories of statements:

1. Avowed atheist. No belief in powers of any kind.
2. Agnostic. Power, if it exists, is impersonal, embodied in nature.
3. There is a power of God or goodness in people.

These three categories were considered to be nonbelief in a conventional sense.

4. An impersonal creator, neither interested nor powerful enough to care about people or to intervene in their behalf.
5. Belief in a personal relationship with God or such a power.
6. The belief that God intervenes actively in the events of this planet.

The latter three categories were considered to be categories of belief, although the classification could certainly be argued. Indeed, it was set up more to assess trust than to attempt to categorize degrees or quality of faith.

TABLE 19

Belief in God or a Power Outside of the Self

		No Belief			Belief		
		1	2	3	4	5	6
$N_{TOT}=196$							
Male	I	12	21	2	3	5	1
	E	6	19	9	6	7	15
Female	I	10	13	6	1	5	7
	E	2	23	9	1	8	5

The results of the Chi Square comparison are as follows:

Chi Square = 32.5872, with DF = 15

Yates Corr = 8.23661

Chi Square Corr = 24.3505

P < .005 uncorrected

P < .05 corrected

Contingency Coefficient C = 0.37757

C Corr = 0.33243

C Max = 0.86603

Cohen's E = 0.16626

Cramer's Phi' = 0.23542

Since any rationale for these categories as constituting an interval scale would be considerably strained, no further analyses were performed. Cell entries are significantly different from chance expectancy. It is clear that traditional belief is not characteristic of this polyglot population, with the exception of male Externals. Collapsing the table to two belief categories is presented in Table 20.

TABLE 20
Belief and Nonbelief of the Four Groups

	No Belief	Belief
MI	35	9
ME	34	28
FI	29	13
FE	34	14

The Chi Square value for this table is significant at $P < .05$ for the uncorrected value, but not significant ($P < .10$) for the corrected value.

Finally, an attempt was made in the interview sessions to assess each subject's characteristic strategy of risk. Questions attempted to elicit general statements and to suggest concrete instances of risk behavior for the subject to consider. A four-point scale was set up as follows:

1. No risk or minimum risk. Statements included: Never take a chance, bet on sure thing only. Don't like to bet. Wouldn't even bet someone else's money.
2. A small calculated risk. For example: Play the favorite to show. The student of the racing form who bets carefully with a reasonable system.
3. Middle Shot. Would bet on 50-50 odds, to place or show, a small amount.
4. Long Shot Players. Plungers. Daily Double. Bet pretty names, etc.

The N for this comparison is 173. Table 21 shows the cell frequencies for the four experimental groups.

TABLE 21
Four Strategies of Risk

		1	2	3	4
Internals	Male	17	6	3	9
	Female	20	4	4	17
Externals	Male	11	12	9	18
	Female	14	9	4	16

Chi Square for this datum is not significant; however, treating these categories as a rough scale and computing a 2 X 2 analysis of variance, there is no significant sex difference, IE control is significant at the $p < .01$ level of confidence, and the interaction is significant at the $p < .05$ level.

Table 22 summarizes this comparison.

TABLE 22
Preferred Strategies of Risk
as a Function of Control and Sex

Source	SS	Df	MS	F	P <
IE Control	13.79	1	13.79	8.21	.01
Sex	0.23	1	0.23	0.14	n.s.
Control X Sex	6.97	1	6.97	4.15	.05
Within	290.77	173	1.68		

The means on which the above analysis was based are shown in Table 23:

TABLE 23
Means of Risk Strategies for the Four Groups

Group	n	Strategy of Risk Mean
Male Internals	38	2.00
Female Internals	46	2.33
Female Externals	43	2.49
Male Externals	50	2.96

Thus, Internals are choosers of the minimum, carefully calculated risk typical of the Need Achiever. Externals move in the direction of the moderate-to-extreme risk.

This concludes the presentation of data for the experiment.

Chapter IV

Discussion of Results

The initial finding of the present study is that the IE Scale mean is one sigma higher than was found in the original standardization study (Rotter, 1966). In addition, there was a significant sex difference, with males more External than females. Nationally, the IE mean seems to be rising (Rotter, private correspondence), and another later study (Hamscher, Geller, and Rotter, 1967) also found a sex difference at the University of Connecticut.

Two possibilities suggest themselves, neither of which was the subject of a direct test. One is that students feel increasingly helpless (from 1966 to 1970) in the grip of the Viet Nam war and in the large anonymous institutions in which they find themselves. Another possibility is that the stress of urban life, including mass transportation, breakdowns in vital services, bombings, and other civil disruptions, tends to produce the realistic expectancy that one's control is limited. What sets the City College sample apart from others is that the sex difference is in the opposite direction. Females are more Internal than males. The CCNY women's mean of 11 is the same as that of the Connecticut women, but the City College's males score two points higher in the External direction than their Connecticut brothers (Hamscher, Geller, and Rotter, 1967). The CCNY sample was characterized by extreme diversity of

population of a great city: Black, White, Oriental, Puerto Rican and Caribbean, Jewish, Catholic, Protestant, and Muslim. One student had been a Voodoo Priest; a Black female was a rabbinical student. It is not possible to assess the effects, if any, of this composition. These differences were randomized across conditions and pairs in order not to bias the experimental results.

On the Trust scale, the City College sample was like the standardization sample (Rotter, 1967) in that there were no sex differences, but differed greatly from it in level of Trust. City College men and women obtained a mean of 62.8 compared to a mean of 70.3 for the Connecticut students, and 72.4 for the standardization sample. Again, one can speculate on the effect of our urban environment in which parents must teach distrust to children to protect them, and experience reinforces the necessity. In the present study, the average Trust Score for the Internals was 66.48, with no sex differences; Externals scored 60.05 on Trust. In order of most trusting, the groups are Internal females, Internal males, External males, and External females. The wider score range is shown by the women.

The correlation for the two scales for the four experimental groups (Table 2) shows one difference from the expected direction (a low negative correlation) for the Internal females. This means that the most Internal females (low scores) are less trusting than Internal females with higher scores. It should be remembered that these correlations are based on a truncated distribution, but the correlation was checked graphically, and was as expected, $r = -.29$ for the entire distribution, and not triangular.

