

Student Work

4-1972

A test of the effects of reinforcement and cognitive conflict on moral judgment

James D. Doornink
University of Nebraska at Omaha

Follow this and additional works at: <https://digitalcommons.unomaha.edu/studentwork>



Part of the [Psychology Commons](#)

Recommended Citation

Doornink, James D., "A test of the effects of reinforcement and cognitive conflict on moral judgment" (1972). *Student Work*. 79.

<https://digitalcommons.unomaha.edu/studentwork/79>

This Thesis is brought to you for free and open access by DigitalCommons@UNO. It has been accepted for inclusion in Student Work by an authorized administrator of DigitalCommons@UNO. For more information, please contact unodigitalcommons@unomaha.edu.

A TEST OF THE EFFECTS OF
REINFORCEMENT AND COGNITIVE
CONFLICT ON MORAL JUDGMENT

A Thesis

Presented to the
Department of Psychology
and the
Faculty of the Graduate College
University of Nebraska at Omaha

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

by

James D. Doornink

April 1972

UMI Number: EP72734

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



UMI EP72734

Published by ProQuest LLC (2015). Copyright in the Dissertation held by the Author.

Microform Edition © ProQuest LLC.

All rights reserved. This work is protected against unauthorized copying under Title 17, United States Code



ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 - 1346

Accepted for the faculty of The Graduate College of
the University of Nebraska at Omaha, in partial fulfillment
of the requirements for the degree Master of Arts.

Graduate Committee

Name	Department
Joseph P. Lu Voi	Psychology
William L. Bligele	Philosophy
Karl Jackson	Psychology

Norman H. Hamm
Chairman

3/21/73 Gift of the author

Acknowledgments

A learning experience the size of a master's thesis project requires assistance from many persons. The principal persons to whom I am indebted are the following:

Dr. Norman H. Hamm, major advisor, for his extreme patience, guidance, and willingness to give of his time throughout the experience.

Dr. Joseph C. LaVoie and Mr. Karl Jackson for their helpful suggestions as members of my thesis committee.

Dr. William Blizek for his thought-provoking criticism and suggestions.

My wife, Edna, for her understanding, patience, and faith in my ability; and for my daughter, Jill, for her willingness to be neglected when time was needed to finish this thesis.

Table of Contents

Acknowledgments	i
Table of Contents	ii
Introduction	1
Method	11
Subjects	11
Equipment	11
Design	11
Pre-Experimental Procedure	12
Experimental Procedure	13
Operant conditioning	13
Cognitive conflict	15
Control	16
Post-Experimental Procedure	16
Scoring and Reliability of Protocols	16
Results	17
Repeat Item Analysis	17
Figure 1	19
Nonrepeat Item Analysis	20
Figure 2	21
Discussion	22
Table 1	27
Table 2	28
References	29

Introduction

This is a thesis dealing with moral judgment in adolescents. Specifically, the study tests the efficacy of cognitive conflict and reinforcement as agents of moral growth in adolescents. The purpose of the investigation is to provide a better understanding of the mechanisms responsible for development in moral reasoning.

Kohlberg (1958) has presented a systematic theory of moral growth in children, adolescents, and adults. He defined moral judgment as "the child's use and interpretation of rules in conflict situations and his reasons for moral actions" (Kohlberg, 1964, p. 394). Moral judgment is not correct knowledge of rules or conventional belief in them. This general definition gives rise to the developmental sequence of moral judgment offered by Kohlberg (1958). Specifically, his typology consists of three distinct levels, each containing two inter-related stages.

The first, or premoral level, contains a Punishment and Obedience stage and an Instrumental Hedonist stage. The first stage represents an individual who has not yet differentiated between himself and others. The person's sole purpose is to avoid punishment while using it as a mediator of right and wrong. At the second stage, the Instrumental Hedonist orientation, an act is judged right if it is satisfying to the self and sometimes, but not often, satisfying to others

instead of the self. Reciprocity does exist at this stage, but only in the sense of "you scratch my back, and I'll scratch yours."

The second level, Conventional Role Conformity, contains the stages of the Good Boy Morality and the Authority Maintaining Relationships. Conformity to stereotypic and socially accepted norms as well as seeking other's approval acquires importance at the third stage. A person at the Good Boy Morality stage judges acts in terms of the intentions that precede them. At the fourth stage, Authority Maintaining Orientation, the value of people is judged in terms of earned expectations. The individual is oriented toward duty and the maintenance of the social order for its own sake.

The final level of Self-Accepted Principles is centered around autonomous principles of conscience and contains the Social Contract and the Principles stages. When one reaches the former stage, duty and morality are defined in terms of a contract with society. Emphasis is placed upon legality and rationality. The sixth and highest stage of moral development is the Principles Orientation. An act is judged right if premised on self-chosen abstract principles of reciprocity, equality of human rights, and a respect for human life and people as individuals. A person functioning at the last stage often empathizes with persons at lower levels.

Kohlberg's definition of moral judgment naturally provokes an important question: "What is a moral person?" A tentative answer to this important question has been offered by

Kohlberg (1964). People functioning at the lower stages of moral judgment development rely on external referents for their judgments while the use of internalized principles increases as the person matures. When the person becomes reliant upon these principles, he is thought to be making truly moral judgments. In reference to the nature of these moral judgments, Kohlberg (1964) states that, "Moral judgments tend to be universal, inclusive, consistent, and to be grounded on objective, impersonal, or ideal grounds (p. 405)." Therefore, according to Kohlberg's theory, individuals do make moral judgments when their reasoning about right and wrong is independent of immediate external sources and resulting conclusions are based upon objective, impersonal, or ideal grounds. However, Kohlberg's conception of moral judgment and its development have been challenged by other theorists (Bandura & McDonald, 1963; Jensen & Larm, 1970; LeFurgy & Woloshin, 1969).

