Promoting Moral Growth Through Intra-Group Participation

D. R. Nelson
T. E. Obremski

ABSTRACT. Currently, an emphasis is being placed on the integration of ethical issues into the business curriculum. This paper investigates the viability of using student group interaction to induce an upward movement in the stages of moral development as advanced by Kohlberg. The results of a classroom experiment using graduate business law students suggest that formulating groups that mix stages of moral development can provide a robust environment for upward movement. In addition, the results suggest strategies for formulating effective groups, based upon entry levels as measured by the Defining Issues Test.

> The ultimate goal of moral education is to produce people who can reason in philosophically adequate ways; who can formulate plans of action even under stress, or when experiencing conflicting values and situational pressures; and who will actually follow through behaviorally on such plans.[1]

Introduction

The debate in business ethics education may be shifting from an emphasis on whether ethics should be taught in the business curriculum to how ethics should be taught.[2] This article serves to clarify the second portion of the debate; determining the most effective method for ethics education and, as a corollary, the role of the instructor in ethics education. We investigate the viability of the use of student interaction, within small groups, to stimulate or induce upward changes in the stage of moral development of students involved in a graduate legal environment class. The assertion is made that the method described provides an effective approach to the integration of ethics education into the business curriculum. A classroom experiment that empirically tests the hypothesis that small peer-led discussion groups may serve as an effective method for promoting moral growth is described. Student groups were constructed so that each contained a mixture of stages of moral development, as set forth in the Kohlberg typology.[3] One research hypothesis was that mixing the stages of moral development would provide a robust environment for upward movement in moral growth without the direct participation of the teacher in the group discussions.

Most of the research to date has been focused on the role of the teacher in stimulating moral development through an interactive process with the students. Less research has explored the possibilities for moral growth that may be inherent in the dynamics of student groups without direct involvement of the professor. In this study the students served as the primary facilitators of moral development. Other studies have observed the level of moral development of group decisions in comparison to the level of moral reasoning possessed by the individual members of the group.[4] This study does not examine the level of reasoning employed by the groups as a group in deciding ethical dilemmas. Rather, we

Donald R. Nelson, J. D., is Associate Dean, The College of Business Administration at The University of Denver, where he also serves as course coordinator and teaches Business Ethics and Social Responsibility in the MBA program. He has authored articles on ethics and moral education and currently serves as Chair of the Business Ethics Section of the American Business Law Association.

Dr. Tom Obremski is currently Associate Professor of Statistics and Operations Research at The University of Denver. He is the author of several articles and books in the area of applied statistical methodology. Dr. Obremski has been very active in integrating ethics throughout the MBA curriculum at Denver University.

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examine the influences of the group in promoting changes in the structure of ethical reasoning of individuals within the group.

Basic concepts in moral psychology

Our research is anchored in Kohlberg's cognitive developmental approach to moral education.[5] The cognitive developmental theory of moral education is deeply rooted in the work of Dewey[6] who postulated a stage theory of moral judgment, and the work of Piaget[7] for the beginning of the empirical underpinning of the psychological theory. Kohlberg found that as people age they pass through stages of moral development or moral growth.[8] Each stage is increasingly complex in terms of the social perspective employed and the adequacy of the reasoning used to resolve ethical dilemmas. The higher stages are more adequate than the lower stages since the judgments achieve greater equilibrium between competing interests and values in ethical dilemmas.[9] Even though all individuals progress sequentially through these stages, they do so at differing rates and end at different stages with an increasingly smaller percentage achieving the highest stages.[10]

The focus of this empirically-based theory is not so much on the specific beliefs that one holds (content), as it is on the reasoning (structure) employed to reach the beliefs that one holds. The Kohlberg paradigm studies the underlying structure or organizing principles that are used in the resolution of ethical dilemmas and the developmental change of the basic structures. The approach can be described as being process oriented since it studies the processes that will cause change, upward movement and thereby provides a "more adequate social perspective" to resolve ethical dilemmas.

