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The Relationship of Selected Perceptual, Cognitive, and Personality Variables to Moral Judgment

Simcha Goldman
Loyola University Chicago

THE RELATIONSHIP OF SELECTED PERCEPTUAL, COGNITIVE, AND PERSONALITY VARIABLES TO MORAL JUDGMENT

by

Simcha Goldman

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VITA

The author, Simcha Goldman, is the son of Rabbi Irving L. and Toby (Reichman) Goldman. He was born February 4, 1946, in New Orleans, Louisiana.

His elementary education was obtained in the public schools of South Bend, Indiana. He attended junior high school at Arie Crown Hebrew Day School and senior high school at Ida Crown Jewish Academy, both of Chicago, Illinois. He was graduated with a High School Diploma in June, 1963.

A Bachelor of Arts in English Literature was conferred upon him in September, 1967, by Yeshiva University, New York, New York. Upon graduation, he enrolled simultaneously at the Rabbi Isaac Elchanaan Theological Seminary and Bernard Revel Graduate School of Yeshiva University as well as City College of New York. In June, 1970, he was granted the degree of Master of Arts in English Literature from the City College of New York. The title of his thesis was "Prometheus Unbound Interpreted." In September, 1970, he was ordained as a Rabbi by the seminary and awarded concurrently a Master of Science, with a major in Jewish philosophy, by the Bernard Revel Graduate School. The author was admitted to the Graduate School of Loyola University in September, 1973. He received the degree of Master of Arts in Clinical Psychology in January, 1977.

Upon ordination, Rabbi Goldman served from September, 1970, to August, 1972, as U.S. Navy Chaplain. He was assigned to Marine Corps

Recruit Depot, Parris Island, South Carolina. Afterwards, he held a small pulpit in Mt. Clemens, Michigan, for one year. Rabbi Goldman took his clinical clerkship at the Loyola University Guidance Center and Day School. He divided his clinical internship between the Guidance Center and the North Chicago Veterans Administration Hospital.

The author is married to Jeanne (Litvin) Goldman of Mt. Clemens, Michigan. They have two children.

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CHAPTER 1

INTRODUCTION

In the last 30 years cognitive developmental and social learning theories of human development have attempted to explain moral development and ethical behavior. These theories, as exemplified by Kohlberg (1969) and Gewirtz (1969) respectively, differ, among other things, in their use of motivational constructs. Following the symbolic interactionist school of social psychology, Kohlbert (1969) held that the individual's cognitive definition of a situation directly determined the moral emotion evoked by the situation. Cognition and affect were viewed as undergoing parallel development insofar as both are based on the intrinsic structural properties of human intellectual activity. Although "motives and affects are involved in moral development, the development of these motives is largely mediated by changes in thought patterns." (1969, p. 390) Gewirtz, on the other hand, argued against the use of motivational or drive concepts to explain social behavior, preferring more parsimonious learning concepts such as response generalization (1969, pp. 182-194). Other social learning theorists do make use of motivational concepts (e.g., Dollard & Miller, 1950; Sears, Maccoby, & Levin, 1951).

In recent years there have been some attempts to integrate cognitive-developmental and social learning theories of motivational development (Dienstbier, Hillman, Lehnoff, Hillman, & Valkinaar, 1975; LaVoie, 1974;

Mischel & Mischel, 1976). Mischel and Mischel (1976) distinguished between the capacity to form mature moral judgments and the knowledge of moral standards, on the one hand, and the actual performance of ethical behavior. The former may depend on cognitive-developmental factors while the latter is influenced by motivational and performance factors specific to a given situation. Although Rokeach (1960) has a basically cognitive approach to personality and behavior, he makes a similar observation: ". . . While a person's belief-disbelief system is a relatively enduring structure, the extent to which it influences behavior . . . is jointly influenced by situational conditions interacting with personality." (p. 402)

Mischel and Mischel (1976) theorized that self-regulatory systems link judgments and behaviors. These systems include:

(1) The rules that specify goals or performance standards in particular situations;

(2) The consequences of achieving or failing to achieve those criteria;

(3) The self-instructions and cognitive stimulus transformations required to achieve the self-control necessary for goal attainment; and

(4) The organizing rules (plans) for the sequencing and termination of complex behavioral patterns in the absence of external supports and in the presence of external hindrances (p. 94).

Mischel and Mischel accounted for the low correlations of moral behavior across situations by man's ability to discriminate the different contingencies contained in the multitude of moral situations with which he must deal. Very specific expectancies tend to be developed which would result in highly varied response patterns.

Dienstbier et al. (1975) used an emotion attribution approach to

explain resistance to temptation behavior. Negative emotional states such as anxiety, fear, guilt, and shame have a potentially important impact on moral behavioral choices. It was considered likely that such affects could be associated with specific behaviors through learning mechanisms. However, "these associations depend heavily on the causal attributions that are made about the source of the negative emotions during socialization experiences." (p. 300) Socialization techniques differ in that an internally-orienting process associates the child's emotional arousal to his own misconduct while an externally-orienting process associates the arousal to a fear of punishment. There was some empirical support for the hypothesis that external orientations are less effective in inhibiting violations in temptation situations with low risk of detection than are internal emotion attribution patterns.

Dienstbier et al. theorized that attribution processes will influence how the individual will interpret his emotional arousal which will influence, in turn, his behavioral choices. They downplayed the importance of the symbolic interactionist approach, i.e., cognition will influence the perception of the situation and the nature of the consequent emotional arousal experienced.

Schwartz (1970) suggested that there are three basic elements which characterize all moral decisions: First, such decisions necessarily imply significant consequences for other people. Second, the decision has an ethical quality only if the person making the decision is a responsible individual acting of his own free will. Third, the goodness or badness of the decision is evaluated in terms of the consequences it produces for other people.

In the same vein, it seems likely that the individual faced with making a moral decision, as characterized above, needs to evaluate the intentions of those people involved in the situation. Maselli and Altrocchi (1969) reviewed the development of attribution theory and research in the area of attribution of intent. They found evidence of a strong relationship between attribution of intent and attribution of responsibility. They suggested that the characteristic manner in which the individual functions personally and interpersonally may be maintained, in part, by the attributions of intent which one makes.

Rotter's Locus of Control (LOC) construct is believed to be a relevant variable bearing on individual differences in attribution of intent. The work of DeCharms, Carpenter, and Kuperman (1965) in this area is particularly significant in that it suggests that individuals with an internal LOC may also assume that other people can effectively implement their intentions. Externals, who characteristically feel that they cannot effectively influence what happens to them, may make similar assumptions about other people's attitudes. Maselli and Altrocchi concluded that "the adaptive functions of attribution of intent include allowing the person to perceive the social world as more stable and predictable and aiding the person to make appropriate social responses." (1969, p. 452-453)

Phares and Wilson (1972) investigated some of the issues raised by Maselli and Altrocchi. They had their subjects assess an individual's responsibility for traffic accidents under varying degrees of severity of outcome and ambiguity of responsibility. They found that subjects with an internal LOC do, in fact, attribute more responsibility to others

than do externals.

Our discussion of the place of motivational constructs in theories of moral development has led us to Rotter's LOC construct. This construct (Rotter, 1966) and the theory upon which it is based (Rotter, 1954) represent potentially valuable ideas in the ongoing efforts to develop a comprehensive and integrated explanation of moral development. The theory itself has been described as an attempt to integrate reinforcement theories with cognitive or field theories (Rotter, Chance, & Phares, 1972, p. 1). Rotter acknowledged the role that cognition plays in determining behavior: "The simple cognitions regarding the properties of objects determine, in part, expectancies for behavior-reinforcement sequences by defining the gradients along which generalizations take place." (Rotter et al., 1972, p. 337-338) Furthermore, both expectancies and reinforcement values can be changed by cognitive processes (Rotter et al., 1972, p. 19).

An empirical law of effect is the basic motivational concept in Rotter's theory. That is, any stimulus is said to have reinforcement value to the extent that it facilitates or inhibits behavior (Rotter et al., 1972, pp. 8-9). Phares' survey of the literature regarding the differential behavior of internally and externally controlled individuals in skill and chance situations led him to suggest that the LOC variable had a motivational aspect to it. That is, internals have a greater need to succeed in skill situations and externals have a greater need in chance situations (1976, p. 76). Similar suggestions about the motivational aspect of the LOC variable have been made (Rotter & Mulry, 1965; Midlarsky & Midlarsky, 1973).

Additional support for a motivational component in the LOC variable is provided by Phares and Wilson (1971). They found that internal subjects were more attracted to an internal stranger than to an external stranger. Contrary to expectation, external subjects did not demonstrate greater attraction for external strangers than did internal subjects. Thus, the evidence is suggestive, but inconclusive.