Two major theories have been offered as explanations of moral growth: social learning theory (Bandura & McDonald, 1963; Jensen & Larm, 1970; LeFurgy & Woloshin, 1969) and cognitive-development theory (Kohlberg, 1958; Piaget, 1932). Proponents of the social learning view have stressed the importance of the passive internalization of externally provided behaviors and values. Socialization is important not because it provides exact models to imitate, but because individuals are often able to abstract a common theme from diverse situations and consequently generate a principle by which

they produce similar patterns of responses. If reinforced, these responses will prevail; otherwise, they are subject to extinction. Through generalization based upon conceptual or physical similarities between stimuli, these responses occur in similar situations and to various socializing agents. In sum, this position advocates an initial external view of moral development with the strength and internalization of moral principles being dependent upon reward, punishment, and eventually generalization.

Empirical support for the social learning position has been provided by Bandura ^{and} McDonald (1963) who found that observational learning induced modifications in moral judgments. The Bandura ^{and} McDonald study was replicated by Cowan, Langer, Heavenrich, ^{and} Nathanson (1969). However, unlike the former study, the latter included a two-week posttest. Cowan et al. (1969) found that gains induced by observational learning were stable across the two-week posttest period.

Social learning theorists not only stress the importance of early socialization processes, but also emphasize later group mechanisms such as peer influence. The importance of peer group influence for moral growth was demonstrated in a study performed by LeFurgy & Woloshin (1969). Like the Cowan et al. (1969) study, changes in moral judgment were stable across time and generalized to new situations. The latter result indicates that change was not a product of a specific response set, but a deeper reasoning process.

Other investigations (Crowley, 1968; Glassco, Milgram, & Youniss, 1970; Jensen & Larm, 1970) have provided support for reinforcement as an effective variable in modifying moral judgments. Jensen & Larm (1970) reported that material reinforcement can be utilized successfully to condition change in moral judgment responses. An important contribution regarding the exact nature of the change produced by reinforcement was provided by Glassco et al. (1970). Subjects who had experienced changes induced by reinforcement in an earlier study (Crowley, 1968) were divided into two groups, one received a mixed presentation of moral and nonmoral stories, while the other received a block presentation consisting of moral stories followed by nonmoral stories. If change was a result of the subject focusing on an aspect of moral judgment, the authors reasoned that the modifications should generalize to moral stories presented in the mixed sequence. Therefore, the mixed sequence should result in as many or more responses indicative of change than the block presentation. However, if change was a result of a specific response set, generalization to moral stories presented in a mixed sequence should not occur. Altered responses should only occur to moral stories presented successively in a block sequence. The results of the Glassco study revealed that the mixed sequence produced more modified moral judgment responses than the block presentation. Therefore, the authors concluded that reinforcement alters moral judgment rather than a specific response set. Since it appears that subjects can be trained to focus on a particular aspect

of moral judgment, it follows that people who have not focused on an aspect of moral judgment might be trained to do so more effectively than subjects who have focused on a particular aspect of moral judgment. Hence, the first hypothesis of the present study is that subjects who are functioning between two stages will change their level of moral judgment more than subjects who have reached a particular stage of moral judgment.

Unlike the social learning view, some theorists have appealed to a cognitive explanation for moral development (Kohlberg, 1958; Piaget, 1932). Stages of moral judgment have been conceived by these theorists as the result of an individual's attempt to make sense of his environment. Advancement from one stage to the next is a result of both the maturing cognitive structures and role-taking experiences. A mismatch of these two factors induces disequilibrium in the cognitive structures which causes the individual to strive for a state of equilibrium. To make sense of diverse experiences, cognitive structures are revised to deal with subsequent situations. The reduction of dissonance then results in the child's progression to the next stage of moral judgment.

Like the social learning view, the cognitive-development position has received strong empirical support (Dworkin, 1969; Rest, Turiel, & Kohlberg, 1969; Selman, 1971; Smedslund, 1961 a, b, c, d, e, f; Turiel, 1966). A recent study (Rest et al., 1969) supported two critical assumptions of the cognitive approach. First, stages of thinking above the subject's

predominant stage are preferred to thinking below his stage; second, modes of thought above are more difficult to comprehend than those below his modal stage. According to these results, the authors proposed that a child comprehends before he assimilates material, and assimilates advice before he uses it spontaneously. Therefore, a child's ability to move upward depends upon his cognitive maturity and the amount of time that he has functioned at that level. The modest correlations of .31 to .58 between I.Q. and moral judgment reported by Boehm (1962), Cudrin (1962), Johnson (1959), and Stuart (1967) offer additional empirical support for the cognitive view of moral development since intelligence has been viewed as directly related to cognitive development.

The function of role-taking ability as a necessary, but not sufficient condition for change in moral reasoning has been supported by Selman (1971). However, a more detailed study of the interaction of roles and moral judgment change was provided by Turiel (1966). Specifically, roles which produced conflict in the subject were utilized. The results indicated that conflicting reasoning one stage above the child's predominant stage induced the most change in moral judgments, as opposed to reasoning two stages above, or one stage below the child's modal stage. However, since situations utilized in the posttest were also utilized in the pretest, it is difficult to assert that modifications in moral judgment generalized to new situations. The possibility exists that

tests may have measured changes in situationally-specific responses, rather than moral reasoning.