The data for the familiarization series (Tables 3 and 4) was influenced by the capacity of the subject to grasp the alternate choices and

their consequences in a fairly short time, over 20 trials. Although IE control is not related to intelligence, and presumably trust is not either, subjects varied a great deal in the amount of time it took them to understand the game set-up. The attempt made to insure equal understanding was probably not uniformly successful and may have obscured real effects. Another possibility is that the series was not sufficiently long to show them (Rapaport, 1965).

Unpublished data from a previous experiment of the investigator based on an N of 182 found that both men ($p < .004$) and women CCNY students ($P < .0002$) were more cooperative when they had no information or were most in conflict about the intentions of the other person. Women said they were ready to retaliate ($p < .02$), regardless of the consequences to themselves, against an aggressive or vindictive partner. They ranged from 21% to 86% cooperative, as a function of the perceived intention of the other, whereas the play of men was constrained by the reality of the consequences presented in the game matrix, the same one as in the present experiment. For both sexes, uncertainty about the intentions of the other produced the most cooperative choice. This was a measure of how they thought they would act, and not a measure of behavior. Comparing the pilot study to 100 trials of actual play, there is more discrepancy for women between what they do and what they say they will do. In the present study, females tended to decrease risk against an uncooperative partner. Internal males tended to return competitiveness (Table 5).

Although Table 6 shows no significant correlation within groups, the Trust scale does predict the rank order of per cent of Individual

cooperative choice for the four groups; female Internals are first, followed by male Internals; male Externals and female Externals are least cooperative.

Hypothesis 1, that Internal pairs play more cooperatively under a Skill than a Chance set was supported only for the mixed sex pairs. Like sex pairs played in the opposite manner, more competitively under the Skill instruction. Note that the triple interaction just misses significance.

Hypothesis 2, that male External pairs are uncooperative without regard to the Chance or Skill condition is supported, but Hypothesis 3 is not. External female pairs are equally unaffected by the conditions of play (Table 7). Thus external control apparently overrides differential socialization as a function of sex.

Also unexpected was the finding that External female pairs are the least cooperative of all (see Tables 7 and 8). If dependence is a factor in producing cooperative play (Marlowe, 1963), this motivation is not aroused in an interaction between two female Externals. Except for the mixed sex pairs, Internals were more competitive in the Skill condition than in the Chance controlled situation. This finding is not in the expected direction and indicates for Internals as a whole, a conflict in motivation between the need to achieve and the predisposition to cooperate, in situations where competence motivation is aroused. The reasons for the disappearance of this conflict in the presence of the opposite sex is by no means clear. One is tempted to wonder what the course of events might be if 50% of the heads of state were women.

Considering only the individual per cent of cooperative choice data for the experimental condition (Tables 9, 10, and 11), all sex

and situational determinants washed out, and only Internal-External control was significant ($p < .004$) in determining cooperation. Thus the personality variable overrides both differential socialization of the sexes and situational determinants. Individuals, placed in a situation presented and/or perceived as Chance or Skill controlled, with a partner of the same or opposite sex are cooperative or competitive as a function of personality, and not their sex or the situation. Level of joint cooperation is a different matter, affected by both personality predisposition and differential socialization of the sexes. This finding underscores the necessary but insufficient nature of individual predisposition in producing joint cooperation.

The failure of the experimental condition to replicate previous findings using either of the above measures requires explanation. The most obvious possibility is that the condition was simply ineffective in this experimental set-up. The experimenter's impression is rather that the condition was effective in two ways, both of which worked against the hypothesis. The Internals' tendency toward cooperation and the management of the interaction to achieve cooperation was opposed by their need to achieve, to win in this context. The Skill set aroused competitive feelings, which were enhanced by the gamelike nature of the situation itself. Thus like sex Internal pairs were pushed toward increased competitiveness, in the same circumstances that led to very high levels of cooperation for mixed sex pairs. Mixed sex Internal pairs playing under the Chance condition were less affected, while like sex Internal pairs were more cooperative.

Like sex External pairs were more motivated to "win" under the Chance condition, again, an effect that is moderated in the direction of cooperation when men and women play together.

These findings underscore the near significance of the triple interaction. The sex difference is mostly a function of the increased cooperativeness of the mixed sex pairs.

These findings provide support for Terhune's finding (1968) that Internals are conditionally cooperative, meaning not inclined to cooperate unilaterally.

Analysis of the MMPI data finds both IE control and sex of subject significant at the $p < .001$ level of confidence for the vector of 10 scores as a whole. The interaction is not significant and need not be considered in generalizing the main effects (Table 14). Table 15 indicates significant differences for control on six of the ten measures. Externals have less ego strength ($p < .01$), more maladjustment ($p < .006$), more anxiety ($p < .001$), more prejudice ($p < .003$), and are more dependent ($p < .001$). Therefore, Hypotheses 6 and 7 are supported at the above very high levels of confidence. Internals are psychologically healthier on clinical measures than Externals, except for the higher score of Externals in control of emotional distress ($p < .001$). This finding is the only one that is not in the expected direction.

The most probable explanation lies in the nature of the measure, which discriminates in- from out-patients with similar MMPI profiles. Clearly, out-patient Externals should score high on control; however, the data do not offer any explanation of the fact that Internals, particularly women, score significantly lower. The major variable tapped by the scale is realistic self-appraisal, which is related to out-patient status. One possible hypothesis is that women are allowed a certain amount of loss of control of emotional distress culturally. Whether they are also in a protected position with regard to realistic self-

appraisal remains an open question. Perhaps a woman with marked need for achievement is less able to cope with a particular stress, for example, failure, does not tend to externalize the blame, and is therefore under more pressure to distort reality to protect the ego after the fact. As a need achiever, she is also inclined before the fact to assess external reality carefully so that a well calculated risk succeeds. An External attitude can serve as a protection and buffer against failure, and in a sense permit more realistic self-evaluation. In spite of the significant difference, it should be remembered that all four groups score above the mean in control of emotional difficulties.

Turning now to MMPI scales that are significantly different for men and women, scale scores of males deviate farther from the mean; males are more anxious, more dependent, have more opposite sex interests, and more control of emotional difficulties. Internal females, particularly, score highest in ego strength, but as noted above, lowest in control. In fact, Internal females on many measures are markedly different from the other three groups, a difference that is masked by the averages of the analysis. They endorse fewer critical items, are least maladjusted, least anxious, least prejudiced, and least dependent. The sex differences depend heavily on the divergence of this group from the other three. Overall, six of the ten scores of the vector are significantly different (Table 16).