Although there are some theoretical bases for integrating cognitive-developmental and social learning theories of moral development and ethical behavior, empirical research in the areas of moral judgment, LOC, moral behavior, and religious motivation presents conflicting evidence of the validity of attempting such an integration. This evidence has been reviewed in detail by Goldman (Note 1). What follows is a brief summary of this evidence.

Rubin and Schneider (1973) found a significant positive correlation between level of moral judgment and altruistic behavior while Midlarsky (1968) found a correlation of similar magnitude between an internal LOC and helping behavior. This implies that a positive relationship might exist between level of moral judgment and LOC. Bloomberg (1974) developed some evidence in support of this implication. However, Arbuthnot (1973) found a non-significant correlation between LOC and moral judgment. He concluded that moral judgment was a cognitive-developmental rather than a social learning phenomenon.

Rettig and Rawson (1963) developed a Behavior Prediction Scale (BPS) based on Rotter's theory. The BPS requires the subject to predict whether or not the protagonist in a series of moral dilemmas will steal money. The expectancy of receiving a particular reinforcement and the

value of the reinforcement to the individual are postulated to be independent constructs. The BPS measures, therefore, the expectancy of gain (Egn) to be obtained by stealing and its reinforcement value (RVgn) as well as the expectancy of censure (Ecs) and its reinforcement value (RVcs). According to Rettig and Rawson's ethical risk hypothesis "unethical behavior varies as a function of the perceived risk incurred by such conduct." (1963, p. 243) This study revealed that RVcs accounted for more of the variance in predictive judgments of unethical behavior than any other source, although all sources had significant effects.

Responses to the BPS might be considered an indication of the subject's response if he were in the given situations. The RVcs factor has been shown to differentiate successfully between cheating and non-cheating subjects in a one year follow-up study (Retting & Pasamanick, 1964) and in another study of deceptive behavior (Rettig & Sinha, 1965). Cheaters predicted significantly more stealing would occur in the low RVcs condition than in the high RVcs condition as compared to non-cheaters' prediction for the same circumstances. The investigators suggested that the honest subjects were not as sensitive as cheaters to conditions of low and high risk of censure because such considerations do not affect their behavior. The behavior of cheaters was apparently influenced by external circumstances.

Although the BPS is constructed on Rotter's theory and has successfully differentiated between honest and dishonest subjects, Kraus and Blanchard (1970) found no significant correlation between Rotter's Locus of Control Scale and the BPS.

Thus far we have reviewed studies dealing with three variables:

moral judgment, ethical behavior and LOC. A theoretical basis for attempting to integrate cognitive-developmental and social learning theories of moral development by Rotter's LOC construct has been outlined. However, the above studies, none of which included all three variables in the same investigation, yielded conflicting evidence about the empirical validity of such an integration.

As noted above, cognitive-developmental and social learning theories differ in their use of motivational concepts. One motivational factor which might be presumed to have a bearing on the relationship between moral reasoning and conduct is religious motivation. Allport and Ross (1967) defined two different orientations to religion. Extrinsically motivated people tend "to use religion for their own ends . . . may find religion useful in a variety of ways--to provide security and solace, sociability. . . The embraced creed is lightly held or else selectively shaped to fit more primary needs." (p. 434) People with an intrinsic orientation:

> . . .find their master motive in religion. Other needs, strong as they may be, are regarded as of less ultimate significance, and they are, so far as possible, brought into harmony with the religious beliefs and prescriptions. Having embraced a creed the individual endeavors to internalize it and follow it fully. (p. 434)

Hunt and King's (1971) review of the literature measuring intrinsic and extrinsic religious behavior led them to suggest that such religious orientations may, in fact, be a reflection of a basic personality variable. They had little doubt that religious behavior was influenced by the personality structure. In this, Hoge (1972) and Dittes (1969) concurred.

Although there would appear to be a logical relationship between

internal-external locus of control and intrinsic-extrinsic religious motivation (Strickland & Shaffer, 1971), Hunt and King's (1971) review of the intrinsic-extrinsic concept and Dittes' (1969) more comprehensive review of the psychology of religion made no mention of Rotter's social learning theory. The first empirical investigation, known to this author, of the relationship between religious motivation and LOC was that of Strickland and Shaffer (1971). They found a significant, positive correlation (r = .30) between the Religious Orientation Scale (Allport & Ross, 1967) and the INternal-External Locus of Control Scale (Rotter, 1966). They concluded, therefrom, that persons for whom religious belief was an important part of their lifestyle and decision-making process tended to believe that they had a significant degree of control over their lives. People for whom religious behavior was a social tool with little significance for their daily lives, tended to feel that external forces had more influence in their lives.

Goldman (Note 1) addressed the twin problems of the conflicting empirical evidence about the relationship of LOC to moral judgment and ethical behavior, as well as the limited evidence concerning the motivational component of LOC. He administered a battery of 7 tests to 40 subjects. This battery was comprised of the following: Three LOC tests including Rotter's, measures of moral judgment and intrinsic-extrinsic religious motivation, the Behavior Prediction Scale, and 2 measures assessing a person's interest in volunteer activities. The data was analyzed using factor analytic, multiple regression, and partial correlation techniques.

Goldman found that usage of post-conventional stages of moral

reasoning is positively associated with an internal LOC and pre-conventional reasoning is positively associated with an external LOC. Secondly, intrinsic religious motivation and internal LOC were found to be positively correlated ($r = .24$, $p < .07$). This is a moderate correlation and only approaches significance.

Perhaps more important is the finding of the influence of indiscriminate pro-religiosity on the relationship between LOC and the other cognitive and behavioral variables in the study. Allport and Ross (1967) suggested that indiscriminate pro-religiosity may be a form of undifferentiated thinking. The indiscriminately pro-religious (INPR) subject tends to agree with anything that sounds favorable to religion. Thus, he endorses items on both the Intrinsic and Extrinsic subscales of the Religious Orientation Inventory (Allport & Ross, 1967). Consequently, given the scoring rules for the test, such subjects score higher on the Extrinsic subscale than on the Intrinsic. Allport and Ross classified as INPR any subject scoring 12 or more points higher on the Extrinsic subscale than on the Intrinsic subscale.

Goldman found that almost invariably exclusion of the INPR subjects from the statistical analyses strengthened the existing relationships between LOC measures and the measures of moral judgment and ethical behavior. Partialling out the religious motivation variable from correlations of moral judgment and ethical behavior did not affect the relationship of the cognitive-behavioral elements to the same extent as did partialling out the LOC variable. Nevertheless, this finding is of particular interest, given the preceding discussion about attempts to integrate cognitive-developmental and social learning theories of

moral development. It suggests some support for the concept of a motivational component in the LOC construct. It also suggests that a cognitive style, as INPR was characterized by Allport and Ross (1967, p. 441), influences the kinds of moral judgments a person makes.

Finally, Goldman found that males and females differed in the actual decisions made on the Defining Issues Test (DIT) (Rest, Cooper, Coder, Masanz, & Anderson, 1974). No significant differences were found between the level of moral judgment employed by the sexes. However, males as a group tended to endorse decisions involving violations of law while females tended to choose the alternative complying with established laws. This finding raises the possibility that risk-taking preferences may influence the moral decisions one makes.

The researcher's current objectives are several: First, to help clarify the cognitive and motivational aspects of LOC. Second, to explore various potential influences on the decision-making and behavior-regulating processes associated with moral development. Finally, to determine if the previous findings of Goldman (Note 1) are replicable.

Prior to reviewing literature relevant to the above objectives, an analysis of the task demands of the Defining Issues Test is in order. The standard instructions for the DIT require that the subject do three things. First, he reads a paragraph describing a moral dilemma and decides what the protagonist in the situation should do. Second, he then reads 12 statements dealing with different aspects or attitudes about the dilemma and ranks all of them on how important these aspects were for him in making his decision. These 12 items reflect different levels of moral reasoning. Finally, he selects the 4 statements most

important to him and ranks them in serial order. In short, the subject is required to select 4 of 12 items based on their subjective importance and then rank order them. The resulting score is purported to be a measure of the subject's level of moral reasoning.

Consideration of these instructions and the moral dilemmas contained in the DIT suggests that the following factors may influence the subject's performance and resulting score:

1. Ability to make cognitive discriminations. A subject's score is computed on the basis of which four of the 12 issue statements he selected as most important and the order in which he ranked them. Rest (1974) speculated on how the subject approaches the DIT. He characterized the subject's task as picking "the best way of thinking about the dilemma. The issue statements are small fragments of systems of thinking. If a subject has within his repertoire a certain system of thinking, chances are that he will recognize the fragment (the issue statement)." (P. 6-2) It is possible, then, that DIT scores may reflect the subject's ability to discriminate relevant from irrelevant information and utilize it properly independent of the ethical nature of the situation and information.