A well designed study by Keasey (1971) attempted to modify moral opinions (i.e., responses to specific situations which do not generalize to subsequent stories from Kohlberg's Moral Judgment Interview) and to advance moral reasoning utilizing three conditions of reasoning: opinion with no supportive reasoning; opinion with supportive reasoning at the person's predominant stage; and opinion with supportive reasoning one step above the subject's dominant stage. Half of each treatment group received a one-sided presentation which consisted of an opinion contrary to the subject's view, while the other half was exposed to two opinions, both contrary to the subject's viewpoint. Moral opinion was measured by repeat items used during both the training and posttest, while moral reasoning was measured by new items. All three treatment conditions produced significantly greater gains in moral reasoning than the control condition. Also, one-sided presentations produced significantly greater changes in moral opinion than two-sided presentations. The experiment supports one-sided reasoning as an agent of alteration in moral opinion, while it does not support the contention that diverse levels of reasoning differentially affect the subject's moral reasoning. Besides providing evidence for the cognitive orientation, Keasey's study stresses the importance of distinguishing between moral opinion and reasoning in studies of moral development.

Although both cognitive conflict and social learning have received support as agents of change in moral judgment, few investigations have compared them. Smedslund (1961 a, b, c, d, e, f) attempted the induction of conservation, a cognitive concept which refers to the ability to comprehend that an object stays the same while its shape, volume, or mass is varied. Various reinforcement and cognitive conflict treatments were utilized. It was concluded that cognitive conflict was the only way to induce a permanent understanding of conservation. Dworkin (1971) investigated change in moral judgment by comparing the effectiveness of observational learning and a cognitive information task. Like Smedslund, only the cognitive information task induced modifications that generalized to new situations. The results of these studies (Dworkin, 1971; Smedslund, 1961 a, b, c, d, e, f) provide evidence for the cognitive position and the efficacy of cognitive conflict for producing generalizable changes in moral judgment. Therefore, the second hypothesis of the present study is that cognitive conflict will induce more generalizable changes in moral judgment than a reinforcement procedure.

There have been no studies which have compared the efficacy of cognitive conflict and reinforcement for changing transitional stage subjects, people functioning between stages, and dominant stage subjects, those who have focused on a stage of moral judgment. However, since transitional stage subjects have not focused on any one stage of moral judgment, it follows that they may be more susceptible to change when offered an

incentive to do so than dominant stage subjects. Therefore, reinforcement should induce more change in transitional than dominant stage subjects. However, there is little reason to predict that cognitive conflict would affect the two levels differently. According to Kohlberg (1958), only maturity of cognitive structures produces the capacity to advance. Since there is no evidence which leads one to assume that cognitive structures are more mature in transitional subjects than dominant stage subjects, role-taking situations offer equal opportunities to advance for both level subjects. Consequently, the third and fourth hypotheses are: reinforcement will cause greater generalizable change in transitional than dominant stage subjects, and change in transitional stage subjects will be greater in the reinforcement condition than in the cognitive conflict situation.

The purpose of the present study was to compare the efficacy of reinforcement and cognitive conflict to induce modifications in moral judgment. Specifically, the hypotheses which this study was designed to test were: (1) more generalizable change in moral judgment will be experienced by transitional than dominant stage subjects, (2) cognitive conflict will produce more generalizable change in moral judgment than reinforcement, (3) reinforcement will cause greater generalizable change in transitional than dominant stage subjects, and (4) change in transitional stage subjects will be greater in the reinforcement condition than in the cognitive conflict situation.

Method

Subjects

The subjects consisted of 15 boys and 15 girls drawn from the ninth grade at Bishop Ryan High School, a Catholic school in Omaha, Nebraska. Subjects were selected for participation in the experiment according to their performance on a pretest of moral judgment. All subjects were between the ages of 13 and 15 years, and the majority were from the lower middle class.

Equipment

Eight hypothetical conflict situations (1, 2, 3, 4, 5, 6, 7, & 8) and corresponding probe questions from Kohlberg's Moral Judgment Interview were used to assess the subject's stage of moral judgment. A portable tape recorder was used to record responses which were scored according to Kohlberg's Global Rating Guide. Poker chips associated with peace decals and 45 R. P. M. records were used as reinforcers. During the interviews, subjects and the experimenter were seated in a small room to insure privacy.

Design

A repeated measures design was employed to assess changes in moral judgment as a function of training. Specifically, two experimental procedures, a cognitive conflict and a reinforcement treatment, were employed for the purpose of advancing moral judgment. In addition, a control condition

was used to compare natural developmental advances with possible changes induced in moral development by training. Accordingly, the two experimental groups received a pretest and posttest of moral judgment with an interpolated training procedure (i.e., three 30 minute sessions), while the control group received the pretest and posttest with an interpolated neutral activity of the same duration as the training sessions.

Pre-Experimental Procedure

An attempt was made to match each set of situations administered on the pretest, training phase, and posttest according to three underlying situational dimensions. Accordingly, 32 undergraduate and graduate students from the University of Nebraska at Omaha categorized the eight situations in terms of one or more of the following dimensions: sacrifice, worth of human life, and loyalty. The agreement for assigning any one dimension to any one situation ranged from 40 to 84 percent. To insure that the three parts of the study were measuring the same underlying dimensions, items were utilized in each phase of the investigation which had been similarly categorized.