> Kohlberg has concluded that moral change is most likely to occur when discussion succeeds in arousing cognitive conflict among participants. When a participant is exposed to other views based on moral reasoning higher than his own, he may become unsure of the adequacy of his original position and begin to consider the merits of the other positions. He does not then simply switch positions; rather, he begins the process of restructuring his own way of reasoning about moral issues.[11]

Thus, the process is not concerned with the teaching of specific beliefs, and can operate within any doctrinal structure.

Developmental psychology and moral education programs

Some of the findings of cognitive developmental psychology have implications for, and are especially germane to, this research.[12] In an early experiment Turiel found that subjects who were exposed to reasoning that was one stage higher than their own gained more than if they were exposed to reasoning that was two stages higher or one stage lower than their own.[13] A subsequent study demonstrated that individuals "prefer and comprehend" reasoning one stage above their own stage of moral reasoning.[14] Classroom discussion of moral dilemmas can serve as an effective tool for a program of moral education. The use of classroom moral discussion as a basis for inducing moral development was initiated by Moshe Blatt who, while a student of Kohlberg, conducted a class based upon discussion of hypothetical moral dilemmas and peer discussion which produced substantial gains.[15] In a subsequent study, involving junior and senior high school students, substantially similar outcomes were produced.[16] However the pioneering work of Kohlberg and Blatt was predicated upon the teacher as group leader and facilitator of the discussions that were designed to foster moral growth. Most of the empirical studies, and resulting literature subsequent to their seminal work, focus on the teacher as being a necessary but not sufficient component to effective moral education programs. The relative lack of investigation of peer-led moral discussion programs served as the background against which we formulated our research hypotheses.

Research hypotheses

In this paper we evaluate the following issues.

1. Can peer-led moral discussions within small student groups lead to significant changes in the moral development of students?[17]
2. Does the mixture of stages of moral development of the students constituting the group

have an effect on changes in moral development?

3. Can we develop a statistically sound predictive model for the construction of groups which maximizes the potential for individual moral development?

Peer-led moral discussions

As noted earlier, most of the cognitive developmental research in moral education has focused on the use of the teacher as group leader to promote moral growth through the use of Socratic like dialogue. The teacher serves as facilitator by probing the student's arguments and posing arguments that are approximately one stage higher than that espoused by the student. The increase in moral development that this produces has been widely replicated and is termed the "Blatt Effect."[18] Research has continued to mine this area with the focus being on the techniques and pedagogy that are best suited to achieve a significant "Blatt Effect." The generally adopted finding is that the teacher must be able to hear and discern the stage at which the student is reasoning, and respond with a counter statement utilizing reasoning that is approximately one stage above that of the student.[19] Studies have also found that a mixture of stages serves as a valuable component for achieving development in moral judgment. Student groups with little or no mixture in stages, showed only small or no growth while classes with mixtures of two or more stages achieved greater growth.[20] More recently a small number of academics have begun to question the utility of teacher-led discussions in contrast to peer-led discussions. The questioning has been on both a theoretical and empirical basis. The criticism has centered around two issues: (1) the level of moral development of the teacher, and (2) the necessity of moral discussions having a group leader who is capable of constructing and articulating moral arguments that are one stage above those being presented by members of the group. If the assumption is made that for groups to achieve moral development a leader is required who can articulate arguments one stage above the class, then it is necessary that the group leader be sufficiently advanced, in a moral development sense, to be able to form higher stage arguments. If the teacher is at the same stage of development or lower than that of the students the process, in theory, must fail. Wilkins, in a study of preservice high school teachers, found significant overlap in the stage of moral development between the preservice teachers and the stages of junior and senior high school students. The conclusion reached is that many teachers are not sufficiently advanced in moral development to effectively provide higher stage arguments necessary to facilitate the student's moral development. Wilkins concludes,

> The implication to be drawn from these data is that, according to Kohlberg's theory of moral development and the teaching interventions based upon it, many of these preservice teachers would be incapable of understanding the moral reasoning of at least some of their pupils and even more incapable of reasoning one stage above the ones they could understand in order to provide them with "plus one" exemplars in moral discussions.[21]

The second criticism questions the necessity of a group leader at all. In a review of the seminal Blatt and Kohlberg study it was found that a leaderless group surpassed in moral development, between posttest and follow-up-test, a group that was provided a group leader.[22]

Another study examined the utility of student dyadic discussion without the presence of an instructor. One finding was that dyads, with one partner at a higher level of moral development, served to effectively promote moral development in the other partner.[23]

Experimental design

Subjects

The subjects consisted of an experimental group of 24 graduate students enrolled in the Legal and Regulatory Environment of Business class at the Graduate School of Business and Public Management, University of Denver.