2. Risk-Taking Preferences. In these dilemmas the protagonist must choose between two courses of action, each of which carries its own risk. In all of the dilemmas one of the behavioral choices involves violation of a law or a personal commitment. It seems possible, therefore, that the actual behavioral choices advocated as well as the aspects of the situation deemed most salient in arriving at those choices might be influenced by the subject's own risk-taking preferences.

3. Modes of Resolution of Inter- and Intra-personal Conflict. The DIT requires the subject to resolve a conflict entailing inter- and/or intra-personal conflicts. It would seem likely, therefore, that the subject's attitudes towards personal responsibility for his behavior as well as the psychological means by which he resolves the psychological conflicts associated with real-life situations would influence the subject's reasoning and choices on the test. Thus, perceptual, cognitive, and psychodynamic factors unrelated to moral judgment may contribute to the subject's score on the DIT.

An extensive survey of the literature identified several variables which may influence moral judgment processes, particularly as measured by the DIT. Witkin's work in the area of field articulation would appear to have some bearing on the issue of perceptual and conceptual factors influencing DIT scores. The currently accepted interpretation of Witkin's criterial measures of field dependence-independence is that these tasks measure the subject's ability to overcome spatial embeddedness (Kagan & Kogan, 1970). The investigation of the relationship between perceptual and intellectual functioning by Witkin, Dyk, Faterson, Goodenough, and Karp (1962) led Witkin to reformulate the field articulation construct as the perceptual factor in a broader cognitive style termed analytical and global functioning. Kagan and Kogan (1970) reviewed evidence which suggested that verbal tasks which require overcoming an embedding context are not related to the analytical or global style of cognitive functioning measured by Witkin's criterial measures. However, the evidence was obtained from tasks such as making new words from the letters of a given word. If there is some sort of embedding

context in the DIT, it is of a conceptual nature rather than a linguistic nature. Witkin's field dependence-independence variable has been linked to wider dimensions of human functioning--cognition, intelligence, personality, and social behavior (Kagan & Kogan, 1970). Inasmuch as Witkin et al. (1962, p. 80) suggested that the analytical or global dimension of functioning is reflected not only in perceptual functioning, but also in problem-solving activities, the variable remains a relevant one for exploring the nature of the DIT task demands.

There is a great deal of evidence that an individual's cognitive style influences interpersonal functioning. Mayo and Crockett (1964) found that a person's cognitive complexity influenced his utilization of information about people in forming impressions of them. Harvey and Ware (1967) obtained similar results, working within the concreteness-abstractness construct of Harvey, Hunt, and Schroder (1961). This construct reflects individual differences in the way people differentiate and organize conceptual aspects of their experiences. Harvey and Ware (1967) found that people with concrete conceptual functioning resolved cognitive inconsistencies much differently than those who functioned more abstractly. Halverson (1970) similarly found that concrete subjects were able to tolerate less inconsistency in their impressions of other people than abstractly-functioning subjects.

As noted above, Goldman (Note 1) found that an undifferentiated cognitive style influenced the relationship between LOC measures and the DIT. Phares and Davis (1966) found that broad categorizers, as measured by the Pettigrew Category Width Scale, showed significantly greater generalization of expectancies for success between two

experimental tasks than did narrow categorizers. One significant aspect of their findings is the theoretical implication that a measure of cognitive functioning may influence expectancy phenomena and, by further implication, the behavioral choices ensuing. Together with the findings in the field of cognitive complexity and problem solving, these studies support the relevance of assessing an individual's cognitive style when investigating moral judgments about social situations.

Rimoldi and his associates have done a great deal of work exploring the relationships between logical structure, language, and thinking (e.g., Rimoldi, Fogliatto, Haley, Reyes, Erdmann, & Zacharia, Note 2; Rimoldi, Fogliatto, Erdmann, & Donnelly, Note 3). A method was devised to study thought processes, used by a subject in solving a problem, based on analysis of the questions asked by the subject in reaching a solution. The basic unit of analysis was the sequence of questions selected, this sequence being termed a tactic. Some of the basic assumptions of this approach are these: " a) that subjects are assumed to actively search for and combine information that they consider necessary and sufficient to reach a solution, b) that tactics are an index of the subject's thinking process. . .d) that individual differences are more likely to be highlighted through the study of the tactics than through the study of the final answers. . . ." (Rimoldi, Note 4, p. 3)

The Rimoldi problems are constructed in such a way that the ideal method of solving the problem is "theoretically defined, results from a logical analysis of the problem, and can be obtained prior to any experimentation." (Rimoldi, Note 4, p. 9) The intrinsic difficulty of each problem is reflected in its ideal tactic(s). A scoring method was

devised by which subjects' scores will be higher to the extent that the manner in which they solved the problem approximated the ideal tactic. Subjects' scores are lower to the extent that their tactic was irrelevant or redundant (Erdmann, Note 5).

The relevance of Rimoldi's work to the moral decision making process is contained in Rest's suggestion that the DIT may very well require the subject to select "the best way of thinking about the dilemma," (Rest, 1974) as well as identification of a particular system of thinking from a fragment of that system. Subjects who perform well on the Rimoldi problems are those who can identify the logical structure of the problem and match the given questions to the particular elements of that structure. Furthermore, performance on the Rimoldi problems has been linked to Rokeach's open- and closed-minded dimension. Robb (Note 6) found that open-minded subjects, as measured by Rokeach's Dogmatism Scale, were better than closed-minded subjects in recognizing and using the logical structure of the Rimoldi problems. He also found that closed-minded subjects performed better on questions with concrete content rather than abstract content, while open-minded subjects did not differ in their performance on these two types of content. This is another example in the literature of particular cognitive styles being associated with other measures of cognitive functioning. Similarly, dogmatism has been found by Harvey (1966) to be associated with greater intolerance of ambiguity and more concrete conceptual functioning.

A second type of factor which may influence performance on the DIT is the subject's risk-taking preferences (viz., Goldman, Note 1).

There is evidence that several of the variables discussed so far may have similar relationships to the risk-taking variable. For example, Higgins (Note 7) found that cognitive complexity was significantly correlated with moderate probability preferences (r = .70) and lower confidence ratings about these probability judgments (r = .57). Furthermore, probability preferences and confidence ratings were not significantly correlated. There is some evidence that people with an internal LOC perform better than externals under conditions of skill, and externals perform better than internals under chance conditions; however, the evidence is inconclusive (Joe, 1971). Finally, Kogan and Wallach (1964) found evidence of a significant relationship between Witkin's Embedded Figures Test and their Choice Dilemmas instrument which measures risk-taking preferences. The Choice Dilemmas measure was also found to have predictive value for a gambling situation in which the subjects' choices had monetary consequences. (P. 39)

The third source of potential influence on a subject's DIT performance was the characteristic manner in which he resolved inter- and intra-personal conflicts. Rest et al. (1974) defined a moral judgment stage as "a conceptual framework for interpreting social interrelationships and mutual responsibilities." (P. 492) The role of defense mechanisms is to protect the individual's self-concept from external threats, e.g., devaluating experiences, and internal threats, such as guilt provoking thoughts or actions. Coleman (1972) listed three ways by which defense mechanisms may protect the self: First, "by denying, distorting, or restricting the individual's experience." Second, "by reducing emotional or self-involvement." Third, "by counteracting

threat or damage." (P. 126) There would seem to be at least face validity to the proposition that if an individual's self-concept were threatened by experiences proceeding from his social relationships and responsibilities, defense mechanisms would alter his view of these relationships in order to reduce the threat. Kohlberg (1976) touches on this issue, somewhat indirectly, in his discussion of the relationship between ego development and moral development. He acknowledged that an individual's moral stage must be understood within the broader context of his ego development. However, he cautioned against subsuming moral development under ego development because many of the special problems and features of moral development would be lost.