To determine the initial stage of functioning, four conflict situations (1, 2, 4, & 6) from Kohlberg's interview were used. The protocols were transcribed and scored according to Kohlberg's Global Rating Guide. The subjects were differentiated into dominant and transitional categories which enabled an assessment of the relationship between moral

judgment change and these levels. To fulfill this requirement, a sample of 55 subjects was required to identify the necessary 15 dominant and 15 transitional stage subjects. A dominant stage was assigned if at least 75 percent of the subject's total responses were from the same stage of moral judgment. A transitional stage was assigned if the subject produced more than 50 percent of his total responses at a particular stage and at least 25 percent of his responses at a different level. Each of the subjects was assigned to one of three groups which were matched for stage of moral judgment, Differential Aptitude Test score, and sex. Subjects were included in the experiment who manifested predominantly stage two and three moral judgment responses.

Experimental Procedure

The two treatment procedures used to change moral judgment were complete or partial replications of techniques used in three prior studies (Bandura & McDonald, 1963; Jensen & Larm, 1970; Turiel, 1966).

Operant conditioning. The purpose of this procedure was to condition the subject to emit responses one step above his initial stage of moral functioning. The subject was exposed to four of Kohlberg's conflict situations, two of which were new situations (3 & 5) and two of which had been used on the pretest (1 & 6). After each story, a discussion of the subject's responses was initiated.

Since it was anticipated that a low operant rate of responses one stage above a child's dominant stage would be encountered, a shaping procedure was employed. Responses which successively approximated the reasoning characteristic of the appropriate stage were reinforced until a total of 35 reinforcements had been dispensed. The experimenter administered social reinforcers such as: "right," "correct," and "good" as well as material reinforcers. In the latter case, tokens were associated with peace decals and 45 R. P. M. records. Initially, the CRF schedule of reinforcement was employed. The schedule was changed to a one-to-two schedule when subjects emitted five consecutive responses at a stage of moral judgment one step above his initial level. An additional shift was made to a one-to-three schedule when the identical criterion was reached a second time. A maximum of 15 tokens per experimental session was administered.

The instructions were as follows: "Hi, I'm Jim Doornink. I've asked you to come because I'm doing an experiment for my master's thesis, and I would like you to participate. I'm going to read four stories to you successively. After each story, I'll ask some questions. If you respond with the answers that I want, I'll reward you with these tokens. If you get 10 tokens, you may choose a decal; but if you get 15, you may choose one of these records. I'm going to record your voice because I cannot write fast enough to get your responses. Do you have any questions?"

Cognitive conflict. The purpose of this procedure was to induce change in moral judgment by placing the subject in a state of cognitive conflict with the use of moral reasoning one step above his dominant stage. This was accomplished by exposing the subject to four of Kohlberg's hypothetical situations, two of which were new situations (3 & 4) and two of which had been used on the pretest phase of the study (1 & 6). The subject was asked to play the role of the main character in the story, while the experimenter played the roles of two apparent friends of the subject. Each apparent friend offered solicited advice to the subject. Reasoning from Kohlberg's Aspect Scoring Manual was oriented toward contrary opinions one stage above the child's initial level of functioning.

Presumably, presenting conflicting moral reasoning to the subjects caused cognitive conflict in the child. In this connection, Rest et al. (1969) found support for the notion that subjects prefer moral reasoning one stage above their current level of functioning. Therefore, exposing a subject to conflicting reasoning one stage above his own should cause some accommodation to the discrepant information through the reduction of cognitive dissonance.

The instructions were as follows: "Hi, I'm Jim Doornink. I've asked you to come because I'm doing an experiment for my master's thesis, and I would like you to participate. I'm going to read four stories to you successively. I would like you to play the main character of each story, and I will

play the role of two of your friends. Could you give me the names of two of your close friends? After each story, I'll ask you some questions. Before you answer, I would like you to ask _____ and then _____ to give you advice. After the advice has been given, you may give your answer, and we will discuss it. Do you have any questions?"

Control. The subjects in the control group were seen in three one-half hour sessions, as were the subjects in the two experimental conditions. The explanation given for the necessity of the experiment was that the experimenter wanted to observe the subject's study habits and the type of material being studied.

Post-Experimental Procedure

Two weeks following the interpolated experience, the subjects were interviewed using four of Kohlberg's conflict situations to determine the effect of the two procedures on the moral judgment level of the child. While two of the four situations (1 & 6) had been utilized on the pretest and training phases of the study, a test of generalization was provided by two new situations (7 & 8). One day after the posttest, the experimenter assembled the subjects to explain the study and answer questions.

Scoring and Reliability of Protocols

All protocols were scored blind and assigned moral judgment quotients (MJQ's). The use of dominant and transitional stages was expressed as a percentage of the total

number of scored responses. From these percentages, a moral age or MJQ was computed. For example, a subject whose test pattern illustrated 65 percent stage two responses, 30 percent stage three responses, and 5 percent stage four responses would receive a moral age of $65 \times 2 + 30 \times 3 + 5 \times 4$ or 240. The protocols were scored situation-by-situation rather than subject-by-subject to produce maximum scoring accuracy. One estimate of scoring reliability was obtained using eight protocols rated independently by two scorers. A reliability coefficient of .87 was obtained between raters.

Results

Change in moral age scores from pretest to posttest was the dependent measure. Scores were analyzed by two separate 3 (treatment) \times 2 (transitional, dominant) \times 2 (pretest, posttest) repeated measures analyses of variance. One analysis was performed on repeated items to determine changes in situation-specific moral responses. Another analysis was computed on nonrepeated items to test for generalization of change in moral judgment.