Hypothesis 4, that External control is related to distrustful and suspicious personality traits for males was not supported. Considering first the Paranoia scale, with the caveat that high score depends on willingness to admit to blatant symptomatology that suspicious persons are often too watchful and cautious to endorse, Internal males score highest,

are still within the clinically normal range. Internal females score lowest (Table 12). The prejudice scale places all the males on the mean; External females are the most prejudiced and Internal females, the least. None of these differences is significant with regard to Hypothesis 5. By two other measures (individual per cent of cooperative choice and the IE scale), External females appear least inclined to trust and cooperate. The conclusion must be that the expected differential sex relationship between External control and suspicious, distrusting or paranoid tendencies is greater for males than for females (Hypotheses 4 and 5) is not supported by these data. However, prejudice, one measure of paranoid cognitive-personality style (Shapiro, 1965) is apparently related to External control as measured by the Rotter Scale ($p < .003$). Conceptually this is expected in that the behavioral manifestation, mistrust, would appear to link the two domains, as at least one empirical study confirms (Deutsch, 1960). The prejudice scale of the MMPI was validated against the Anti-Semitism scale of the Adorno "Authoritarian Personality" research (1950), a precursor of the California F Scale. Deutsch's High F scorers are uncooperative, untrustworthy, and distrusting in behavior on Prisoner's Dilemma. The fact that the rank order correlation for the four groups between IT score and per cent of individual cooperative choice on Prisoner's Dilemma, is 1 (derived from Table 6) with female Externals least trusting and cooperative on both counts, again questions but does not provide an alternative to the inferences on which Hypotheses 4 and 5 are based. The explanation may lie in the nature of the item content of the paranoia scale, which is quite bizarre, and not intended to measure a cognitive-personality style.

Additional evidence bearing on Hypotheses 6 and 7 is that Internals in the familiarization series seemed to be controlled in their play by the

reality of the payoff matrix while that of Externals is not (Table 5). Externals are untrusting as measured by the IT scale and individual and joint cooperative choice on Prisoner's Dilemma (Tables 6, 8, and 11). Externals are more dependent, more prejudiced, more anxious, more maladjusted, endorse more critical items, and have less ego strength than Internals (Table 15). Thus distrust, suspiciousness, and dependence are characteristic of Externals, and the trusting person is seen by others as more autonomous in making decisions, and as seeking less advice and help. This was Rotter's finding in the validation study of the IT scale (1967). Terhune (1968) has already described the Internal as not particularly inclined to cooperate in the absence of cooperation from the other, in spite of his predisposition toward mutual gain. He tends to use communication to influence the interaction, to employ sanctions for betrayal, and to be willing to return to cooperation when the other mends his or her ways.

Qualitative differences in the present study agree with these findings. Internals in interaction were more related to each other, in the task and interpersonally. They enjoyed the experiment and related to each other as well as to the experimenter. When cooperation was achieved they felt good. If they had tried to exploit their partner, they expressed guilt, and judged their behavior as rotten. They took an active part in investigating the parameters of the experiment, including the use of communication to turn the transaction into a mutual collaboration against the rules of the game. In fact, they wondered if they were cheating by cooperating, because they were relating as well to what they perceived as the experimenter's loss of money in the Chance condition.

The most interesting cell of the study is the Male-Female Internals playing under the Skill instruction. They reached the highest level of cooperation of any of the 12 groups: 67%. The following resume gives some flavor of these interactions:

- Pair 1: Joint Cooperation: 91%
 - Male: Cooperation is OK, but the most for yourself is better (95%) (Individual cooperation).
 - Female: Cooperation is best, but I would play competitively if (94%) he didn't cooperate.

- Pair 2: Joint Cooperation: 100%
 - Male: Led the strategy choice, suggesting variety, plus equal winnings. "It's a nice thing to do if both can win." This was a flirtatious encounter in which he said: "Take advantage of me if you want. You're a nice girl."
 - Female: The girl blushed over whether or not the boy had said, "Bet" or "Bed" partner. "He can lead as long as I benefit equally."

- Pair 3: Joint Cooperation: 86%
 - 93% Male: Pressed the girl to share equally, saying: "I want to cooperate, not tell you what to do." He used the opportunity to communicate to accuse the girl of not wishing to share if she played competitively.
 - 90% Female: She said she didn't want to be predictable. She saw the challenge and wouldn't have realized that the boy wanted to share unless he had said so. She agreed that both should benefit, although she had originally not thought of sharing, preferring the risk and challenge. "I agree with someone who is strong in his ideas."

- Pair 4: Joint Cooperation: 75%
 - 81% Male: "I'd feel bad if I got more, also, the stakes are low. I don't know her. I'm as strong as her. Who is stronger. I wonder if I'll beat her." He did not take advantage of her cooperation.
 - 83% Female: "I like to run things but I have to give in."

- Pair 5: Joint Cooperation: 90%
 - 95% Male: "I'd feel guilty if I betrayed her. I thought of it, but it seems childish."
 - 95% Female: Her idea was to get all the money from the bank. It was a spontaneous assumption that this was a collaboration against an outside

enemy, in which both were to benefit. She took the initiative in achieving this. "I could be spiteful, but there is nothing to gain by it."

- Pair 6: Joint Cooperation: 76%
 83% Male: Scolded the girl for not cooperating and suggested a payoff for both.
 83% Female: "I gave in." The pair had thought of talking to each other about cooperating, but assumed it was against the rules.
- Pair 7: Joint Cooperation: 5%
 33% Male: "I want to even it up. If we both lose, we're even...You have to let me win one first. Some one doesn't have to lose."
 "I'm bored."
 34% Female: "I usually don't care if I win. It's not good to win. I'm not competitive, bored... I wanted to beat him."
- Pair 8: Joint Cooperation: 100%
 Male: No comment
 Female: "It would have been different if I played with a girl. I don't trust girls that much...If I were a child, I'd be more aggressive if I could keep the money. Grown-ups don't play aggressively for pennies."
- Pair 9: Joint Cooperation: 28%
 58% Male: "There's more profit in cooperation because you don't lose, but I'm trying to outguess her. The pennies are not important."
 40% Female: "I rather like changes and the satisfaction of not doing what you want."
- Pair 10: Joint Cooperation: 20%
 35% Male: "I tried to influence her to play even, but it's better if I gain more." This subject lured the girl into cooperation and then betrayed her, pretended to repent, playing competitively as though by accident.
 49% Female: No comment.