A survey of the cognitive developmental literature did not produce any studies directly exploring the relationship between level of moral judgment and various intrapsychic defense mechanisms. However, some research has been conducted into the relationship between defense mechanisms and two variables which may influence moral judgment processes, i.e., field articulation and LOC. Witkin et al. (1962) found that analytical functioning was associated with a well developed defensive structure. Using the Thematic Apperception Test to measure defenses, Witkin et al. found complex defenses (e.g., isolation and intellectualization) as opposed to simpler defenses (e.g., denial and repression) to be associated with analytical functioning. The Defense Mechanism Inventory (Gleser & Ihilevich, 1969) has been used in a series of studies investigating the relationship between Witkin's construct and psychological defenses. Field independent subjects used intellectualized defenses significantly more than field dependents and the latter used

denial and repression more than the field independents (Bogo, Winget, & Gleser, 1970). Ihilevich and Gleser (1971) found that field dependents relied excessively on defenses involving turning against self, denial, and repression. Field independents tended to use defenses involving projection. The subjects for this study were outpatients at a mental health clinic, none of whom were on medication or had diagnoses of organicity or psychosis. Similar results were obtained by Donovan, Hague, and O'Leary (1975) using a population of detoxified male, veteran, alcoholic inpatients. The sample excluded those with diagnoses of organicity or psychosis. O'Leary, Donovan, and Kasner (1975) found that after 4½ weeks of inpatient treatment, the post test scores of alcoholics increased in the direction of greater field independence while at the same time their use of denial and repression, as measured by the Defense Mechanisms Inventory (DMI) decreased.

Some research has been conducted with the DMI and measures of LOC. O'Leary, Donovan, and Hague (1975) found that internals, as measured by Rotter's scale, used defenses such as denial, repression, isolation, and intellectualization to a greater extent than externals. Externals used defenses which involved turning against the threatening object, i.e., displacement, to a greater degree than internals. Kendall, Finch, and Montgomery (Note 8), using the Nowicki-Strickland Internal-External Scale, found very similar relationships between LOC orientation and DMI defense categories as did O'Leary et al. (1975). Inasmuch as Goldman (Note 1) found internality to be significantly associated with post-conventional moral thinking, the relationship between defense mechanisms and level of moral judgment warrants investigation.

To summarize, recent progress in theories of moral development suggests that motivational constructs may play an important role in producing a comprehensive theory of moral development. Rotter's LOC construct has been shown to merit consideration when conducting research in this field, although the motivational component of this construct needs clarification. Analysis of the Defining Issues Test of moral reasoning suggests that the ability to make cognitive disciminations, risk-taking preferences, and modes of resolving inter- and intra-personal conflicts may influence performance on the test, apart from the subject's moral developmental stage. In clarifying this set of issues, the nature of the LOC construct may also gain illumination. The underlying assumptions of this study are these: First, LOC is a useful construct for the conceptualization of moral development. Second, the process of making moral judgments, as measured by the DIT, involves perceptual, cognitive, and personality factors. Accordingly, the basic hypotheses of this study are these:

1. Post-conventional stages of moral reasoning (P) are positively associated with an internal LOC.

1a. A corollary hypothesis, proceeding from the two assumptions listed above, is that there is a common factor underlying the influence of the LOC, perceptual, cognitive, and personality factors on moral reasoning.

The following group of basic hypotheses deal more specifically with the potential influences on a subject's DIT performance:

2. Field independent (FI) subjects, having a more differentiated mode of perceptual functioning, will score higher on the DIT than field

dependent (FD) subjects, thereby indicating a more sophisticated level of moral reasoning.

3. Subjects who are more cognitively efficient will use higher levels of moral reasoning more frequently than the less cognitively efficient.

4. Subjects whose characteristic usage of defense mechanisms differs will also differ significantly in their DIT scores. Assuming that the LOC construct is relevant to a subject's employment of psychological defenses and that LOC has the same functional relationship to defense mechanisms as it does to post-conventional moral reasoning, it is specifically hypothesized that subjects whose REV or PRN scores are at least one SD above the group mean will have a significantly higher P score than subjects whose TAO scores are at least one SD above the group mean. Subjects in the PRN category use isolation, intellectualization, and rationalization while those in the REV category use repression and denial. The TAO category includes subjects who tend to resolve conflict by attacking the external frustrating object.

4a. It is conceivable that if a subject's usage of defense mechanisms influences his moral reasoning, it will also influence the actual decisions made in reasoning about a moral dilemma. A corollary hypothesis is, therefore, that characteristic usage of defense mechanisms will influence the nature of decisions made on the DIT. Specifically, subjects who fall in the TAO category will advocate decisions involving legal violations significantly more than subjects who are in the PRN or REV categories.

The next set of hypotheses seek to replicate and extend the

previous findings of Goldman (Note 1) that the actual decisions made on the DIT provide important data for understanding moral judgment processes.

5a. Men are more likely than women to advocate violation of legal norms in their decisions on the DIT.

5b. Subjects who differ significantly in their advocacy of legal violations will also differ significantly in their risk-taking preferences, as measured by the Kogan-Wallach Choice Dilemmas.

5c. These same subjects will also differ significantly in their sensitivity to situational factors influencing the probability of illegal behavior, as measured by the Behavior Prediction Scale.

CHAPTER II

METHOD

Subjects

Subjects were obtained from the Loyola University Psychology Department subject pool. Participation in the investigation partially fulfilled requirements for the introductory psychology course. A total of 60 people participated (32 males and 28 females). Average age for the sample was 18.6 years (males = 18.8, females = 18.2).

Instruments

A battery of nine tests and questionnaires was administered:

1. Internal-External Locus of Control Scale (LOC) (Rotter, 1966);
2. Intrinsic-Extrinsic Religious Orientation Inventory (ROI) (Allport & Ross, 1967);
3. Defining Issues Test (DIT) (Rest et al., 1974);
4. Behavior Prediction Scale (BPS) (Rettig & Rawson, 1963);
5. Otis-Lennon Mental Ability Test (OLMAT) (Otis & Lennon, 1963);
6. Choice Dilemmas (CD) (Kogan & Wallach, 1964);
7. Group Embedded Figures Test (GEFT) (Oltman, Raskin, & Witkin, 1971);
8. Defense Mechanisms Inventory (DMI) (Gleser & Ihilevich, 1969);
9. Rimoldi Thought Problems (RTP) (Rimoldi et al., Note 2).

The less well known tests are described below. The Choice

Dilemmas is a 12 item questionnaire which presents a hypothetical person faced with an important decision to make. This person must choose between taking a risky action with the potential for great personal benefit or maintain the status quo with its more limited benefits and risks. The subject must indicate what is the minimal probability of success which would permit him to advise the hypothetical person to take the risk. The probability choices given the subject are 10%, 30%, 50%, 70%, and 90% probability of success as well as the option of advising never to take the contemplated action. This latter option is scored as a 100% probability of success.

The CD was conceptualized by Kogan and Wallach (1964) as a measure of the deterrence of failure, i.e., when the probability of success for the risky alternative was so high that it offset the concomitant risk of failure. Higher scores on the CD reflect greater conservatism in risk-taking behavior; lower scores indicate greater willingness to take risks.

The Group Embedded Figures Test is an adaptation of the individually administered Embedded Figures Test (Witkin, 1950). The GEFT contains 18 complex geometric figures which are hidden in larger geometric designs. Seventeen of the test items are taken directly from the original test. The subject receives one point for each correctly identified figure, so scores may range from 0-18.

Oltman et al. (1971) found that men performed slightly, but significantly, better than women which is consistent with findings usually obtained with the EFT (Witkin et al., 1962). Correlations between the GEFT and EFT of .63 for females and .82 for males were

reported. Correlations between the GEFT and the criterial measures for the EFT ranging from .34 to .71 were also reported. These correlations are fairly comparable to the correlations obtained between the EFT and these same measures.

The Defense Mechanisms Inventory is a paper-and-pencil objective instrument. A subject's characteristic and differential use of five classes of defenses is measured across five areas of conflict: authority, independence, competition, situational, and masculinity or femininity. There are two stories per area for a total of ten. After each story the subject must choose the two responses which are most and least representative of his own proposed actual behavior, fantasied behavior, thoughts, and feelings, were he to actually have the experience described in the story. For each of these four aspects of responding--proposed actual behavior, fantasied behavior, thoughts, and feelings--there are five statements, each statement exemplifying one class of defenses. The five classes of defenses are as follows: 1) Turning Against Object (TAO), 2) Projection (PRO), 3) Principalization (PRN), 4) Turning Against Self (TAS), and 5) Reversal (REV). The first class, TAO, includes those behaviors which resolve conflict through attacks against the external frustrating object. Projection involves the justification of aggression against an external object through the unfounded attribution of negative characteristics to an external object. The PRN class incorporates such defenses as isolation, intellectualization, and rationalization. The TAS class directs inward the aggressive responses evoked by the conflict. Finally, REV includes repression and denial which attempt resolution of conflict by inhibiting

negative responses.

