

Moral Reasoning in Conformity to Group Norms

Helen Bech Poulsen

Honors Thesis

Department of Psychology, University of Texas at Austin

Research Advisor: A. Rebecca Neal-Beevers, Ph.D.

May 2013

Acknowledgments

This research would not have been possible without the guidance of Dr. Theresa Jones, the help of my confederates Marilyn Adams, Irene Jea, Stephanie Jean, Martin Nguyen, and Devon Strickland, as well as the financial support of the Undergraduate Research Fellowship awarded in spring of 2013.

Abstract

This study investigates the relationship between moral reasoning ability (MRA) and behavior in response to social pressure. Undergraduates' MRA was measured using the Defining Issues Test 2. A color classification test was administered in group tests for conformity, which was elicited in two conditions: a normative condition, in which subjects were interdependent of one another (to induce feelings of moral obligation), and a nonnormative condition, in which subjects were independent of one another. We hypothesized MRA would be negatively correlated with conformity behavior and moderated by feelings of moral obligation. As anticipated, results demonstrate higher conformity percentages in the normative versus the nonnormative condition ($F(1, 48) = 5.552, p = .0226$). MRA was found to be a significant predictor of conformity behavior in the normative condition, supporting the negative correlation hypothesized ($R^2 = .093, F(1, 48) = 4.92, p = .0313$). Thus, moral development status appears to influence whether or not an individual yields to social pressure, with more sophisticated levels of MRA resulting in less conformity behavior.

Conformity is a socially induced behavior, defined as a change in behavior to match the beliefs, expectations, or behaviors of a real or imagined other (Cialdini & Trost, 1998). Conforming behavior is seen in most people and across the lifespan (Costanzo & Shaw, 1966; Iscoe, Williams, & Harvey, 1963). A popular area of study in psychology during the middle of the 20th century, conformity continues to be a topic of research. Nevertheless, little has been done to pinpoint the underlying psychological processes involved in yielding to social pressure, and only one study has examined the involvement of moral reasoning as an underlying process (Saltzstein, Diamond, & Belenky, 1972). The idea that moral reasoning may be involved in conformity behavior first arose when researchers interviewed subjects of conformity studies. In the interviews, subjects attributed their conforming behavior to feelings of moral obligation to answer accordingly with the group (Asch, 1951-56; Deutsch & Gerard, 1955). Although previous studies have attempted to analyze the thought processes involved in yielding to social pressure (Asch, 1951-56; Deutsch & Gerard, 1955; Kelman, 1958; Saltzstein et al., 1972), it has been difficult to isolate a critical factor involved, because of the diverse methodology utilized. This study's aim is to investigate the thought processes employed by the mind when yielding to social pressure, specifically examining the effect of one's moral reasoning ability (MRA). We hypothesized that MRA would be negatively correlated with conformity behavior. It was also hypothesized that more conformity behavior would be elicited in normative (group members are interdependent) versus nonnormative (group members are independent) group tests for conformity, and that the discrepancy size between these two conditions would be positively correlated with MRA. Due to past research findings, we expected more conformity behavior in females (Asch, 1951-56; Collin, Di Sano, & Malik, 1994; Eagly, 1978) but no gender differences in MRA (Dong, 2009).

Conformity

Most conforming behavior is a normal social behavior that benefits society (e.g., conforming to societal norms, laws, traditions, etc.). Herbert Kelman (1958) distinguished between three forms of conformity: compliance (conforming to achieve a favorable reaction from others), identification (conforming to maintain a self-defining relationship with others), and internalization (conforming due to intrinsically rewarding aspects). On occasion, conformity can also reflect destructive behavior and numerous studies have examined its destructive effects. In a famous study, influenced by the Nuremburg trials, examining obedience, Milgram (1963) found that 65% of subjects obeyed an authority's demand to administer successive shocks of increasing intensity beyond the point of a confederate's feigned extreme pain. In another study, Haney, Banks, and Zimbardo (1973) assigned subjects the role of either prison guard or prisoner, without further instruction, in a simulated prison. Subjects conformed to their roles: those assigned as guards enforced authoritarian control, sometimes causing psychological torture, over subjects assigned as prisoners. Most prisoners accepted the harassment themselves, and attempts made to resist the harassment were stopped by other subjects (Haney et al., 1973). A great quantity of research has found similarly pressing results, regarding conformity, from overall lowered levels of accuracy on tests, to increased risk-taking behavior and incorrect memory recall on eye-witness testimonies (Asch, 1951-56; Cialdini & Trost, 1998; Goodwin, Kukucka, & Hawks, 2013; Lee-Zorn, 2013; Reysen, 2005; Trautmann-Lengsfeld & Herrmann, 2013). Understanding the implications of conformity behavior in the real world is important, if not imperative, for many fields, most notably those of: public service, social science and work, and management, among others (Guandong, Qin Hai, Fangfei, & Lin, 2012).