The game theorists' classification of Prisoner's Dilemma as a mixed motive game receives informal validation from the above protocols. Seven are highly cooperative based on the hope of a successful flirtation, women's readiness to be led if the leader carries out her wishes also, male guilt over being competitive with a woman, the Internal woman's

disinclination to be senselessly spiteful, a common feeling that it's nice to share, provided that one gains and not loses by it in reality, and scolding of the noncooperative female, who gives in to the male. The three noncooperative interactions were a stalemate over who was to win first, a power struggle, and a psychopathic manipulation in which the winner betrayed the loser into thinking he had accidentally come out ahead.

The statements of the subjects underscore the importance of the matrix reality. Both can win, even though they may be slow to realize it. Findings should not be extrapolated to situations in which only one can survive, for example, two applicants for one job. Internals under these circumstances might be expected to behave differently, and with considerable conflict.

The lowest level of cooperation of the study occurred in the Female External pairs. Looking at the data qualitatively, comments of the pairs ran as follows. Percents represent cooperation for the pair.

"I played to punish her, but I was more comfortable about it, if I didn't look at her." (10%)

"It was piggish and I felt bad about it, but I had more to gain." (10%)

"For me to win is better than we should both lose." (7%)

Player 1:	"I expected her to let me get the most.")	
Player 2:	"I played impulsively, randomly.")	
	"I wouldn't want to kill anybody - still you feel cheap.")	(34%)

1:	"At least I'm even.")	
2:	"I would lose intentionally to the right boy. My goal is not to be influenced by the other.")	(9%)

1.	"The object is to be even.")	
2.	"You might want it all if you're greedy.")	(62%)

A non-verbal cooperation was worked out.

1. "I'm not competitive because I'm afraid of losing after I try.") (46%)
2. "I don't like to lose, but I'm lazy unless motivated.")

1. "I noticed we were both losing, so I suggested we play randomly.") (24%)
2. "Nobody wants to, but somebody has to give in, and trust first.")

- "Equal is best, it pays. There's no sense in aggression.") (54%)

1. "I'll get even. She's terrible.") (32%)
2. "It makes no difference what I put out.")

- "It's easier to work together than to go against, and hard to get back on the track once you deviate.") (12%)

1. "You're supposed to win." (Meaning, one is supposed to win.)) (50%)
2. "We didn't care about each other.")

1. "I feel selfish if I take it all. It's not nice, but I learned to handle my guilt.") (15%)
2. "I feel guilty, but I do it anyway. I'm not hurting her. It's not as though feelings were involved.")

1. "I will win the most if I play 2 all the way. If you retaliate, you are just taking away from yourself.") (0%)
2. "She wouldn't change. I had to try to change her or else feel like a sap. I'm choosing, I'm controlling, because I made this choice.")

This was the most blatant attempt to influence the other not to use her position of equal power to retaliate or to try to reform the offender.

Overall, the female Externals tended not to use the opportunity for communication to improve the chances of a cooperative, mutually gratifying solution. In cases where they stated a preference for this outcome, they were either ineffective at achieving it or gave it lip service, but continued to play competitively and to exploit the other if they could. In the cases where cooperation developed, it developed without the aid of

verbalization. Problems with assertion were evident and denied as "laziness," and the External attitude as a defense against failure was explicitly stated.

The flavor of the interaction between Internal male pairs playing under a Chance instruction (the most cooperative like-sex pairs of the study) was quite different. Comments ran as follows. Percent of cooperation is for the pair.

1. "This is mutualism versus competition. I feel like a scoundrel if I get even. Should I be a man and let him have two, or every man for himself." (46%)
1. "I'm very cooperative. I like to win. It's a challenge to win. I don't like to always win, but I like to out-smart you. I don't care about the money."
2. "I feel piggish. Are we supposed to win?" (50%)
1. "I had no strategy whatever."
2. "I felt opposed, but it doesn't matter what happens." (18%)
(An extremely alienated pair - in the Keniston (1960) sense.)
1. "It's obvious. We're supposed to set up a system to both win."
2. "It's good to both win." This led to complete cooperation after the first 20 trials. (88%)
1. "Are we partners? I'm not going to destroy him over a lottery ticket."
2. "I can't get upset about losing a lottery ticket. If the stakes are really high, I may be greedy, otherwise, let him do his thing."
This pair agreed to cooperate by trial 20. They asked afterward if it was all right to do so. (82%)
1. "I'm trying to outguess you and get even at the end."
2. "I got tired of beating him. He was miserable. I saw him squirming like an animal squirming." (2%)

Allowing for the fact that these are male Internals (49% cooperative) playing under an instruction that is not competitively motivating given their personality predisposition, the feeling is still very different from the play of the Internal females (43% cooperative under Chance). It would appear, Women's Lib notwithstanding, that sisterhood is a much less clearly defined concept and practice than brotherhood.

The following excerpts give the flavor of the female Internal interactions (40% cooperative, average for both conditions).

Skill Condition

1. "I know you want to win."
 2. "I don't want to lose. I was thinking of keeping it even, but I worried I'm not asserting myself, although I wanted to cooperate. (34%)

1. "I tried to figure out her move. I wanted to win."
 2. The second player resented the idea that she was being figured out, and played randomly. (12%)

1. "It's human nature to want more."
 2. "I'm not greedy. I wanted to win and share." (11%)

1. This partner took charge of the interaction and announced that she trusted her partner. "If I varied and you thought I was greedy, we'd both lose. I find money very convenient, it solves problems."
 2. "If we're working together I better cooperate to be fair." (95%)

1. "Getting more pennies is too easy and boring. Randomly is more fun."
 2. The other partner would have preferred to win, but was influenced and also played randomly. (29%)

1. After 50 random trials, the first player wondered how much they would have to lose before changing to 1. "I don't want to lose too badly trying to stop you."
 2. "I'm developing a greed. Not for pennies, I want to win." (23%)

1. "It's fair if we both get one."
 2. "It's right to try to get the most." (28%)

Chance Condition

1. "It's my impression that the goal is a joint effort to win."
 2. "You make me seem like an aggressor. I play to win. I'm more competitive." (45%)

1. "I want to avoid losing."
 2. "I'm more inclined to throw 1, to see if she's trustworthy. It feels better to win." (26%)

1. "If I put up one it was bad for me."
 2. "The less 1 she played, the more annoyed and competitive and stubborn I got." (18%)

1. "If I played 2, she'd give up. Somebody had to, and I'd win more."