Regarding scoring, the response chosen as most representative in each set of five responses is given a weight of two. The least representative response is weighted zero. The remaining three items each have a value of one. Potential scores for a given class of defenses may range from 0-80. However, the sum of the scores for the five types must equal 200. That is, ten stories times four response modes times (three items valued at one plus one item valued at two) equals two hundred.

Gleser and Ihilevich (1969) reported reliability coefficients ranging from .85 to .93 for a one week interval and coefficients ranging from .69 to .87 for a three month interval. Weissman, Ritter, and Gordon (1971) reported reliability coefficients for a 17 day interval ranging from .61 to .84 for their total sample. They found that male DMI scores are less stable than females. The findings of Weissman et al. (1971) confirmed those of Gleser and Ihilevich (1969) that men score significantly higher than women on TAO and PRO and significantly lower on TAS.

Gleser and Ihilevich (1969) presented a variety of findings in support of the construct validity of the DMI. In a review for the Seventh Mental Measurements Yearbook, Walsh (1972) characterized this data as "conflicting and, at best, partially confirmatory." He concluded, however, that despite several problems, the DMI rated well as a research measure, particularly in comparison with other measures of defense mechanisms of similar scope.

The Otis-Lennon Mental Ability Test is an 80 item, group-

administered test of general intellectual ability. There are various levels for different grade levels as well as alternative forms for each level. There are no versions of the test designed specifically for college level populations. The Advanced Level, Form J version was used in this research. Norms, reliability, and validity data are not available for use of the test with a college population. However, it should be noted that the average age of the research sample is less than 12 months older than the sample upon which standardization data is available. Consultation with the test consultant for the test publisher produced the following suggestion: Inasmuch as the concern of the present research is with the final mental ability level rather than with the rate of growth, a raw score could be used for subsequent statistical analyses, rather than a deviation IQ (Mitchell, Note 9). Consequently, the OLMAT scores reported herein will represent the raw total of questions correctly answered, without corrections for guessing.

Otis and Lennon (1963) reported an alternate-form reliability coefficient of .94 for the version of the test used in this research. Their subjects were 766 high school seniors. They also reported a reliability coefficient of .94 for a sample of 130 tenth graders re-tested in eleventh grade. A great deal of evidence for the content and construct validity of the test is presented in their technical handbook (Otis & Lennon, 1963).

The Rimoldi method for exploring the relationship between logical structure, language, and thinking was described in the first chapter. The development of this method and its scoring system is too complex

to be succinctly described here. The interested reader is referred to the works of Rimoldi and his colleagues cited previously. Suffice it to say that four problems were given to each subject (Problems 31A, 31B, 35A, and 35B). Type 31 problems have a simple logical structure; Type 35, a more complicated one. Type A problems use concrete language; Type B, abstract language. Scores for Problem 31A may range from 0-0.5; for Problem 31 B, from 0-0.0625; for Problems 35A and 35B, from 0-0.0235. The subject's scores for the four problems are averaged to yield an Average Cognitive Efficiency (ACE) score. Of the three scoring systems developed, the Schema Pulling Out method was used. There is some evidence that this method is the best discriminator between good and poor problem solvers (Erdmann, Note 5). Minor revisions were incorporated into the scoring system, after consultation with Erdmann (Note 10), which were consistent with Rimoldi's theoretical rationale.

In addition to an objective analysis of the efficiency of the subject's problem solving processes, one can look at whether or not the subject solved the problems correctly. Rimoldi et al. (Note 2) found that cognitive efficiency was not clearly related to the number of correct solutions. Thus, it is quite possible for one subject to ask the minimal number of appropriate questions necessary to solve the problem, but yet get the wrong answer, while another subject may obtain the correct answer despite asking several irrelevant and redundant questions. In this example, the former subject would receive a higher ACE score, despite the wrong answer, because the manner (tactic) in which he arrived at his solution adhered more closely to the logical

structure of the problem than did the tactic of the latter subject.

Finally, it should be noted that the name "Rimoldi Thought Problems" is a convention adopted by the present writer. This writer did not find a formal designation for the Rimoldi method in the numerous publications of Rimoldi which were consulted.

Scoring methods for the other tests are as follows. The Rotter LOC Scale score is the sum of answers indicating an internal orientation (highest possible score equals 23). This was done so that if any positive correlation were to be found between this scale and other scales, the relationship would be expressed in positive, rather than negative, numbers.

In his 1966 monograph, Rotter reported test-retest reliability coefficients ranging from .49 to .83 for one and two month periods. Joe (1971) concluded from his literature review that evidence for Rotter's LOC construct although not entirely favorable is generally supportive of the construct's validity.

The Intrinsic and Extrinsic scales of the Religious Orientation Inventory are both scored so that higher scores indicate a more external attitude on each scale. Scores on the scales can range from 9-45 and 12-60, respectively. These scale scores are not combined because they measure two separate dimensions. The ROI is able to identify three types of individuals. The intrinsic type tends to agree with items on the Intrinsic Scale and disagree with those on the Extrinsic. The converse is true for the extrinsic individual. The indiscriminately pro-religious (INPR) person tends to agree with anything that sounds favorable to religion. Therefore, he tends to agree with items on

both scales. Allport and Ross (1967) classified as this type any subject scoring at least 12 points less on the intrinsic scale than on the extrinsic scale.

Answers to the Defining Issues Test are classified according to their stage of moral reasoning and weighted according to the importance the subject attributes to it in making his decision. Scores for each level of moral reasoning reflect the frequency with which the subject uses each level of reasoning. Rest (1974) recommended that a P, or Principled Morality, score rather than individual stage scores be used for statistical analysis. The P score is the sum of stage scores for the three highest stages of moral reasoning. It is interpreted as "the relative importance a subject gives to principled moral considerations in making a decision about moral dilemmas." (Rest, 1974, p. 4-3)

A correlation of .68 with Kohlberg's Moral Judgment Interview is provided as evidence for the construct validity of the DIT as do the correlations with other tests (Rest, et al., 1974). Two year reliability coefficients of .68 for 16-17 year olds and .54 for 18-20 year olds were reported (Rest, 1975).

The Behavior Prediction Scale measures the influence of four variables--Expectancy of Gain, Reinforcement Value of Gain, Expectancy of Censure, and Reinforcement Value of Censure--on a subject in making behavioral predictions. Each variable is measured under high and low conditions. The degree of sensitivity to a change in conditions is the magnitude of the difference in prediction scores for each condition. Scoring for each item ranges from 0 (story character will definitely

not steal) to 6 (will definitely steal). Potential range of scores for each condition is 0-48.

Procedure

The average time necessary to complete the test battery was estimated at five hours. Inasmuch as the data was to be collected toward the end of the semester, tests which were timed, required factual answers, or had difficult instructions were group administered under the supervision of the experimenter on two separate occasions before and after a school vacation period. With other tests requiring only individual opinions or self-descriptions, subjects were given the option of completing the tests at home. The period in which the data were collected ranged in length from 1-3½ weeks. All subjects completed the OLMAT, GEFT, and RTP under supervision. Many subjects completed several of the other tests under supervision and the few remaining at home. Subjects choosing to take tests home were given a printed list of instructions, describing the conditions by which to take the tests. For example, eliminate distractions such as television. Do not consult other people since there are no right or wrong answers. Do each test in one sitting and space the taking of the tests as close as possible.

The order of administration was as follows: The GEFT was given first because it was a timed test. The RTP followed because of its complicated instructions. Subjects who had sufficient time left in the scheduled group administration then did the DIT. The OLMAT, a timed test, was administered at the post-vacation testing session because

of a delay in its delivery. The remaining tests were taken at home and are assumed to have been taken in a random order.

CHAPTER III

RESULTS

Previous research by Goldman (Note 1) confirmed findings by Allport and Ross (1967) that indiscriminately pro-religious (INPR) subjects tend to obscure trends in data involving the ROI. To assess the potential influence of this factor on our results, subjects were classified into two groups according to Allport and Ross' criteria. A t test indicated that INPR subjects scored significantly lower on the DIT P score than non-INPR subjects ($t = 1.93$, $df = 58$, $p < .03$). In other words, INPR subjects were less likely to use post-conventional forms of moral reasoning. Because of the importance of DIT data in the statistical analysis of the hypotheses, the results reported herein are restricted to the 42 non-INPR subjects.

Table 1 lists the mean scores and standard deviations obtained by the non-INPR subsample on the test battery.

The first hypothesis was confirmed by computing a Pearson correlation between the DIT P and LOC scores ($r = .28$, $N = 42$, $p < .05$).