Assessment of moral judgment

Several instruments have been developed that measure moral development. Over periods of time they

are able to discern changes in the level of moral reasoning.[24] The instrument employed in this study was the Defining Issues Test (DIT).[25] The DIT is an objective paper-and-pencil, group-administered test that requires the student to choose from a list of statements supporting the subject's decision on a moral dilemma. The DIT does not elicit spontaneous production[26] from the interviewee but instead generates statements of preference.[27]

On the DIT the subject is asked to choose from a list of twelve items that represent prototypic statements of the stages of moral development. Some of the statements represent nonsense items that have no meaning but may sound as though they represent a higher order of thought. The statements are designed to guard against protocols wherein the subject may have chosen response statements at random due to inattention or a desire to fake.[28] The responses occurring at the principled level of thinking, stages five and six, are scored. The result is a *P* score. This *P* score can also be expressed as percentage, or *P* percent score, which is a continuous variable on a scale of 0 to 95.[29]

Procedure

The intervention contained several segments. First, students were pretested with the DIT. Next, normative ethical theory was elaborated in the classroom. Third, the students were divided into groups and were required to complete assigned readings according to a structured procedure. At the end of the term the DIT was again administered as a post test.

The nature of course and moral conflict

On the first day of the academic term all students were given the DIT consisting of all six of the dilemmas. The resulting *P* percent scores were gathered in an ascending order from the lowest score of 20 to the highest of 76.7 The students were placed into seven groups of size three or four with one member having a significantly higher *P* percent score than the other members of the group and the remaining members of the group having scores that were closely grouped. During the course of the term no reference was made to the DIT or to any of the moral psychology literature to insure against any possibility of sample contamination.[30] At the end of the term all students were again given the DIT consisting of the same six dilemmas. At four regularly spaced intervals during the term each group was assigned readings. The groups were required to meet, critically examine, discuss and come to a group consensus as to the style of moral reasoning and moral philosophy or school of jurisprudence utilized by the author of the article assigned. For each reading, the groups were required to meet a minimum of two times and were required to formulate and agree on a position paper that not only analyzed the author's work but also compared it to other major systems of philosophical thought. On a rotating basis one member was required to act as the recording secretary to synthesize the group's debate and conclusion. The draft was to be approved by all members prior to its submission to the professor. This method forced the students to engage in a structured, repetitive process of interaction with a forced resolution. The expectation was that the assignments would bring out a divergence of viewpoints, conflicting styles of reasoning and a challenging of other's viewpoints. The small group size provided an environment wherein all were able to articulate their individual points of view and listen to the points of view of others and the underlying rationale. The purpose of the readings was to provide, within each group, a structured setting promoting conflict, discussion, interaction, and ultimately resolution.

The readings were selected to provide the students with divergent styles of moral reasoning in classical normative ethics and schools of jurisprudence. Those in normative ethics consisted of one that was utilitarian (teleological)[31] and one that was rooted in egalitarian welfare liberalism (deontological).[32]

For the jurisprudential exposure, Fuller's classical speluncean explorers case was assigned.[33] The reading is long and accordingly was divided into two assignments.

Through classroom lecture the students were introduced to two main themes in moral reasoning, teleological and deontological based theories. In teleology, sometimes referred to as consequentialist ethics, acts in themselves have no inherent moral nature. It is the consequences of the act that deter-

mine whether or not any given act is morally correct. The utilitarian view as exemplified by Bentham[34] and J. S. Mill[35] was examined.

Deontological theories, in contrast to utilitarianism, represent a rejection of the thesis underlying all of utilitarianism – that is an act is ethically correct if it generates the greatest good for the greatest number. Deontology seeks principles by which to judge acts and holds that acts have an inherent moral nature. Thus, in pure rule deontology, consequences are irrelevant. The pure rule deontology of Kant[36] was explored together with the modern moral philosopher John Rawls.[37] It was against this background that students studied the assigned readings.