2. "I played 1's to let her get aggressive. Let her wear herself down." (Blk.) (30%)

1. After the first 10 trials: "Let's cooperate. It's the only sensible way to win. No sense in cheating."

2. "I have to trust her. The way to do is share. You win more. It's the best policy." (91%)

1. (A disappointed attempt at influence) "What makes you put up 2? You think you'll win? You better play more 1's."

2. No response at all. (11%)

1. "With 1, neither of us loses. I'm cautious, but I thought we were playing together. I study it out first."

2. "I don't go by luck. I can anticipate what you do." (She played competitively, promising at the end to share if she won in the lottery.) (20%)

1. "I wanted to figure her next move, just to win a little more."

2. "I'd like us to be equal, but if I didn't like the person, I'd play differently." (26%)

1. "If I throw 2, she can't win and I win the prize."

2. "I prefer we each win the same if possible." (12%)

1. "I don't want revenge except against a greedy boy. This is a dirty game. You're supposed to play sharing. You're not better or above me." (Blk.)

2. After the first 10 trials, this girl said: "This is about greed." She denied playing competitively, saying she couldn't see how much the other girl had, and remarked piously: "It's stupid to get angry because both lose." (50%)

For female Internals, only two of these interactions worked in the direction of cooperation, mostly as a result of firm leadership of one of the partners in this direction. Pre-eminent were conflicts between the need for assertion and the desire to cooperate, between winning and sharing. The set of the other player was an important factor, overriding individual personality predisposition in determining the outcome. This could and did operate in either direction, toward cooperation or competition. Internals sometimes made up a little game of their own, preferring this to the experiment. The desire to conserve was aroused by the fear

of loss in competitive play. Conflicts in strategy between partners seemed exacerbated under the Skill condition, as would be expected, and somewhat ameliorated under the Chance instruction.

The following interactions are those of the External male pairs (30% cooperative).

Skill Condition

1. "I can't win any other way."
 2. "I tried to see if I could change him, but I agree. Play to win." (0%)
1. "It's not a feeling of guilt. I'm semi-obligated to let him catch up." This player rewarded his partner verbally for cooperation. "I'm proud of you."
 2. "This is more compliant than satisfied. I'll just give in and take my share." (58%)
1. "I'd cooperate if both agree, for people to feel better."
 2. "That's nice, but if there were something to gain, I'd play 2." (N.B. 85%) (Note evidence for the differential effect of the condition.)
1. "In the beginning I played randomly, but when he built a lead, there was no way to get back. So I varied it, to psych him out and try to win it back."
 2. "I tried reading his mind. I felt guilty for winning." (9%)
1. One player played all 1's after 30 double loss trials, saying: "Let him win. He wanted to. Why not?" (29%)
1. "I played to win, but I'd be more cooperative with a girl."
 2. "It's not possible for both to get the most because of competition." (15%)
1. "I thought the game was, who's going to win more."
 2. "I threw 1, hoping you would. It was too late to influence him, so keeping even was the only choice left." (15%)
1. "Winning equally is out. No different with a girl."
 2. "The best route to most for the self, is that both win." (33%)

External Male Pairs in the Chance Condition

1. "2 leads to losing. 1 means both win a lot."
2. "Give a little, take a little. It saves fighting it out. Both win." (69%. This pair is atypical for male External under Chance.)

1. "If you cooperate to gain, both beat the bank."
2. "I guess I'm selfish. I'd cooperate sometimes if I felt I was winning too much. He should get something, not too much." (15%)

One interaction was 24% cooperative overall, but a joint strategy had been worked out by the 70th trial.

Another interaction was a running commentary on who was getting ahead, with no other content (16%).

Another: "I played random at first, then I saw Joe getting interested. I tried to influence him to play 1-1, but he preferred 2-2, so we played that." (13%)

1. "No strategy except not to go minus. It was the only safe play."
2. "I got ahead of him early with 2's." (21%)

1. "It's tough to do, cooperate. I played 1 not to lose. I'd play the same with a female, unless she was women's lib and I was in a spiteful mood, then I'd play 2."

2. "The object is not to lose the lottery ticket. When I figured I was winning I'd go for broke and play 2 all the time. Once in a while I'd play 1 just to confuse him." (14%)

1. "He was throwing 1's for no penalty. I'd throw 2 to his 1's. I'd try to win more against a girl to show male superiority."

2. "It was better for us both to win. The idea is not to lose, instead of to beat him."

Characteristic of these reactions is the effort to win for one's self, the open recognition of competition as laudable, interest in relative position, "being ahead," and failure of attempts to influence the partner in the direction of cooperation. Two atypical reactions compared to Internal males, were collapse against exploitation by the partner, and settling for losing unilaterally.

The attempt to assess trust by asking for belief in a power outside of the self indicated that the majority of this sample is atheist or agnostic (60%). The biggest surprise was the number of male Externalists believing that God actively and concretely intervenes in events on this

planet (see Table 19). Internals, male and female, do not hesitate to proclaim themselves atheists. These findings do not support Rotter's, that Trust Scale scores are higher for those who believe in some religion than for those who regard themselves as atheists or agnostics. Again the question is raised but not answered, as to whether trust is a generalized predisposition, or particular to a given context.

The data on risk strategy and its relationship to need achievement and Internal control corroborates the finding that Internals prefer to minimize risk, whereas Externals are more apt to be plungers. Why there should be an interaction with sex is not clear, but there have been studies of children's achievement behavior and Internal control that suggest a sex difference (Crandall, et al., 1962). This finding lends empirical validation to the assumption of the Prisoner's Dilemma studies (Terhune, 1968) that the Internal as a Need Achiever does indeed prefer small risks, carefully calculated, with regard to reality.