The validity of corollary hypothesis 1a was tested by performing a principal factors factor analysis on the test battery. An orthogonal factor matrix, after a varimax rotation, is given in Table 2. An examination of the factor structure yields three relevant observations. First, the DMI subscales received their highest loadings on Factors One and Three. Second, the moral reasoning measure (P) has identical

Table 1

Means and Standard Deviations of Subjects

Who Are Not Indiscriminately Pro-Religious (N=42)

Variable	M	SD
Otis-Lennon Mental Ability Test (OLMAT)	65.62	7.70
Group Embedded Figures Test (GEFT)	13.40	4.91
Average Cognitive Efficiency (ACE)	.03	.01
Extrinsic Religious Orientation (EXROI)	31.33	4.70
Intrinsic Religious Orientation (INROI)	25.95	3.50
Internal Locus of Control (INLOC)	12.24	4.30
Defense Mechanisms Inventory-Principalization (DMIPRN)	43.93	6.46
Defense Mechanisms Inventory-Turning Against Self (DMITAS)	38.55	7.70
Defense Mechanisms Inventory-Reversal (DMIREV)	35.81	6.72
Defense Mechanisms Inventory-Turning Against Object (DMITAO)	42.12	7.65
Defense Mechanisms Inventory-Projection (DMIPRO)	39.64	5.09
Defining Issues Test-P Score (P)	24.62	8.11
Choice Dilemmas (CD)	5.67	1.34
Expectancy of Gain Difference Score (EGND)	7.00	6.12
Reinforcement Value of Gain Score (RVGND)	10.90	9.75
Expectancy of Censure Score (ECSD)	-6.48	6.02
Reinforcement Value of Censure Score (RVCSD)	-9.00	6.01
Defining Issues Test-Decisions (DIT Decisions)	2.10	1.12

Table 2

Orthogonal Factor Matrix After Varimax Rotation

Variable	Factor 1	Factor 2	Factor 3	Factor 4
DMPROTAO*	.94	-.01	-.05	-.11
EXROI	.44	.14	.17	.12
DMIREV	-.77	-.16	.21	.20
OLMAT	.19	.79	.14	.12
GEFT	-.01	.64	-.01	-.06
ACE	-.03	.51	-.03	.04
INROI	.27	.39	.37	.34
P	.03	.32	.32	-.16
DIT Decisions	.17	.30	.15	-.02
RVGND	.07	.27	-.02	.01
INLOC	-.08	.04	.49	.20
ECSD	-.10	.06	.73	-.07
RVCSD	.10	-.02	.71	-.06
DMIPRN	-.41	.11	-.04	.82
DMITAS	-.17	.07	-.09	-.74
RVGND	.07	.27	-.02	.01
CD	.03	-.03	.05	-.01
EGND	-.02	-.18	-.15	-.01

*DMPROTAO is a variable created by averaging the subject's score on the DMITAO and DMIPRO subscales. There are two reasons for making this substitution in the factor analysis. First, one of the shortcomings of the DMI is that the DMITAO and DMIPRO subscales are not adequately differentiated (Walsh, 1972). Second, it is not possible to do a principal factors analysis when 1 measure is completely determined by 1 or more other measures. The nature of the DMI scoring procedures is such that any 4 of the subscale scores together completely determine the score on the remaining scale.

loadings on Factors Two and Three. Finally, the second factor is comprised mainly of tests measuring intelligence, field articulation, cognitive efficiency, and intrinsic religious motivation while the third factor has LOC and two measures of sensitivity to risk loading highest on it. Taken together, these three observations indicate that psychodynamic defense mechanisms do not appear to operate on the process of moral reasoning. Also, the analysis indicates that the perceptual and cognitive factors operating in moral reasoning processes are distinct from the LOC construct, but that LOC may mediate between the cognitive and situational factors contributing to moral reasoning. These findings thus are inconsistent with the hypothesis of a unitary factor underlying all constructs contributing to moral reasoning.

The second hypothesis, that field independents will score higher on the DIT, was tested by means of a t test. Witkin et al. (1962) reported that males scored significantly higher on measures of field independence. Inasmuch as the sex differences in the present sample on the GEFT approached significance ($t = 1.50$, $df = 40$, $p < .07$), the subsample was divided according to sex. Subjects were classified as field independent if their GEFT scores fell at least one SD above the mean. Subjects whose score was at least one SD below the mean were placed in the field dependent group. On the surface the results indicate that field articulation is not a significant explanatory factor for males ($t = .90$, $df = 4$, $p > .05$), but is significant for females ($t = 2.61$, $df = 5$, $p < .03$), when analyzing their DIT performance.

To test the third hypothesis, a one-way ANOVA was performed contrasting subjects whose cognitive efficiency scores (ACE) fell at least

one SD above versus one SD below the mean. The results, indicated in Table 3, do not support the hypothesis of cognitive efficiency influencing moral reasoning processes on the DIT.

The results for Hypothesis 4 are given in Table 4. Contrary to expectation, differences in characteristic usage of defense mechanisms did not produce any significant difference in DIT performance. In order to test the remaining hypotheses it was first necessary to examine the DIT protocols for the specific decisions made. The following decisions were considered by the investigator to involve a violation of law: Heinz--the drug should be stolen; Student Takeover--the sit-in should take place; Escaped Prisoner--the prisoner should not be reported to the police; Doctor--the doctor should perform euthanasia; Webster--the minority applicant should not be hired; Newspaper--the principal should revoke permission to publish the student paper. Each subject's decisions were compared to the criterial answers and a frequency count of instances of agreement was made. The score was termed "DIT Decisions". Scores could range from 0 to 6, with 6 signifying that all decisions involved legal violations.

Corollary Hypothesis 4a, predicting a significant effect of defense mechanisms on moral decisions (DIT Decisions) was tested by an ANOVA with selected a priori contrasts. The results, given in Table 5, partially support the hypothesis. Subjects who externalize their frustration endorse decisions involving legal violations significantly more than those who intellectualize ($t = 2.20$, $df = 21$, $p < .04$). There were no significant differences in advocacy of legal violations between those who tend to repress feelings and those who tend to externalize

Table 3

Analysis of Variance of Moral Reasoning by Cognitive Efficiency

Source	DF	SS	MS	F	Sig
Between	1	44.04	44.04	.48	
Within	10	924.63	92.46		
Total	11	968.67			

Table 4

Analysis of Variance of Moral Reasoning

by Defense Mechanisms, With Selected Contrasts

Source	DF	SS	MS	F	Sig
Between	4	219.62	54.90	.74	
Within	21	1552.23	73.92		
Total	25	1771.85			

Contrast	Value	Stand Error	t	df	P
DMIPRN vs DMITAO	3.52	4.45	.79	21	
DMIREV vs DMITAO	6.14	6.89	.89	21	

Table 5

Analysis of Variance of Moral Decisions

by Defense Mechanisms, With Selected Contrasts

Source	DF	SS	MS	F	Sig
Between	4	8.11	2.03	1.78	
Within	21	23.93	1.14		
Total	25	32.04			

Contrast	Value	Stand Error	t	df	P
DMIPRN vs. DMITAO	-1.21	.55	-2.20	21	.04
DMIREV vs. DMITAO	-.21	.86	-.25	21	

their feelings.

The existence of sex differences in the advocacy of legal violations, Hypothesis 5a, was confirmed. DIT Decision scores for males were significantly higher than females' scores (t = 4.68, df = 40, p <.001).

Hypothesis 5b, that subjects differing significantly in their advocacy of legal violations will also differ significantly in their risk-taking preferences was tested by means of a 2X2 ANOVA with scores on the Kogan-Wallach Choice Dilemmas as the dependent variable. The results, given in Table 6, indicate a significant main effect for DIT Decisions (F = 7.46; df = 1,28; p <.01). The main effect of Sex and the interaction effect were non-significant.

Hypothesis 5c predicted that level of DIT Decisions will determine performance on the Behavior Prediction Scale subscales. That is, those who advocate legal violations on the DIT will also be more sensitive to situational differences affecting the probability of illegal behavior. Inasmuch as significant sex differences existed on DIT Decisions scores, sex was included as an independent variable in a 2X2X4 multivariate ANOVA. Interestingly, Table 7 shows a significant main effect for sex (F = 3.85; df = 4,25; p <.01), but non-significant effects for DIT Decisions and the interaction of the main effects.