Research hypotheses

The purpose of the educational intervention was to measure the effect, if any, that group interaction had on moral growth. Based upon the findings of previous studies two research hypotheses were formulated. First, that group discussion would have little effect on the subject with the highest *P* percent score in each group. Second, that the other subjects in each group would achieve significant upward movement during the course of the term.

Results and discussion

This section is organized into three subsections based upon analysis of (1) the entire experimental group of size 24; (2) the subset of seven students in the experimental group who had the highest prescores in their respective groups, referred to as the "Leaders;" and (3) the subset of 17, the remainder of the experimental group members referred to as the "Followers."

1. *Analysis of the entire group.* While both the experimental and control groups experienced positive median gains, the median gain for the experimental group was significantly larger than the median gain for the control group. To establish this formally we tested:

H_0: median gains for experimental and traditional treatments are the same, versus,

H_1: the median gain for the experimental treatment exceeds the median gain for the traditional treatment.

A Mann-Whitney[38] test was performed. The null-hypothesis was rejected with a p-value[39] of 0.0357.

The overall gain for members of the experimental group averaged 5.6 points, but varied from −13.3 points to 21.7 points. In our investigation of the nature of students gains, we observed a relationship between the gain a student realized and the distance of the student's prescore from the group Leader's prescore. Note that for each of the seven Leaders, the distance is zero, while for the Followers, the distance is positive. The resulting regression model was curvilinear in nature. A graph of the model is given in Figure 1. Statistically the model can be represented:

$$\text{Expected Gain} = -0.0475x^2 + 1.56x - 1.03$$

In the statistical model, x represents the distance of a student's prescore from the highest prescore in his/her group. For a Leader, $x = 0$; for all others, x is positive.

The model suggests that members of a group either very close to the group Leader in prescore, or very far from the model prescore improve the least. In particular, the group Leaders themselves tend not to benefit (this result is corroborated later when we examine the group Leaders separately).

On average, the highest expected gain (of about 12 points) tends to occur for students whose prescores fall about 16 points below the prescore of the group Leaders.

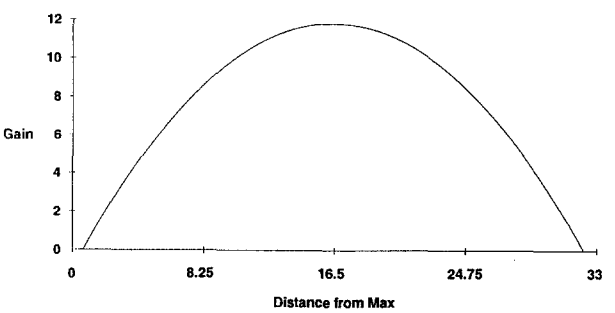

Fig. 1

Regression model validity

To test the overall significance of the regression model, Expected Gain = $\beta_2 x^2 + \beta_1 x + \beta_0$, a test of the hypothesis H_0: $\beta_1 = \beta_2 = 0$ was performed. The null hypothesis here states, that the variable x has no relation to the amount of gain a student achieves. H_0 was rejected with a p-value of 0.028. To determine the validity of the quadratic curvilinear term in the model, a test of the hypothesis H_0: $\beta_2 = 0$ was performed. The null hypothesis here states that the relationship between the variables x and Gain is a straight line relationship; the alternative hypothesis says the relationship is curvilinear. H_0 was rejected with p-value of 0.006. Therefore, the algebraic model stated above is significant at the 0.05 level of significance. This result tends to reinforce earlier research.[40]

2. *Analysis for the seven group leaders.* In Figure II, we see the prescores for all 24 students plotted on the horizontal axis, the post-scores on the vertical axis, and the "Line of No Gain." One can observe that the seven points indicated by a solid rectangle, corresponding to the seven group Leaders lie consistently very close to the "Line of No Gain." Formally, the hypothesis H_0: mean gain for Leaders = 0, versus H_1: mean gain for Leaders is positive, was tested with a t-test.[41] The null hypothesis states that on the average there is no gain for the population of Leaders (highest prescores in their respective groups). The null hypothesis could not be rejected since the p-value for the test was 0.66.