Summary

1. Experimental Design

Two hundred and forty Internal or External Psychology students played 100 trials of Prisoner's Dilemma in male, female, or mixed sex pairs under a Skill or Chance instruction, intended to be differentially motivating for the personality variable, IE Control. The game presented each partner of the pair on each trial, with the choice of cooperative or exploitative behavior in a face-to-face encounter.

2. Hypotheses

Hypotheses were (1) that Internals play more cooperatively under a Skill instruction, (2) that External males are exploitative,

(3) that External females are more variable, and (4 and 5) that External control is related to suspiciousness for men but not necessarily for women, (6) that realistic trust is related to psychological health whereas suspicion and unconditional trust are related to pathology, and (7) that External subjects show more psychopathology on clinical measures than Internals.

3. Results

Overall, Internals were much more cooperative than Externals, and mixed sex pairs were much more cooperative than like sex pairs ($p < .02$). Internals played more cooperatively under a Skill instruction only for the mixed sex pairs. Like sex Internal pairs played more competitively. In terms of individual cooperative attempts, Internals were vastly more cooperative than Externals ($p < .006$) and all sex and situational variables washed out.

The four groups of the experiment, ME, MI, FE, FI, were different at the $p < .001$ level of confidence on the clinical measures of the MMPI. It is clearer that Internals have less pathology, more ego strength, less maladjustment, less anxiety, less prejudice, and less dependence than Externals, than is the meaning of the sex differences on these measures. Many of the sex differences were contributed by the female Internal scores. On all the measures of the experiment this group was exceptionally cooperative, trusting, emotionally healthy, and surprisingly, considering the sample, low in opposite sex interests.

There were no differences in stated strategy preference for the four groups between maximizing joint gain, unilateral gain or relative gain.

Male Externals were the only subjects to state that they believed in a God whom they expected to intervene actively in events on this planet.

Asked for their preferred strategy of risk, Internals were clearly choosers of the minimum, carefully calculated risk likely to succeed in reality, typical of the need achiever. Externals preferred moderate to extreme risks, with some interaction as a function of sex. Women were in the middle of the distribution, as a group.

Qualitative data supported the conclusion that Internals are conditionally rather than unilaterally cooperative in spite of preference for mutual gain.

Female Internals, quantitatively and qualitatively, were the most distinct group of the study. Research cited in the history presents clear evidence of differential developmental roots for an Internal expectancy, for men and women. Lack of identification with parents was positively correlated with Internal Control for girls. In view of the rapid emergence and acceptance of Women's Liberation Groups in the very recent past, it is relevant to raise the question of the comparability of this sample of college women to previous research population. As a cross-sectional study, this research can offer no evidence; however, such a rapid change in the Zeitgeist should be borne in mind when comparing these results with those of other investigation.

BIBLIOGRAPHY

BIBLIOGRAPHY

- Adorno, T. W., Frenkel-Brunswik, E., Levinson, D. J., & Sanford, R.N.
The Authoritarian Personality. New York: Harpers, 1950.
- Berlyn, D. E. Curiosity and exploration. Science, 1966, 153, 25-33.
- Bixenstine, V. E., Potash, H. M., & Wilson, K. V. Effects of level of cooperative choice by the other player on choices in a Prisoner's Dilemma game. Part I. Journal of Abnormal and Social Psychology, 1963, 66, 308-313.
- Bixenstine, V. E., & Douglas, J. Effect of psychopathology on group consensus and cooperative choice in a six-person game. Journal of Personality and Social Psychology, 1967, 5, 32-37
- Bulter, R. A. Discrimination learning by rhesus monkeys to visual-exploration motivation. Journal of Comparative and Physiological Psychology, 1953, 46, No. 2.
- Crandall, V. J., Kathovsky, W., & Preston, Anne. Motivational and ability determinants of young children's intellectual achievement behaviors. Child Development, 1962, 33, 643-661.
- DeCharms, Richard. Personal causation. New York: Academic Press, 1968.
- Deutsch, Morton. Trust and suspicion. Journal of Conflict Resolution, 1958, 2, 267-279.
- Deutsch, M. Trust, trustworthiness, and the F Scale. Journal of Abnormal and Social Psychology, 1960, 61, 138-140.
- Erikson, Erik. Identity and the Life Cycle. Psychological Issues, 1959, (1, Whole No. 1.)

- Hamsher, J. H., Geller, J., & Rotter, J. B. Interpersonal trust, internal-external control, and the Warren Commission Report. Journal of Personality and Social Psychology, 1968, 9, 210-215.
- Harlow, H. F., et al. Learning motivated by a manipulation drive. Journal of Exp. Psychology, 1950, 40, 228-34.
- Hartford, T., & Solomon, L. "Reformed sinner" and "lapsed saint" strategies in the Prisoner's Dilemma game. Journal of Conflict Resolution, 1967, 11, 104-109.
- Hartmann, H. Ego Psychology and the problem of adaptation. D. Rapaport. New York: International Universities Press, 1958.
- Horney, Karen. Feminine Psychology. New York: W. W. Norton, 1967.
- Kagan, Jerome and Moss, Edward. Birth to maturity. New York: John Wiley, 1962.
- Kagan, Sontag, Baker, & Nelson. Personality and IQ change. In Mussen, Conger, & Kagan (Eds.), Readings in child development and personality. New York: Harper and Row, 1965.
- Keniston, Kenneth. The uncommitted and alienated youth in American society. New York: Harcourt, Brace and World, 1960.
- Kogan, N. and Wallach, M. Risk Taking: A study in cognition and personality. New York: Holt, Rinehart & Winston, 1964.
- Lefcourt, H. M. Risk taking in negro and white adults. Journal of Personality and Social Psychology, 1965, 2, 765-770
- Lefcourt, H. M. & Ladwig, G. W. The American negro: a problem in expectations. Journal of Personality and Social Psychology, 1965, 1, 377-380.
- Lefcourt, H. M. & Ladwig, G. W. The effect of reference groups on negroes task persistence in a biracial competitive game. Journal of Personality and Social Psychology, 1965, 1, 668-671.