A summary of univariate F tests of the sex factor's influence on the dependent measures, given in Table 8, shows that the main effect of this factor is attributable to significant sex differences on the Expectancy of Gain and Reinforcement Value of Censure subscales (F = 10.82; df = 1,25; p <.003 and F = 6.57; df = 1,25; p <.02,

Table 6

A 2X2 Analysis of Variance of Risk-Taking Preferences by Sex and Moral Decisions, With Unequal N

Source	DF	SS	MS	F	Sig
Main Effects	2	12.02	6.01	3.89	.03
Sex	1	3.92	3.92	2.54	.12
DIT Decisions	1	11.54	11.54	7.46	.01
Interaction					
Sex by DIT Decisions	1	2.66	2.66	1.72	
Residual	28	43.29	1.55		
Total	31	57.97	1.87		

Table 7

Multivariate Analysis of Variance of Behavior Prediction Scale Scores by Sex and Moral Decisions

Source	df	F	p*
Sex	4	3.85	.01
DIT Decisions	4	1.33	
Interaction	4	.22	
Error	25		

*Using Wilk's lambda criterion

Table 8

Univariate F Tests of the Sex Effect

on Behavior Prediction Scale Scores

Independent Variable: Sex

Dependent Variable	df	MS	F	P
EGND	1	368.05	10.82	.003
RVGND	1	211.91	2.04	
ECSD	1	61.95	1.64	
RVCSD	1	247.46	6.57	.02
ERROR	25			

respectively). Tables 9 and 10 give summaries of univariate F tests for the DIT Decisions and interaction effects, respectively. With one exception on Table 9, Expectancy of Censure, these tests are all non-significant.

Table 9

Univariate F Tests of the Effect

of Moral Decisions on Behavior Prediction Scale Scores

Independent Variable: DIT Decisions

Dependent Variable	df	MS	F	P
EGND	1	3.12	.09	
RVGND	1	.09	.001	
ECSD	1	150.14	3.98	.06
RVCSD	1	3.05	.08	
ERROR	25			

Table 10

Univariate F Tests of the Effect of the Sex-Moral Decision Interaction on Behavior Prediction Scale Scores

Independent Variable: Sex by DIT Decisions Interaction

Dependent Variable	df	MS	F	P
EGND	1	15.57	.46	
RVGND	1	26.02	.25	
ECSD	1	.83	.02	
RVCSD	1	5.02	.13	
ERROR	25			

CHAPTER IV

DISCUSSION

The result of correlating the LOC scale with the DIT supported the hypothesis that an internal LOC is associated with post-conventional forms of moral reasoning and, conversely, that an external LOC is associated with lower levels. This finding replicates that of Goldman (Note 1) and together they contradict Arbuthnot's (1973) finding of a non-significant correlation between the measures.

Corollary hypothesis 1a assumed that, if perceptual, cognitive, and personality factors as well as LOC orientation influenced the moral reasoning process, there was likely to be a common factor underlying these variables. The results of the factor analysis did not support this assumption. In retrospect, it appears to have been a simplistic expectation that such a diverse aggregation of variables would have a common underlying factor, even if they all acted upon one measure. Two factors emerge from the test battery which do appear to influence moral reasoning processes: A cognitive-intellectual factor and a LOC factor (see Factors Two and Three in Table 2). The finding of a cognitive-intellectual factor is consistent with Rest's (1974) finding of a significant, moderate correlation of DIT performance and intelligence. The LOC factor is supportive of recent attempts, e.g., Dienstbier et al. (1975), to integrate cognitive-developmental and learning theories of moral development. The significance of this LOC

factor will be discussed in greater detail in connection with other hypotheses. Finally, the factor analysis indicates that usage of defense mechanisms does not influence the reasoning process.

The next three hypotheses proceeded from a logical analysis of the task demands of the DIT. This analysis suggested that, rather than being a pure measure of moral reasoning, the DIT might also reflect the influence of non-moral abilities and characteristics of the subject. A survey of the literature suggested three variables which might influence performance on the DIT apart from one's stage of moral reasoning. Thus, to the extent that these following hypotheses are confirmed, they call into question the construct validity of the DIT as a test of moral reasoning; to the extent they are disconfirmed, its construct validity is unchallenged.

Hypothesis 2 predicted a positive association between degree of differentiated perceptual functioning and level of moral reasoning. Field articulation had a significant effect on females' DIT performance, but not on males'. It seems likely that there was a ceiling effect on the GEFT which restricted its discrimination among males. Evidence for such an effect is this: Consistent with the findings of Witkin et al. (1962) there is a trend in our data from males to score higher than females (t = 1.50, df = 40, p <.07). Moreover, with the higher mean (14.38 vs. 12.11) males had much less variation in their scores than females (SD = 3.66 vs. 6.08). Inasmuch as the GEFT is an eighteen point test, all scores for both sexes are encompassed within one SD above the respective means. Thus the greater variability among the females provided the GEFT with greater discriminatory power for them

in the t test involving GEFT and DIT.

In view of the limited number of subjects used in these analyses (N = 6 for males; N = 7 for females), these findings should be viewed tentatively in evaluating the hypothesis. These findings leave open the possibility that the perceptual ability to identify a simple geometric figure embedded in a complex figure may be related to the ability to identify a familiar form of moral reasoning out of a list of ten statements employing up to seven different forms of reasoning. Because of its implications for evaluation of DIT performance the relationship between field articulation and the DIT warrants further research.

The hypothesized relationship between cognitive efficiency and level of moral reasoning was not confirmed. The Rimoldi Thought Problems were a relatively close parallel to Rest's speculation about how the subject approaches the DIT. It had been thought likely that the ability to identify the logical structure of a thought problem and then identify a statement corresponding to a particular point in that logical structure would be related to a task which requires the identification of the salient issues in a moral dilemma and then the identification of an issue statement which deals with that issue. Other researchers have found a relationship between cognitive efficiency and an internal LOC (Ludwigsen, 1972; Phares, 1968). In the present research such a relationship did not exist ($r = .09$, $N = 42$, $p > .05$). This may account for the lack of association between cognitive efficiency and P in the present study.

These negative findings are somewhat counter-balanced by the

evidence suggesting that field articulation may influence DIT performance and the parallel between the task demands of the GEFT and the Rimoldi paradigm. A post hoc partial correlation analysis of the field independence-cognitive efficiency relationship was performed. The results indicate a significant partial correlation between field independence and cognitive efficiency after the effects of intelligence were controlled. This held true for males (partial r = .49, N = 21, p <.009), but not for females (partial r = -.09, N = 15, p >.05). These findings provide partial support for Zigler's (1963) objection to Witkin's contention that verbal processes have little relevance to psychological differentiation.

Taken together, the results for Hypotheses Two and Three leave open the original questions raised about the nature of the DIT task demands.

The hypothesized relationship between level of moral reasoning and usage of defense mechanisms was not supported by the data, although specific defense mechanisms were found to be differentially associated with DIT decisions advocating legal violations. One might account for this set of findings with a post hoc explanation that defense mechanisms may influence the manner in which a subject is inclined to resolve a moral conflict without influencing the reasoning process by which he arrives at the resolution. This "explanation" is little more than a description of the results of testing Hypotheses 4 and 4a.

Related data, given below, make the overall relationship between moral reasoning and moral decisions a very complicated one. A brief review of these findings will help delineate the problem's complexity:

1. Usage of post-conventional moral reasoning is positively associated with advocacy of legal violations (r = .24, N = 42, p <.10). This, of course, supports the contenion that reasoning processes and decision outcomes on the DIT are related.

2. An internal LOC is correlated with higher levels of reasoning (r = .28, N = 42, p <.05). The relationship of LOC to other variables further complicates the picture:

a. Defense mechanisms found previously (O'Leary et al., 1975) to be associated with different LOC orientations were found in the present study to differentiate successfully subjects advocating legal violations. That is, subjects who tend to externalize their anger advocate legal violations more frequently than subjects who tend to use rationalization. This finding is consistent with Williams and Vantress' (1969) investigation of the LOC's relationship to the Busse-Durkee Hostility Inventory. Externality was correlated with hostility (r = .27, N = 235, p <.05).

b. Similarly, male subjects who did not advocate legal violations tended to have an internal LOC (r = -.29, N = 24, p <.08). Miller and Minton (1969) found similarly that externals violated experimental instructions more frequently than internals did, thereby suggesting that externals were more suspicious of the experimenter.

Thus, LOC orientation is related in a theoretically consistent manner to post-conventional moral reasoning, decision outcomes on the DIT, and characteristic usage of defense mechanisms. Despite this pattern, the results obtained by Hypotheses 4 and 4a suggest that moral reasoning and moral decisions are not influenced by identical sets of

factors. That defense mechanisms do not influence moral reasoning processes supports the cognitive developmental view that cognitive, rather than affective or situational factors are primary in moral development. However, to the extent that affective and situational factors influence moral decisions, the practical value of cognitive-developmental theory in predicting moral behavior is limited. Kohlberg, of course, contended that the cognitive definition of a situation influences one's emotional reaction to it and that affective responses to moral conflicts develop in a parallel fashion to cognitive maturity (viz., 1969, p. 392). Thus, a Stage 3 subject experiences shame while a Stage 6 subject experiences guilt over moral transgressions. Although cognitive maturity is the ultimate source of influence on moral decisions according to Kohlberg, he has not dealt extensively with the process linking reasoning to behavior, or affect to reasoning.