Conformity is classically measured by administering a test(s) to a group of participants who, except for one true participant, are all actually confederates. Asch (1951) developed a test, comparing line lengths, for use in group conformity paradigms, which has been a template for later studies. In his studies of group conformity, Asch (1951-55) determined that the ratio of confederates to participants necessary to best elicit conformity behavior is three to one—any more than three confederates does not significantly increase conformity in the participant. We used this ratio in the present study. In Asch's studies, the group was exposed to 18 trials, each with a stimulus composed of 1 original line, along with 3 comparison lines of differing lengths. The object of the test was for the subjects to name the comparison line they believed was equal in length to the original line. On critical trials (about half of all), the confederates answered unanimously, choosing an obviously incorrect comparison line. The participant's degree of conformity was quantified based on the number of responses in the critical trials that match those of the confederates.

Other questionnaire-like measures and group tests with virtual confederates have been created to measure conformity, however, conformity is best elicited by placing the participant into a group with others where public responding is necessary (Stricker, Messick, & Jackson, 1970).

Moral Obligation in Group Tests for Conformity

By differing group goals in tests for conformity researchers are able to manipulate feelings of moral obligation to the group. Researchers have devised a normative condition, in which subjects are interdependent of one another, and a nonnormative condition, in which subjects are independent of one another, to study the effects of moral obligation. Saltzstein, Diamond, and Belenky (1972) did so by promising a prize to the *group* with the most correct

scores, in the normative condition, and to the *subject* with the most correct scores, in the nonnormative condition. A higher prevalence of conformity has been found in normative versus nonnormative group conditions (Deutsch & Gerard, 1955; Jackson & Saltzstein, 1958).

In past conformity studies, participants made remarks that attributed their responses, whether conforming or not, to feelings of moral obligation (Asch, 1951-56; Deutsch & Gerard, 1955). Numerous conforming subjects in the Deutsch and Gerard (1955) study claimed to feel morally obligated to agree with the group. A number of nonconforming subjects in Asch's (1951, 1955-6) studies, admitted to believing the majority's unanimous responses were correct, but continued their opposition in order to answer in accordance with their own perspective. In other words, they felt an obligation to the experimenter to base responses on their personal perception only. Finally, a few conforming subjects in the Asch (1951, 1955-6) studies attributed their conforming responses to an obligation not to "spoil" the experimenter's results—they believed that the experimenter hoped the group members' responses would be unanimous. These participant responses indicate feelings of moral obligation and thus the potential involvement of moral reasoning in yielding to social pressure.

Moral Development

Moral reasoning ability has been a measurable characteristic, since Lawrence Kohlberg defined the stages of moral development in 1969, based on Jean Piaget's (1966) stages of cognitive development. MRA corresponds to one's current stage of moral development (Rest, Narvaez, Thoma, & Bebeau, 1999). Kohlberg (1969) constructed a six-stage model of moral development consisting of three levels, each with two stages. Undergraduate students (who will be used as subjects in this study) tend to have a moral development between stages three and six (Dong, 2009).

Stage three and four of moral development are part of the second level called the conventional (Kohlberg, 1969). In this level, the individual considers intentionality, respects authority, and internalizes society's rules. Rather than an egocentric thought process, found in lower stages, there is a focus on others' expectations. Society's ideals concerning traits, such as being a "good" daughter or "loving" husband, become the foundations of behavior, especially in stage three. The individual is able to compromise and empathize, and he or she displays a value for traits like trust, loyalty, gratitude, and reverence. Responding to obligations of duty becomes pronounced in stage four. A strong respect for authority and society's laws is evident, and relationships are defined in terms of their place in society's hierarchy (Kohlberg, 1969).

The third level, called the post-conventional, is comprised of the final stages, five and six, of moral development (Kohlberg, 1969). Stage five is indicated by a respect for and an awareness of the existence of differing values held by people of differing backgrounds. Certain constants, like the value for human life, are held and cannot be disturbed by a majority opinion. There is a mindset that the altering of laws can only happen through the system, and obligation to the law is based on a social contract which encourages the welfare of citizens. At stage six, a self-constructed code of values is created by the individual's conscience; one's own principles are held in higher esteem than society's laws. Principles are based on a theme of human dignity (Kohlberg, 1969).