Repeat Item Analysis

The analysis of variance on the repeat items revealed three significant main effects: treatments ($F=4.20$, $df=2/24$, $p < .05$), transition versus dominant stages ($F=7.64$, $df=1/24$, $p < .025$), and pretest-posttest ($F=13.41$, $df=1/24$, $p < .01$). However, these significant factors yield little information

about the effectiveness of the treatments because only interactions with pretest-posttest indicate changes in moral judgment induced by training.

A significant Treatment x Pretest-Posttest interaction, represented graphically in Figure 1 ($F=4.14$, $df=2/24$, $p < .05$), indicates that the training procedures did cause change in moral age scores. A simple main effects analysis revealed that significant changes in moral age were produced by the cognitive conflict ($F=26.19$, $df=1/24$, $p < .05$) and reinforcement treatments ($F=9.4$, $df=1/24$, $p < .05$). No significant pretest-posttest differences were found for the control group. All other effects for the repeat item analysis were non-significant.

Despite the fact that differences between groups on the pretest were small, close inspection of Figure 1 reveals discrepancies which may have affected subsequent posttest scores. Consequently, to obtain a better test of treatment effectiveness, a t-test was performed utilizing difference scores between pretest and posttest for the reinforcement and cognitive conflict conditions ($t=1.38$, $df=18$, $p < .10$). The test which approaches significance indicates that the cognitive conflict technique, as presented in this study, may have been a more powerful agent of change in moral age with respect to repeat items than the reinforcement procedure.

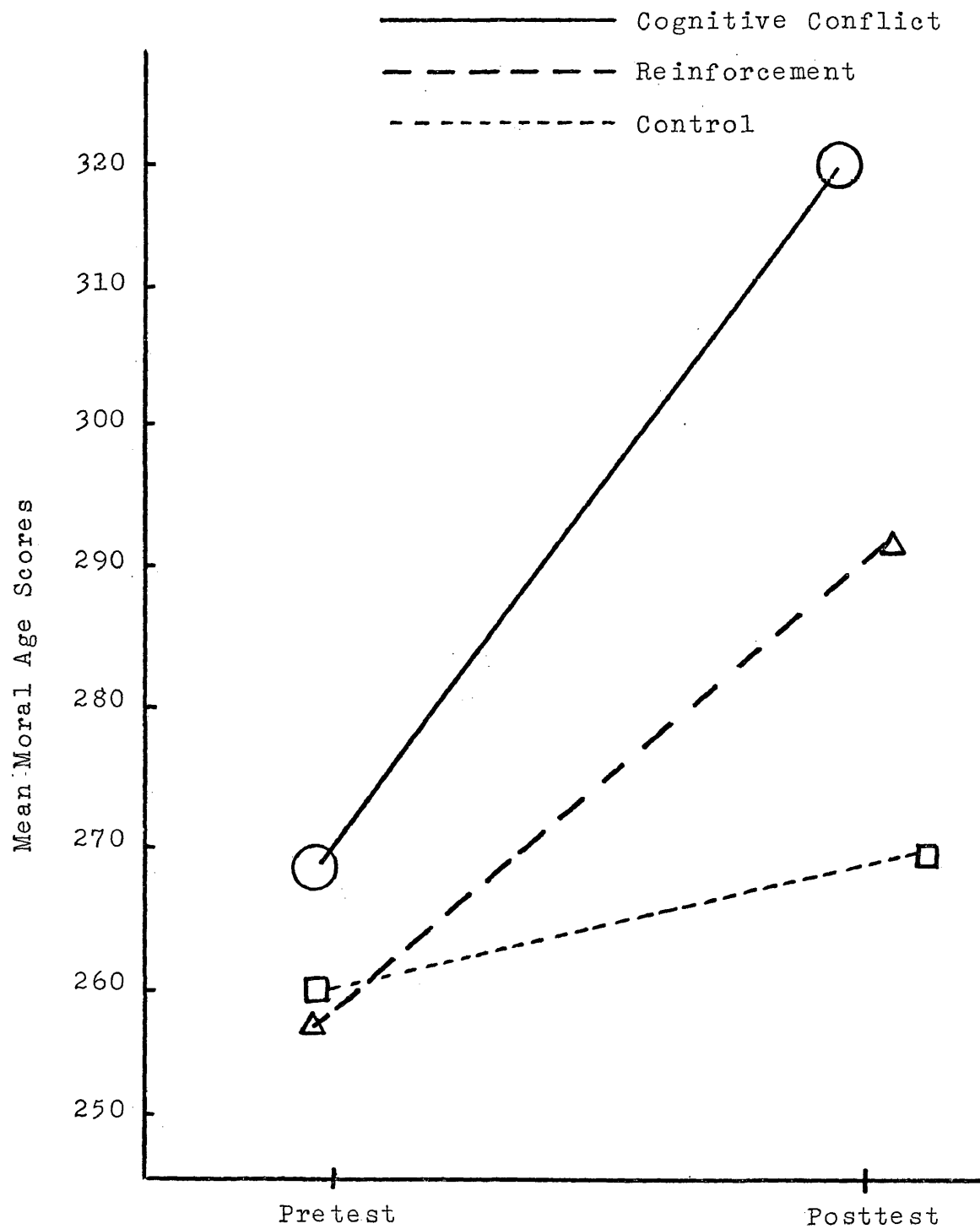


Fig. 1. Mean Moral Age Scores Across Pretest-Posttest on Repeat Items.

Nonrepeat Item Analysis

Figure 2 represents graphically the relationship between treatment means across pretest and posttest. A similar pattern of increase was found for the cognitive conflict and control conditions, although the change was non-significant. However, the subjects receiving the reinforcement condition actually regressed slightly.