3. *Analysis for the 17 followers.* The mean gain for this group was 8.33. The null hypothesis H_0: mean gain = 0 versus H_1: mean gain is positive, was tested with a t-test. The null hypothesis here is that on the average there is no gain for the population of non-leaders. The null hypothesis was rejected with a p-value of 0.0013.

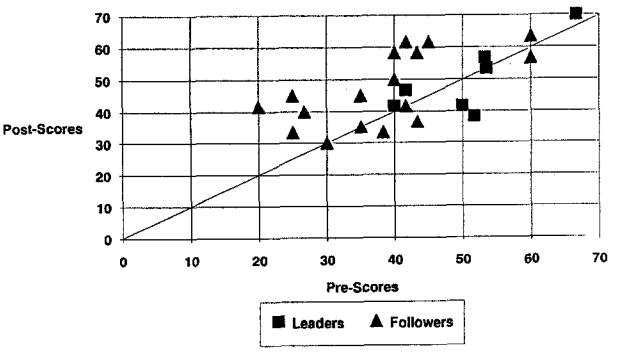

Fig.2

In summary, the experimental group as a whole benefitted from its exposure to peer-led moral discussions where one member's P percent score was approximately one stage higher than the P percent scores of all other group members. Upon closer examination however, the group Leaders, that is, the students in each group having the highest prescore, benefitted not at all, while the Followers, in general, benefitted a great deal. Finally, it was determined that students who began the class a moderate distance from their group Leader tended to gain the most.

Comparison with other interventions

Rest has developed a statistical measure, effect size, that measures the relative strength of the educational intervention.[42] Effect size provides a standardized method that allows the direct comparison of different educational programs and measures the power of this effect on moral development. Effect size is determined by dividing the mean gain for the intervention group (8.33 in this study) by the pooled standard deviation of the treatment group.[43] The obtained effect size for the treatment group leaders was, −0.11, and for the treatment group followers, 0.75. Perhaps the most effective means of comparison is to assess the relative significance of these results. Rest *et al.*, conducted a meta-analysis of intervention studies to determine the effect, if any, that the interventions have on moral development. That is, do educational interventions have an influence on moral development? Four types of treatments were defined. Two of those, dilemma discussion and academic courses, are compared with this intervention. Dilemma discussions ". . . are programs that emphasized peer discussion of controversial moral dilemmas . . ."[44] In those studies the teacher normally served as the leader. The average effect size for these groups is reported as 0.41.

Academic courses are defined as interventions occurring in

. . . programs that emphasize the academic content of

humanities, social studies, literature or contemporary issues. These programs do not focus . . . on programs on extended practice in moral problem solving or personal development activities.[45]

The effect size obtained for these studies was 0.09. In comparison, the effect size obtained in this research was 0.75.

In summary, our study provides one of the strongest effect sizes when compared with the other studies reviewed by Rest. Student-led discussion thus appears to be more effective than teacher-led discussions in producing moral growth.

Conclusion

Our research confirms earlier findings that students are able to comprehend the moral reasoning of others at up to one stage higher than their own and will prefer the higher stage of reasoning. Additionally, our research provides weight to the view that the students may serve more important roles than the teacher as a facilitator of a robust environment for development in a moral education program. That is, peer-led moral discussions may be an unusually effective means for promoting moral development. The interaction by students within properly constructed groups may serve a significant role in the promotion of moral growth. The use of small groups as a pedagogic technique may assume a greater degree of significance when the size of the class as a whole is inimical to establishing a meaningful dialogue between the teacher and the students.

The construction of the group dramatically affects the growth of the students within each group. The group leaders do not achieve any moral growth. However, those students who are clustered at an optimum distance, neither too close to nor too far from, the group leader benefit significantly from the exposure to and interactive process of the group.

The results may inferentially lend credence to the view that law as an area of inquiry may be a particularly rich arena for the integration of a program of ethics education anchored in the cognitive developmental paradigm of moral psychology. Whether law inherently is a better host for promoting moral development than other areas of the business curriculum requires further study. The research has yielded a statistically significant regression model for the construction of small groups. Its utility needs to be examined in a variety of settings.