Undergraduate students are especially interesting to the topic of this study, due to findings regarding the relationship between age, education, and MRA. MRA has been found to increase throughout the undergraduate career; there is a significant difference in MRA between freshman and sophomore undergraduate students (Bay & Greenberg, 2001).

Previous Research on MRA's Effect on Conformity

In 1972, Saltzstein, Diamond, and Belenky attempted to analyze moral judgment as a part of the underlying processes of yielding to social pressure. They are the only researchers, to my knowledge, who have studied this relationship. Saltzstein et al. (1972) measured seventh graders' conformity in normative versus nonnormative group conditions. Asch's (1951) line test was administered in both group conditions and moral judgment levels were measured via interviews. Based on characteristics unique to each of Kohlberg's (1969) stages of moral development, Saltzstein et al. (1972) hypothesized behavior specific to each stage that would be seen in the conformity paradigms. They predicted the conformity behavior of an individual in stage three would be high when in a group of peers faced by an experimenter, and especially high in an interdependent group condition which elicits feelings of esteem towards peers and approval seeking. They predicted the conformity behavior of an individual in stage four would be lower than previous stages, dependent upon the extent to which the individual sees the experimenter as an authority, but also higher in the interdependent group condition because it improves the group's legitimacy. They predicted the conformity behavior of an individual in stage five would be lower than previous stages because of a feeling of obligation to the experimenter to perform accurately and according to personal perspective, but that it may appear in higher frequency in the interdependent group condition if a feeling of obligation to the group arises. Finally, they predicted the conformity behavior of an individual in stage six would be lower than previous stages, based on the principle of the "concept of justice... superseding even the need for social order" (p. 329). However, there were no subjects at stage six in their study.

In Saltzstein et al.'s (1972) study, rather than using confederates, subjects were tricked into thinking they were viewing their fellow subjects' responses, by producing their answers on a

console. Buzzers played through headphones to denote turn-taking. With this approach, Saltzstein et al. claimed to find fewer instances of conformity than similar research. As noted by Saltzstein et al., the differences in results could be due to greater subject suspicion in their design. Nevertheless, they found a significant relationship between moral judgment level and conformity, but did not find a significant difference in conformity between the two conditions (Saltzstein et al., 1972). In the current study, we adopt a similar hypothesis to that of Saltzstein et al.'s (1972), but employ more reliable and valid methods: a traditional group test with confederates to measure conformity and the Defining Issues Test 2 to measure moral reasoning.

In conclusion, based on the implications of each stage of moral development on decision making, the evidence of subjects feeling moral obligation to the group in conformity tests, along with the higher prevalence of conformity in normative conditions, MRA seems a likely aspect influencing the thought processes involved in conformity to group norms. In this study, we make the connection between MRA, the independent variable, and conformity, the dependent variable, via the thought processes involved in deciding whether or not to conform to a group, which can elicit moral issues and moral reasoning (Asch, 1951; Deutsch & Gerard, 1955; Saltzstein et al., 1972).

Design & Methods

Experimental Design Overview

In order to determine how feelings of moral obligation contribute to conformity, we used two conditions: a normative (to induce obligation) and nonnormative (to serve as a comparison). MRA was determined via the Defining Issues Test 2 (DIT2) (Rest et al., 1999). In place of a traditional Asch (1951) line test for use in a group test for conformity, we used a color classification test adopted from Collin, Di Sano, and Malik (1994). Compared to a line test, color classification is proposed to be less objective (balancing internal and external validity) in nature, to require little need for interaction between subjects (avoiding confounds), and to be relatively free from gender bias (Collin et al., 1994). The color classification test is also less commonly known and associated with conformity studies, which circumvents participant suspicion.

As a pretest, the color classification test was administered twice (for reliability) to the participant alone. About a week later, the color classification test was administered twice in group tests: once in the normative and then again in the nonnormative condition. The order of conditions was randomized and counterbalanced across participants. To determine how many times they conformed, participants' responses to the color classification group test were compared to their corresponding responses in the last pretest. A participant was considered to have conformed if his or her response to a critical trial in the group test differed from the corresponding response in the pretest.