No significant main effects or interactions were found in the analysis of nonrepeat items; however, it was hypothesized that the cognitive conflict technique would produce more generalizable changes than the reinforcement condition. According to Winer (1962, p. 208), "The specific comparisons which are built into the design or suggested by the theoretical basis for the experiment can and should be made individually regardless of the outcome of the corresponding overall F test." Therefore, three individual F tests were performed on the treatment totals across pretest and posttest. No significant differences were found for the three conditions. Consequently, the hypothesis predicting that cognitive conflict would produce more generalizable changes in moral judgment than reinforcement was not supported.

Since no significant interaction was found for dominant and transitional stages across the pretest and posttest, it appears that dominant and transitional stage subjects did not change differentially. Also, no significant interaction of treatments by dominant and transitional stages occurred which

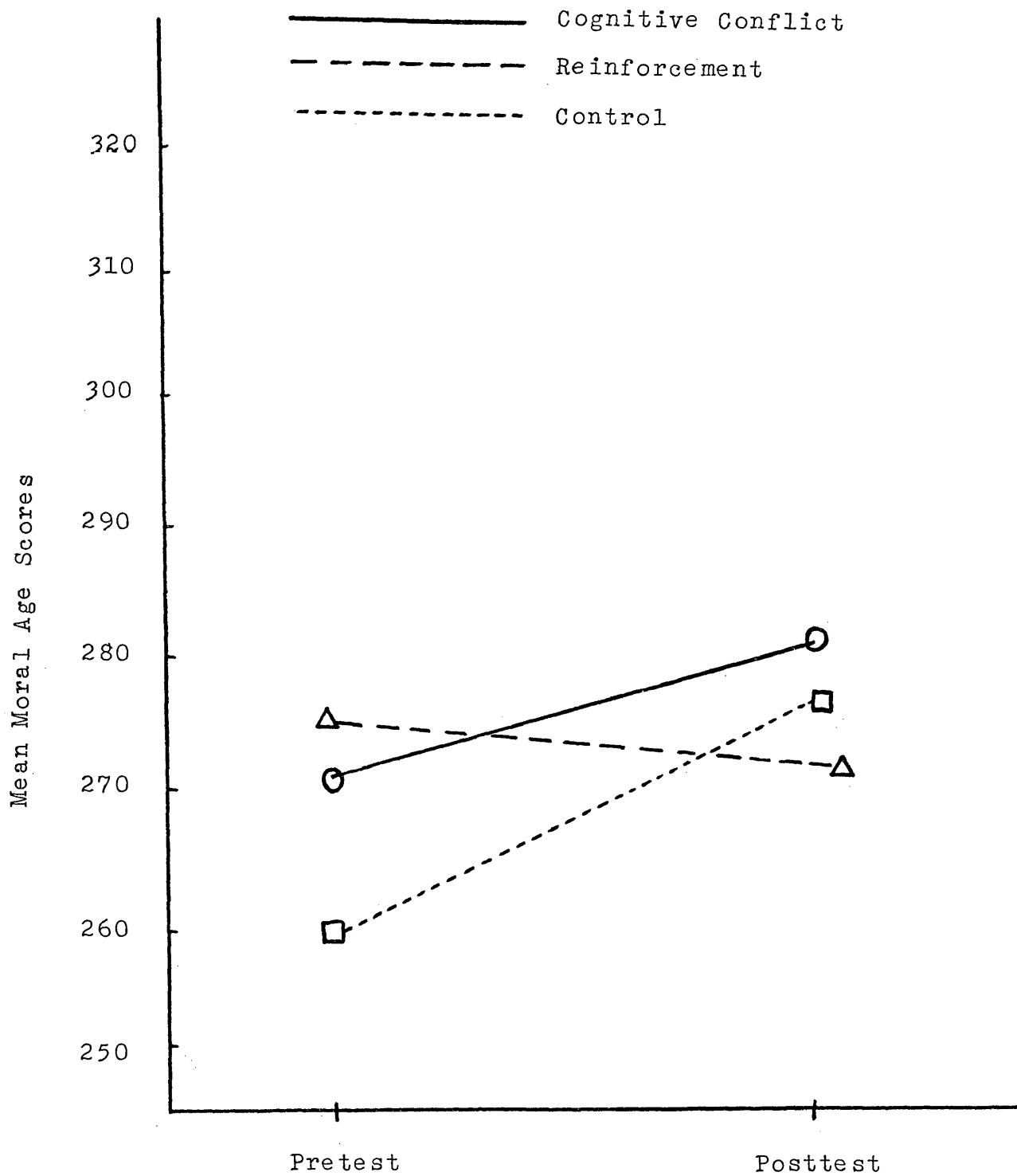


Fig. 2. Mean Moral Age Scores Across Pretest-Posttest on Nonrepeat Items.

indicates that the individual treatments did not substantially affect dominant and transitional stage subjects differently.

Discussion

The results of the study show a pattern of change somewhat different than predicted. In contrast to previous studies (Bandura & McDonald, 1963; Cowan et al., 1969; Crowley, 1968; Glassco, Milgram, & Youniss, 1970; Jensen & Larm, 1970; Keasey, 1971; LeFurgy & Woloshin, 1969), truly generalizable modifications in moral judgment were not found. Cognitive conflict and reinforcement did produce significant changes in moral age, but these modifications did not generalize to new situations; consequently they represent short-lived changes in moral judgment. These results seem best interpreted by an appeal to Keasey's (1971) distinction between moral reasoning and moral opinion. Alteration in moral opinion was operationally defined by Keasey as the percentage of gains in moral judgment quotient between training and posttest on stories used in both phases of the study, while variation in moral reasoning was the difference score from pretest to posttest utilizing new stories. Therefore, since gains in moral age were found only on items used during pretest, training, and posttest, the present study appears to have changed the subject's moral opinion rather than moral reasoning.