Notes

[1] J. Rest: 1980, 'Basic Issues in Evaluating Moral Education Programs', in *Evaluating Moral Development* (Kuhnmerker, Mentowski and Erickson, eds.).

[2] A recent report on management education reaches a similar conclusion. "No reasonable person, in our opinion, could argue that business schools should ignore ethical aspects of business behavior and business decisions or should emphasize this less than currently, but how best to implement an increased emphasis is the challenge." Porter and McKibben: 1988, *Management Education and Development* 86.

[3] L. Kohlberg: 1981, 1 *Essays on Moral Development, The Philosophy of Moral Judgment.*

[4] M. Nichols and V. Day: 1982, 'A Comparison of Moral Reasoning of Groups and Individuals on the "Defining Issues Test"', *Academy of Management Journal* **25**, 1.

[5] L. Kohlberg: 1984, 2 *Essays on Moral Development, The Psychology of Moral Development.*

[6] See generally, J. Dewey: 1964, *Democracy and Education* (1939), J. Dewey, *Dewey on Education, Selected Writings* (D. Archambault, ed.).

[7] J. Piaget: 1948, *The Moral Judgment of the Child* (originally published in 1932).

[8] L. Kohlberg: 1958, 'The Development of Modes of Moral Thinking and Choice in the Years Ten to Sixteen' (unpublished doctoral dissertation, University of Chicago).

[9] L. Kohlberg: 1973, 'The Claim to Moral Adequacy of a Highest Stage of Moral Judgment', *Journal of Philosophy* **70**, 630.

[10] The stage concept may be illustrated by comparing stage one, the first stage with the higher stage five. At stage one a person determines what is right based upon fear of punishment for breaking rules given by those in authority. Obedience is for obedience's sake. Reprisal and retribution are major considerations. A stage five person, on the other hand, has developed a perspective which identifies some rights as superior to society. The social contract, respect for individual rights, and justice are major components of this stage.

[11] J. Reimer, D. Paolitto and R. Hersh: 1983, *Promoting Moral Growth* 114.

[12] For an excellent analysis using the Kohlberg paradigm in an educational setting, see D. Cooper: 1985, 'Cognitive Development and Teaching Business Ethics', *Journal of Business Ethics* **4**, 313.

[13] E. Turiel: 1966, 'An Experimental Test of the Sequentiality of Developmental Stages in the Child's Moral Judgments', *Journal of Personality Sociology Psychology* **3**, 611.

[14] J. Rest, E. Turiel and L. Kohlberg: 1969, 'Level of Moral Development as a Determinant of Preference and Comprehension of Moral Judgments Made by Others', *Journal of Personality* **37**, 225.

[15] M. Blatt: 1969, 'The Effects of Classroom Discussion Programs upon Children's Level of Moral Judgment' (unpublished doctoral dissertation, University of Chicago).

[16] M. Blatt and L. Kohlberg: 1975, 'The Effects of Classroom Moral Discussion upon Children's Moral Judgment', *Journal of Moral Education* **4**, 129.

[17] Berkowitz has phrased this question similarly when he asks: ". . . Is teacher facilitation necessary for successful moral education? He concludes ". . . educators have not adequately explored the potential of peer led moral discussion programs." M. Berkowitz: 1985, 'The Role of Discussion in Moral Education', in *Moral Education: Theory and Application* (M. Berkowitz and F. Oser, eds.).

[18] See, *supra* Note 16.

[19] J. Arbuthnot and D. Faust: 1981, *Teaching Moral Reasoning: Theory and Practice* 109. This practice is called a Plus 1 convention or a Plus One argument. The ability to do this is generally considered to be a necessary but not sufficient part of a moral education program.

[20] L. Kohlberg: 1980, 'High School Democracy and Educating for a Just Society', *Moral Education, A First Generation of Research and Development* (R. Mosher, ed.) 51.

[21] R. Wilkins: 1980, 'If the Moral Reasoning of Teachers is Deficient, What Hope for Pupils?', *Phi Delta Kappan* **61**, 548.

[22] M. Berkowitz: 1980, 'Moral Peers to the Rescue! A Critical Appraisal of the "Plus 1" Convention In Moral Education', 193 ERIC ED 138. See also, M. Berkowitz: 1981, 'A Critical Appraisal of the "Plus-One" Convention in Moral Education', *Phi Delta Kappan* **62**, 488.