- Lefcourt, H. Internal versus external control of reinforcement: A Review. Psychological Bulletin, 1966, 65, No. 4, 206-220.
- Marlowe, D. Psychological Needs and Cooperation: competition in a two-person game. Psychological Reports, 1963, 13, 364.
- Maslow, A. H. Toward a Psychology of Being. Princeton, N. J.: Van Nostrand, 1962.
- McClelland, D. C. Toward a theory of motive acquisition. American Psychologist, 1965, 20, 321-33.
- McClintock, C. G. and McNeel, S. P. Prior dyadic experience and monetary reward as determinants of cooperative and competitive game behavior. Journal of Personality and Social Psychology, 1967, 5, 282-294.
- McClintock, C. G. and McNeel, S. P. Reward and score feedback as determinants of cooperative and competitive game behavior. Journal of Personality and Social Psychology, 1966, 4, 606-615.
- McKeon, C. D., Gahagan, J. P., and Tedeschi, J. T. The effect of prior power strategy on behavior after a shift of power. Journal of Experimental Research in Personality, 1967, 2, 226-233.
- Rapaport, A., and Chammah, A. Prisoner's Dilemma. Ann Arbor, Mich.: Univ. of Michigan Press, 1965.
- Rapaport, David. On the psychoanalytic theory of thinking. International Journal of Psychoanalysis, 1950, 31, 161-170.
- Rapaport, D. Some metaphysical considerations concerning activity and passivity. In Merton Gill (Ed.), The collected papers of David Rapaport. New York: Basic Books, 1967.
- Reimanis, G. Effects of Experimental IE Modification Techniques and Home Environment Variables on IE. Symposium. Developmental Aspects of Locus of Control Expectancies: New Methods and Prospects. Proceedings of the American Psychological Assoc., Washington, D. C., 1971.

- Rotter, J. B. Generalized expectancy for internal versus external control of reinforcement. Psychological Monographs: 1966, 80, (Whole No. 609).
- Rotter, J. B. A new scale for the measurement of interpersonal trust. Journal of Personality, 1967, 35, 651-665.
- Rotter, J. B. and Mulry, R. C. Internal vs. external control of reinforcement and decision time. Journal of Personality and Social Psychology, 1965, 2, 598-604.
- Saunders, M. G. A cross cultural study of coalitions in the triad. Unpublished master's thesis, Univ. of Hawaii, 1960.
- Scodel, A. Induced collaboration in some non-zero sum games. Journal of Conflict Resolution, 1962, 6, 334-340.
- Terhune, K. Motives, situation and interpersonal conflict within Prisoner's Dilemma. Journal of Personality and Social Psychology Monograph Supplement, 1968, 8, (Whole No. 3, Part 2.)
- Vinacke, W. Edgar. Variables in Experimental Games. Psychological Bulletin, 1969, 71, No. 4, 293-318.
- White, Robert. Competence and the Psychosexual stages of development. In M. R. Jones (Ed.), Nebraska symposium motivation. Lincoln, Nebr.: Univ. of Nebraska Press, 1960, pp. 97-141.
- Wrightsmann, L. S. Personality and attitudinal correlates of trusting and trustworthy behaviors in a two-person game. Journal of Personality and Social Psychology, 1966, 4, 328-332.

APPENDIX: Skill and Chance Instruction

I E SCALE

Interpersonal Trust Scale

Skill Instruction

Thank you for coming.

You are about to be a subject in a psychological experiment. The data you provide will serve as the basis of a doctoral dissertation in clinical psychology at City College.

As I am sure you are aware, it is important that you do not communicate any information, ideas, or impressions that you may have about the experiment to other students who themselves might be subjects or know others who are scheduled to participate.

The experiment is being run double blind; that is, neither you, the other subject, nor the research assistant know the basis for your inclusion as a subject, or the reason for the subject pairings.

This is a study of skill in interpersonal relations. The situation in which you are about to find yourself involves making a series of choices. You do not have independent control of the outcome to yourself, but must share it with the other. You have been shown a chart which explains the four possible outcomes of your joint choice, where each of you chooses between the same alternative courses of action.

This situation has been extensively used to study skill in manipulation, bargaining, coalition formation and persuasion of others. Please consider the numbers an estimate of the amount of gain or pleasure of the outcome to you. This depends upon the skill you can exercise in a relationship with another person. Your intentions will be signalled by the choices you make.

Thus, this encounter is a microcosm, a laboratory analogue, of many important relationships where two people must share the control of their joint destiny.

Please do not speak about the experiment outside the lab until all the data have been collected. Because it is impossible for you to select which things it might be all right to tell, and which are crucial to the experimental design, I am asking you not to say anything.

There will be breaks between the 100 trials. You may speak to each other then if you wish. Thank you again for participating.

Chance Instruction

Thank you for coming.

You are about to be a subject in a psychological experiment. The data you provide will serve as the basis for a doctoral dissertation in clinical psychology at City College.

As I am sure you are aware, it is important that you do not communicate any information, ideas or impressions to other students who themselves might be subjects or know others who are scheduled to participate.

The experiment is being run double blind; that is, neither you, the other subject, nor the research assistant know the basis for your inclusion as a subject, or the reason for the subject pairings.

This is an experiment on the gambling behavior of people. The game you are about to play involves making a series of choices. You do not have independent control of the payoff to yourself, but must share it with your gambling partner. You have been shown a chart which explains the four outcomes of your joint choice, where each of you chooses between the same alternate courses of action.

The payoff to you in this experiment depends on the willingness of you and your partner to gamble on an interpersonal interaction. The situation in which you find yourself has been extensively used to study the gambling behavior of dyads -- risk-taking propensities, etc. You will be started out with the equivalent of one New York State Lottery

ticket which can be lost or parlayed into two or three Lottery tickets. There will be breaks between the 100 trials of the series. You may speak to each other then if you wish.

Thank you again for participating, and please do not speak about this experiment outside of the laboratory until all the data have been collected. After the experiment, we are free to answer questions you have about your participation, provided you keep faith with me by maintaining silence outside of this room.