At least two explanations may be offered for the failure of the cognitive conflict procedure to produce generalized

changes in moral judgment. If subjects had just progressed into their pretest state of moral judgment, it is unlikely that they would be mature enough to advance to the next stage. However, transitional reasoning, as the pretest measure, was not more common below the predominant stages than above, indicating that subjects had functioned at their dominant stage for a period of time.

The second explanation deals with the effectiveness of the treatment. The cognitive conflict procedure may not have been strong enough to produce disequilibrium in the subjects. However, during the training phase of the study, subjects exposed to the cognitive conflict procedure appeared to the experimenter to exhibit more excitement, nervousness, and remarked about the difficulty of the probing questions than subjects receiving the reinforcement condition. Therefore, it appears that the cognitive conflict treatment was strong enough to produce dissonance within the child. However, the cognitive conflict treatment might not have produced dissonance of adequate intensity to induce generalizable cognitive change thus indicating a need for more powerful treatments.

Since moral opinion was altered utilizing the present procedure, it is conceivable that a more effective cognitive conflict treatment could cause advancement in moral reasoning. Several improvements in the present cognitive conflict procedure could be instituted. Real friends, rather than the

experimenter playing their roles, would create a more life-like situation. Also, a one-sided presentation was found to be more credible by Keasey's (1971) subjects indicating that it may be a stronger agent of change than a two-sided presentation. Therefore, one friend offering moral reasoning contrary to the subject's reasoning, but one stage above his initial level of moral judgment, should be more effective.

The failure of the operant conditioning technique to induce generalizable change in moral reasoning can be accounted for best by a temporary conformity effect. The subject may have conformed to obtain reinforcements while failing to comprehend the reasoning implicit in the responses for which they were reinforced. Thus, when new situations were offered, the subject utilized his initial reasoning to derive responses. However, on repeat items the situationally-specific response set which was developed may have been maintained to please the experimenter.

To provide a more effective reinforcement treatment, subjects could be presented with the actual prizes, rather than tokens associated with them, since a more immediate reinforcement effect would result. In addition, modeling (Bandura & McDonald, 1963; Cowan et al., 1969) would convey to the subject the behavior desired. Perhaps a combination of reinforcement and modeling processes would result in a more effective operant procedure.

The distinction between dominant and transitional stage subjects did not produce the differential change predicted for these levels. Two reasons are offered for the failure of dominant and transitional subjects to change differentially. First, the present experiment did not adequately distinguish between transitional and dominant stage subjects. To obtain more information about differential training effects in relation to dominant and transitional stage subjects, the Aspect Scoring Manual might be implemented. Unlike the global scoring method, the more sensitive aspect scoring system provides information about variation in the different aspects of moral judgment. Use of this instrument would allow more delineated changes produced by the treatments. However, adequate reliability is difficult to obtain utilizing the aspect method, as some studies have shown (Keasey, 1971; Turiel, 1966).

The second reason deals with the possibility that the reinforcement and cognitive conflict treatments may not affect dominant and transitional stage subjects differently. However, due to the lack of a sharper delineation between the two categories and insufficient time for application of treatments, this question must be answered by future research.

The importance of this investigation is related to its methodological implications. Transformation of a deep-seated cognitive structure can only be assessed by irreversibility in the face of training (Kohlberg, 1964; Smedslund, 1961 f;

Turiel, 1966) and generalization to new situations (Keasey, 1971; Kohlberg, 1964). Turiel (1966) did not test for generalizability, as all posttest items had previously been seen by the subjects, which makes it difficult to assert conclusively that moral reasoning, rather than moral opinion, was changed. Other investigations (Dworkin, 1969; Keasey, 1971; LeFurgy & Woloshin, 1969) have provided tests of generalizability which support the contention that moral reasoning can be modified by short-term training. In light of the present results, however, it might be concluded that generalizable change in moral judgment may be a more difficult task than previously asserted.

In summary, it can be concluded that situationally-specific moral opinions were modified by means of cognitive conflict and reinforcement procedures. These changes did not generalize to new situations, indicating that they were short-term in nature. Therefore, it appears that moral opinion and not moral reasoning was altered by the present treatment conditions. Since the difference between treatments approached significance, the cognitive conflict treatment might have been a more effective facilitator of short-term change than the reinforcement procedure. No differential treatment effect was evident for transitional and dominant stage subjects.

Table 1

Analysis of Variance: Repeat Items

Source	df	MS	F
Treatments (A)	2	4941.716	4.20*
Transition (B) Dominant	1	8808.816	7.64**
Pretest- (C) Posttest	1	15456.150	13.41***
Error Between <u>Ss</u>	24	1152.733	
A x B	2	309.316	.57
A x C	2	2257.850	4.14*
B x C	1	464.816	.85
A x B x C	2	285.716	.53
Error Within <u>Ss</u>	24	544.26	

* $p < .05$ ** $p < .025$ *** $p < .01$

Table 2

Analysis of Variance: Nonrepeat Items

Source	df	MS	F
Treatments (A)	2	651.516	.56
Transition (B) Dominant	1	2898.150	2.49
Pretest- (C) Posttest	1	1016.816	.88
Error Between <u>Ss</u>	24	1159.325	
A x B	2	877.850	1.65
A x C	2	627.816	1.18
B x C	1	814.016	1.53
A x B x C	2	296.216	.56
Error Within <u>Ss</u>	24	530.941	