[23] M. Berkowitz, J. Gibbs and J. Broughton: 1980, 'The Relation of Moral Judgment Stage To Developmental Effects of Peer Dialogues', *Merrill-Palmer Quarterly* **26**, 341.

[24] See *supra* Note 10.

[25] J. Rest: 1979, *Development in Judging Moral Issues.*

[26] Spontaneous production refers to the ability to produce moral judgments in response to open ended questions and are a measure of the highest level of response that a subject can independently produce.

[27] Statements of preference are those statements that a subject would choose as supporting her moral judgment when the responses are furnished to the subject as opposed to spontaneous production.

[28] These choices result in the generation of an M score. Protocols with an M score of eight or greater are discarded. Rest speculates that exposure to Kohlbergian literature may artificially inflate post test scores. J. Rest: 1979, *Revised Manual for the Defining Issues Test* (unpublished manuscript). This manual is available from the Center for the Study of Ethical Development, University of Minnesota.

[29] *Id.* at 3.2. The *P* score is calculated as follows. The choice representing the subjects first choice (most important reason) is assigned a weight of 4. The second most important is assigned a weight of 3, and so on. These weights are placed in columns according to the stage of reasoning that the choice represented. For example, if the most important item on the given dilemma was item 8 (a stage six choice), then a score of 4 would be entered in the stage six column. The results of each column are totaled providing raw stage scores. These raw stage scores are divided by 0.6 to convert the raw scores to stage percentages. The stage percentages in the principled stages of 5 and 6 are added together to obtain the *P* percent score.

[30] See *supra* Note 25 at 218.

[31] R. Posner: 1986, *Economic Analysis of Law.* In this reading the chapter on the economic basis of contracts was assigned. Posner proceeds with a determination of the underpinnings of law as being economic in nature. He chooses areas of contract law such as consideration, mistake, duress, fraud etc., to illustrate the economic efficiency of the law. The approach emphasizes a utilitarian wealth maximization view as to the nature of law.

[32] J. Rawls: 1985, 'Justice as Fairness: Political not Metaphysical', *Philosophy and Public Affairs* **14**, 223. This article contains the latest formulation of Rawls' two principles of justice which were elaborated in class. The two principles are lexical in order with the liberty principle being required to be satisfied prior to consideration of the second, difference, principle. The principles are:

(1) Each person has an equal right to a fully adequate scheme of equal basic rights and liberties which scheme is compatible with a similar scheme for all.
(2) Social and economic inequalities are to satisfy two conditions: First, they must be attached to offices and positions open to all, under conditions of fair equality of opportunity; and second, they must be to the greatest benefit of the least advantaged members of society.

[33] L. Fuller: 1949, 'The Case of the Speluncean Explorers', *Harvard Law Review* **62**, 616.

[34] J. Bentham: 1988, *The Principles of Morals & Legislation* (originally published 1789).

[35] J. S. Mill: 1957, *Utilitarianism* (O. Piest, ed.).

[36] I. Kant: 1950, *Fundamental Principles of The Metaphysics of Morals* (L. Beck, ed.) (originally published 1785).

[37] J. Rawls: 1971, *A Theory of Justice.*

[38] A Mann-Whitney text (equivalent to Wilcoxon Rank Sum Test) is the most common non-parametric statistical test for testing for equality of two population medians.

[39] A *p*-value, or observed level of significance, of less than 0.05 is conventionally considered statistically significant.

[40] J. Rest: 1986, *Moral Development, Advances in Research and Theory.*

[41] A *t*-test is a commonly applied statistical test for testing hypotheses about a population mean.

[42] See *supra* Note 40 at 76.

[43] See *supra* Note 40 at 77. "For each independent treatment group, effect size for that treatment is represented by the difference between the mean of pretest and post test divided by the pooled standard deviation (that is, the weighted average standard deviation within the groups of the study)".

[44] See *supra* Note 40 at 79.

[45] See *supra* Note 40 at 80.

University of Denver,
Department of Statistics and Operations Research,
College of Business Administration,
University Park,
Denver, Colo 80208,
U.S.A.