Dienstbier et al. (1975) agreed with Kohlberg's suggestion that development of affective and cognitive maturity are parallel, although they were more inclined to explain emotional arousal in temptation situations by a learning, rather than a cognitive-developmental, model. Their emotion attribution theory attempts to link moral reasoning and emotions to moral behavior with this explanation: Emotional arousal in moral conflicts is primarily a function of learning. Maturity of moral reasoning may directly influence how this arousal is interpreted. More importantly, developmental-socializing experiences in the attribution of the source of this emotional arousal--either inward to the subject or outward to external forces--will influence moral reasoning which in turn influences the interpretation of this arousal.

Supporting this attempt to integrate cognitive-developmental and learning theories of moral development are the findings of Ruma and Mosher (1967). Using Kohlberg's interview procedure and tests of guilt constructed on social learning theory, they found significant correlations ranging from .43 to .55 between level of moral judgment and three measures of internalized guilt.

Putting aside these theoretical considerations, the network of empirical relationships described above remains to be explained. The data support the suggestion that LOC is a mediating variable between moral reasoning and moral decisions. It should be noted that although an internal LOC is positively correlated with post-conventional moral reasoning which is in turn positively associated with advocacy of legal violations, internal LOC is negatively correlated with advocacy of legal violations. This supports the suggestion that LOC is a multi-faceted construct, including both cognitive and motivational components (cf. Midlarsky & Midlarsky, 1973; Phares, 1976; Rotter & Mulry, 1965). That is, the cognitive component may account for its associations with the DIT P score while its motivational component accounts for its association in a theoretically consistent fashion with DIT decisions and the defense mechanisms associated with those decisions.

Additional support exists for the proposition that LOC has cognitive and motivational components allowing it to be a useful explanatory link between moral reasoning and decisions. Evidence supporting a strong relationship between attribution of intent and attribution of responsibility is reviewed by Maselli and Altrocchi (1969). It should be remembered at this point that the subject must determine in each DIT

dilemma the protagonist's responsibilities to different segments of society. Phares and Wilson (1972) demonstrated that internals not only accept more responsibility for their behavior than externals, but also attribute more responsibility to others. The relationships reported above between LOC and defense mechanisms support the idea that LOC orientation is a factor in attribution processes. There is additional evidence in the present study which supports this assertion.

Noting differences in socialization techniques, Dienstbier et al. (1975) suggested that an internally-orienting process may lead a child to associate his emotional arousal in a temptation situation to his own anticipated misconduct and subsequently the child will experience guilt. An externally-orienting process would lead to fear of punishment. Based on Dienstbier's position, Goldman (Note 1) suggested that the association between LOC and level of moral reasoning might be accounted for by the subject's attribution of responsibility for his experiences. In moral dilemmas an internal would be more likely to focus on his responsibilities for the ethical quality of his social relationships while an external is likely to be influenced more by external, environmental factors affecting the consequences of contemplated actions. Explicit in both Dienstbier's and Goldman's positions is the assertion that externals are more sensitive to situational factors likely to influence moral behavior.

To test this, the sample was reduced to those subjects whose LOC scores were at least one SD from the mean. A t test was performed between each group's score on ECSD of the Behavior Prediction Scale. The ECSD score is obtained as follows: The subject's predictions of

the probability of an illegal act, in conditions involving high and low expectancy of getting caught, are compared by subtracting the Low condition score from the High condition score. If the resulting difference is negative, the subject feels that the probability of illegal action is more likely to occur under low conditions of detection. Furthermore, the larger the negative difference score, the more sensitive the subject is to the shift from high to low risk of detection.

The results of the *t* test comparing internals and externals on their ECSD scores supported the positions of Dienstbier and Goldman ($t = 1.79$, $df = 17$, $p < .05$). This finding is consistent with that of Mosher (1965). He found in a perceptual defense experiment that subjects with a more highly internalized sense of guilt were less influenced by variation in external situational cues affecting guilt than subjects with less internalized guilt.

To summarize, the present research together with previous research supports the idea that LOC has both cognitive and motivational components, that these components enable LOC to serve as a mediating variable between moral reasoning and moral decisions, and that the motivational component of LOC may be understood by an attibutional theory of emotions.

The results of this study indicate that DIT decision data are significant in their own right and are systematically related to other variables. Goldman's (Note 1) finding that males advocate legal violations more frequently than females was replicated in this study. The results of the two studies are somewhat similar with regard to the

relationship of DIT Decisions to other variables. Goldman (Note 1) found for males, but not females, a significant correlation between advocacy of legal violations and higher levels of moral reasoning (r = .47, N = 21, p <.03). In the present study significant trends were found for both males and females (r = .31, N = 24, p <.07 and r = .37, N = 18, p <.07, respectively). Thus, although males significantly more than females advocated legal violations and although there were no significant sex differences on usage of post-conventional moral reasoning, advocacy of legal violations was positively associated with higher levels of moral reasoning for both sexes. This is consistent with the lack of significant sex differences in risk preferences on the Kogan-Wallach Choice Dilemmas (t = .93, df = 40, p >.05). It is conceivable that the DIT Decisions P correlation is attributable to the tendency of young adults to question traditions and the existing social order and its conventions.

Goldman (Note 1) suggested that differences in sex roles might account for sex differences in advocacy of legal violations as solutions to moral dilemmas. The results obtained for Hypotheses 5b and 5c provide partial support for this explanation. A 2X2 ANOVA of risk-taking preferences by Sex and DIT Decisions (see Table 6) revealed a significant effect for DIT Decisions, but not Sex. Given the significance level (p <.12) and limited number of subjects (32), it is likely that with a larger sample the main effect of Sex would also be significant. Should this result be obtained in a future replication it would support the idea that sex roles influence the risks one is willing to take. For the moment, the present results establish a consistency

in subjects' willingness to take risks in situations involving moralistic-legalistic concerns and those situations which do not, but the effect of Sex on risk-taking is not directly established.

A multivariate ANOVA of Hypothesis 5c (see Tables 7 and 8) demonstrated that sex differences exist in subjects' sensitivity to changes in conditions facilitating the commission of illegal acts. Interestingly, in this multivariate analysis, DIT Decisions does not generally influence performance on the BPS (see Table 9). However, indirectly these results support the concept of sex-role differences influencing DIT Decisions because they show that significant sex differences do exist in sensitivity to changes in potential gains and risks affecting the probability of illegal behavior. Although inconclusive, these findings warrant further exploration of the influence of sex-role identity on moral decisions involving an element of risk. In such research, specific measures of sex-role identification would be most helpful in clarifying this issue.

SUMMARY

A logical analysis of the task demands of the Defining Issues Test suggested that performance on this test might be influenced by factors other than maturity of moral reasoning. The results of this study leave unresolved whether or not field independence and cognitive efficiency influence performance on the test. There is sufficient evidence to warrant further investigation, however. Defense mechanisms clearly do not influence moral reasoning processes, although they do act upon the subject's tendency to endorse legal violations in resolving moral conflicts.

The results of this study replicate and extend previous findings by Goldman (Note 1) regarding the positive relationship between internal LOC and post-conventional moral reasoning as well as the significance of decision data provided by subjects on the Defining Issues Test. The present data support a conceptualization of the LOC construct as having cognitive and motivational components. The network of relationships between LOC and other variables--moral reasoning, moral decisions, defense mechanisms, and sensitivity to situational factors affecting the probability of illegal behavior--is consistent with the research of Dienstbier et al. (1975). They employ attribution theory to explicate the connection between moral reasoning processes and moral behavior.

In short, the results of this study raise new questions about

the perceptual and cognitive processes involved in moral reasoning and also support efforts of recent researchers in the field of moral development to integrate cognitive-developmental and learning theories through social learning concepts. This study supports the utility of LOC as an explanatory construct, mediating the relationship between moral reasoning and moral decisions.

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APPROVAL SHEET

The dissertation submitted by Simcha Goldman has been read and approved by the following Committee:

Dr. James Johnson, Chairman
Associate Professor, Psychology, Loyola

Dr. Mark Mayzner
Professor, Psychology, Loyola

Dr. John Shack
Associate Professor, Psychology, Loyola

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

8-30-77
Date

Director's Signature