DIRECTIONS: Circle either A or B, whichever statement is closer to your own belief about how things actually are:

1. a. Children get into trouble because their parents punish them too much.
b. The trouble with most children nowadays is that their parents are too easy with them.
2. a. Many of the unhappy things in people's lives are partly due to bad luck.
b. People's misfortunes result from the mistakes they make.
3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.
b. There will always be wars, no matter how hard people try to prevent them.
4. a. In the long run people get the respect they deserve in this world.
b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
5. a. The idea that teachers are unfair to students is nonsense.
b. Most students don't realize the extent to which their grades are influenced by accidental happenings.
6. a. Without the right breaks one cannot be an effective leader.
b. Capable people who fail to become leaders have not taken advantage of their opportunities.
7. a. No matter how hard you try, some people don't like you.
b. People who can't get others to like them don't understand how to get along with others.
8. a. Heredity plays the major role in determining one's personality.
b. It is one's experiences in life which determine what they're like.
9. a. I have often found that what is going to happen will happen.
b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
10. a. In the case of the well-prepared student there is rarely if ever such a thing as an unfair test.
b. Many times exam questions tend to be so unrelated to course work that studying is really useless.
11. a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.
b. Getting a good job depends mainly on being in the right place at the right time.
12. a. The average citizen can have an influence in government decisions.
b. This world is run by the few people in power, and there is not much the little guy can do about it.

13. a. When I make plans, I am almost certain that I can make them work.
b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.
14. a. There are certain people who are just no good.
b. There is some good in everybody.
15. a. In my case getting what I want has little or nothing to do with luck.
b. Many times we might just as well decide what to do by flipping a coin.
16. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.
17. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control.
b. By taking an active part in political and social affairs the people can control world events.
18. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.
b. There is really no such thing as "luck."
19. a. One should always be willing to admit mistakes.
b. It is usually best to cover up one's mistakes.
20. a. It is hard to know whether or not a person really likes you.
b. How many friends you have depends upon how nice a person you are.
21. a. In the long run the bad things that happen to us are balanced by the good ones.
b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
22. a. With enough effort we can wipe out political corruption.
b. It is difficult for people to have much control over the things politicians do in office.
23. a. Sometimes I can't understand how teachers arrive at the grades they give.
b. There is a direct connection between how hard I study and the grades I get.
24. a. A good leader expects people to decide for themselves what they should do.
b. A good leader makes it clear to everybody what their jobs are.
25. a. Many times I feel that I have little influence over the things that happen to me.
b. It is impossible for me to believe that chance or luck plays an important role in my life.

26. a. People are lonely because they don't try to be friendly.
b. There's not much use in trying too hard to please people; if they like you, they like you.
27. a. There is too much emphasis on athletics in high school.
b. Team sports are an excellent way to build character.
28. a. What happens to me is my own doing.
b. Sometimes I feel that I don't have enough control over the direction my life is taking.
29. a. Most of the time I can't understand why politicians behave the way they do.
b. In the long run the people are responsible for bad government on a national as well as on a local level.

General Opinion Survey

This is a questionnaire to determine the attitudes and beliefs of different people on a variety of questions. Please answer the questions giving as true a picture of your own beliefs as possible. Be sure to read each item carefully and show your own belief by writing the appropriate number to the left of the item.

Write one if you strongly agree with the item. Write two if you mildly agree with the item. That is, write number two if you think the item is generally more true than untrue. Write three if you feel the item is about equally true as untrue. Write number four if you mildly disagree with the item. That is, write number four if you feel the item is more untrue than true. Write five if you strongly disagree with the item.

1. Strongly agree
2. Mildly agree
3. Agree and disagree equally
4. Mildly disagree
5. Strongly disagree

- ___ 1. Most people would rather live in a climate that is mild all year round than in one in which winters are cold.
- ___ 2. Hypocrisy is on the increase in our society.
- ___ 3. In dealing with strangers one is better off to be cautious until they have provided evidence that they are trustworthy.
- ___ 4. This country has a dark future unless we can attract better people into politics.
- ___ 5. Fear of social disgrace or punishment rather than conscience prevents most people from breaking the law.
- ___ 6. Parents usually can be relied upon to keep their promises.
- ___ 7. The advice of elders is often poor because the older person doesn't recognize how times have changed.
- ___ 8. Using the Honor System of not having a teacher present during exams would probably result in increased cheating.

- _____ 9. The United Nations will never be an effective force in keeping world peace.
- _____ 10. Parents and teachers are likely to say what they believe themselves and not just what they think is good for the child to hear.
- _____ 11. Most people can be counted on to do what they say they will do.
- _____ 12. As evidenced by recent books and movies morality seems on the downgrade in this country.
- _____ 13. The judiciary is a place where we can all get unbiased treatment.
- _____ 14. It is safe to believe that in spite of what people say most people are primarily interested in their own welfare.
- _____ 15. The future seems very promising.
- _____ 16. Most people would be horrified if they knew how much news the public hears and sees is distorted.
- _____ 17. Seeking advice from several people is more likely to confuse than it is to help one.
- _____ 18. Most elected public officials are really sincere in their campaign promises.
- _____ 19. There is no simple way of deciding who is telling the truth.
- _____ 20. This country has progressed to the point where we can reduce the amount of competitiveness encouraged by schools and parents.
- _____ 21. Even though we have reports in newspapers, radio and television, it is hard to get objective accounts of public events.
- _____ 22. It is more important that people achieve happiness than that they achieve greatness.
- _____ 23. Most experts can be relied upon to tell the truth about the limits of their knowledge.
- _____ 24. Most parents can be relied upon to carry out their threats of punishment.
- _____ 25. One should not attack the political beliefs of other people.
- _____ 26. In these competitive times one has to be alert or someone is likely to take advantage of you.

- _____ 27. Children need to be given more guidance by teachers and parents than they now typically get.
- _____ 28. Most rumors usually have a strong element of truth.
- _____ 29. Many major national sport contests are fixed in one way or another.
- _____ 30. A good leader molds the opinions of the group he is leading rather than merely following the wishes of the majority.
- _____ 31. Most idealists are sincere and usually practice what they preach.
- _____ 32. Most salesmen are honest in describing their products.
- _____ 33. Education in this country is not really preparing young men and women to deal with the problems of the future.
- _____ 34. Most students in school would not cheat even if they were sure of getting away with it.
- _____ 35. The hordes of students now going to college are going to find it more difficult to find good jobs when they graduate than did the college graduates of the past.
- _____ 36. Most repairmen will not overcharge even if they think you are ignorant of their specialty.
- _____ 37. A large share of accident claims filed against insurance companies are phony.
- _____ 38. One should not attack the religious beliefs of other people.
- _____ 39. Most people answer public opinion polls honestly.
- _____ 40. If we really knew what was going on in international politics, the public would have more reason to be frightened than they now seem to be.