* $p < .05$

References

- Bandura, A., & McDonald, F. J. Influence of social reinforcement and the behavior of models in shaping children's moral judgments. Journal of Abnormal and Social Psychology, 1963, 67, 274-281.
- Boehm, L. The development of conscience: A comparison of American children of different mental and socio-economic level. Child Development, 1962, 33(3), 575-590.
- Cowan, P. A., Langer, J., Heavenrich, J., & Nathanson, M. Social learning and Piaget's cognitive theory of moral development. Journal of Personality and Social Psychology, 1969, 11, 261-274.
- Crowley, P. M. Effects of training upon objectivity of moral judgment in grade school children. Journal of Personality and Social Psychology, 1968, 8, 228-232.
- Cudrin, J. M. The relation of chronological age, mental age, social behavior, and number of siblings in the Piagetian concept of moral judgment development. Unpublished doctoral dissertation, University of North Carolina at Chapel Hill, 1965.
- Dworkin, E. S. The effects of imitation, reinforcement, and cognitive information on the moral judgments of children. Unpublished doctoral dissertation, University of Rochester, 1968.
- Flavell, J. H. The developmental psychology of Jean Piaget. New York: Van Nostrand Rheingold, 1963.
- Glassco, J., Milgram, N. A., & Youniss, J. Stability of training effects on intentionality in moral judgments in children. Journal of Personality and Social Psychology, 1970, 14(4), 360-365.
- Hoffman, M. L. Moral development. In Mussen, P. H. (Ed.) Carmichael's manual of child psychology, 2, (3rd ed.), New York: Wiley and Sons, 1970.
- Jensen, L. C., & Larm, C. Effects of two training procedures on intentionality in moral judgments among children. Developmental Psychology, 1970, 2, 310.

- Johnson, R. C. A study of children's moral judgments. Unpublished doctoral dissertation, University of Minnesota, 1959.
- Keasey, C. B. The modification of moral opinions and reasoning in preadolescents. Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, April, 1971.
- Kohlberg, L. Development of moral character and moral ideology. In M. L. Hoffman and Hoffman (Eds.) Review of child developmental research. New York: Russell Sage, 1964.
- Kohlberg, L. Moral education in the schools: A developmental review. The School Review, 1966, 74 (Whole No. 1).
- Kohlberg, L. Stage and sequence: The cognitive developmental approach to socialization. In Goslin, D. A. Handbook of socialization theory and research, Chicago: Rand McNally, 1969.
- Kohlberg, L. The child as a moral philosopher. Psychology Today, 1968, 2, 24-30.
- LeFurgy, W. G., & Woloshin, G. W. Immediate and long-term effects of experimentally induced social influence in the modification of adolescents' moral judgments. Journal of Abnormal Social Psychology, 1969, 12, 104-110.
- Piaget, J. The moral judgment of the child. Glencoe, Illinois: Free Press, 1948.
- Rest, J., Turiel, E., & Kohlberg, L. Level of moral development as a determinant of preference and comprehension of moral judgments made by others. Journal of Personality, 1969, 225-252.
- Selman, R. L. The relation of role-taking to the development of moral judgment in children. Child Development, 1971, 2(1), 79-91.
- Smedslund, J. An attempt at extinction of the visual components of the weight concept. IV. Scandinavian Journal of Psychology, 1961, 2, 153-155 d. Cited by J. H. Flavell, The developmental psychology of Jean Piaget. New York: Van Nostrand Rheingold, 1963, p. 374.

- Smedslund, J. External reinforcement of conservation of weight and of the operations of addition and subtraction. II. Scandinavian Journal of Psychology, 1961, 2, 71-84 b. Cited by J. H. Flavell, The developmental psychology of Jean Piaget. New York: Van Nostrand Rheingold, 1963, p. 372.
- Smedslund, J. Extinction of conservation of weight acquired normally and by means of empirical controls on a balance scale. III. Scandinavian Journal of Psychology, 1961, 2, 85-87 c. Cited by J. H. Flavell, The developmental psychology of Jean Piaget. New York: Van Nostrand Rheingold, 1963, p. 373.
- Smedslund, J. Practice in conflict situations without external reinforcement. V. Scandinavian Journal of Psychology, 1961, 2, 156-160 e. Cited by J. H. Flavell, The developmental psychology of Jean Piaget. New York: Van Nostrand Rheingold, 1963, p. 374.
- Smedslund, J. Practice in conflict situations without external reinforcement: Practice on continuous versus discontinuous material in conflict situations without external reinforcement. VI. Scandinavian Journal of Psychology, 1961, 2, 203-210 f. Cited by J. H. Flavell, The developmental psychology of Jean Piaget. New York: Van Nostrand Rheingold, 1963, p. 375.
- Smedslund, J. The acquisition of conservation of substance and weight in children. I. Introduction, Scandinavian Journal of Psychology, 1961, 2, 11-20 a. Cited by J. H. Flavell, The developmental psychology of Jean Piaget. New York: Van Nostrand Rheingold, 1963, p. 372.
- Stuart, R. B. Concentration in the development of children's concepts of moral and causal judgments. Journal of Genetic Psychology, 1967, 111(1), 59-68.
- Turiel, E. An experimental test of the sequentiality of developmental stages in the child's moral judgments. Journal of Personality and Social Psychology, 1966, 3, 611-618.
- Winer, B. J. Statistical principles in experimental design. New York: McGraw-Hill, 1962.