Conformity percentages were compared across conditions and genders. MRA scores were compared across genders and assessed as a predictor of conformity percentages in the normative condition in a regression analysis.

Participants

Participants were undergraduate students, enrolled in an introductory psychology course in the spring of 2013, at The University of Texas at Austin. Fifty-two undergraduates were recruited to participate in the study: 19 male and 33 female. Two participants were excluded from analyses due to reliability issues. Thus, there are only fifty participants, 18 males and 32 females, included in analyses. Participants were not color blind and English was their first language; there were no other inclusion or exclusion criteria. See Table 1 for complete demographic data.

Table 1

Demographics: Age, Education Level, and Race

Characteristic	N/M ± SD	%	Recruitment & Consent. The
Age in years	19.3 ± 1.22		procedure of recruitment, from this
Education Level			participant pool, allowed students to sign
Freshman	32	64	up for an available lab time to participate
Sophomore	8	16	in studies in exchange for class credit.
Junior	7	14	Once participants signed up for the
Senior	3	6	present study, they were directed to email
Race			the experimenter for a link to the survey
Caucasian	24	48	portion of the study. They had to
Asian	12	24	
Asian American	9	18	
African American	5	10	

complete the survey portion at least 5 days before their appointment in the lab, or the appointment was canceled. Informed consent was obtained twice: first, in the online portion of the study, and second, in the in-lab portion of the study. A debriefing took place after the second portion of the study was completed.

The participant received an online description of the purpose and procedure pertaining to the online portion of the study, including risks and benefits. The participants were told that the study's intentions were to examine one's ability to perceive and classify colors and its relation to one's definition of key issues in social problems. After reading the description, individuals consented to participate in the online questionnaires.

About a week later, participants arrived for the lab portion of the study and received a consent form with a written description of the procedures including a deceptive description. The same consent form was given to the three confederates and all were asked to read it carefully. If the participant entered the lab later than any confederate(s), the confederate(s) acted as though they had already read and signed the consent form.

After participation was completed and the confederates were dismissed, the participant received a debriefing form. At the end of the debriefing form, the participant was asked to sign to either allow their data to be used in the study's analysis, or to have it excluded. No participants chose the latter option.

Procedure

First, participants were sent a link to an online survey (via SurveyMonkey.com), which included the consent form that concealed the study's intent to measure conformity. Participants completed prescreening items first, including a question asking if English is their first language, and the Ishihara Test for Color Blindness. The latter was used to screen for defective color vision. Participants who reported English as a second language, or who failed the color blindness screening, were immediately informed that they did not qualify for the study and participation was terminated. Remaining participants went on to complete an hour-long online survey

consisting of the DIT2 and the color classification pretests described below. For reliability purposes, the pretest was given twice: once before and after the DIT2.

Five to seven days after completing the online survey, participants completed the in-lab group tests for conformity. The laboratory session was a with-in subjects design, entailing both the normative and nonnormative conformity conditions, and took approximately half an hour to complete. The order of conditions was randomized and counter-balanced between participants. Three confederates and one subject were present during each laboratory session. This confederate-to-subject ratio was based on Asch's (1951-55) study that determined conformity is best elicited in groups with three or more confederates to a single participant. During about half of all testing 1 male confederate and 2 female confederates were present; in other tests all confederates were female. Confederate gender has not shown to influence conformity behavior in subjects (Collin et al., 1994).

In both conditions, group members sat in chairs around a table with a computer positioned about two to three feet away from participants (like they were told to do in the pretest instructions). The PowerPoint slides of the color classification test were displayed on a computer screen in a similar way to that of the pretest. The experimenter stayed in the room during the group sessions, recited the instructions aloud, and recorded the responses of the confederates and subject. The following instructions, from Collin et al. (1994), were recited aloud:

I will be presenting you with 10 slides. In the center of each slide is a colored circle. Before projecting each slide, I will say the names of two colors. After each slide is shown for six seconds, I will say the names of the two colors again. You are then to tell me which of the color names presented best describes the color of the circle. (p. 358)

The instructions also included a few sentences about the concept of wavelength color measurement (taken from the pretest instructions). Next, the participants were told to respond verbally, one-at-a-time, with the subject answering last—an order that they were told was randomly generated. The experiment then proceeded as stated in the instructions. On the four neutral trials (1, 2, 5, and 7), confederates answered unanimously in agreement with the subject's response in the pretest (Collin et al., 1994). On the six critical trials (3, 4, 6, 8, 9, and 10), confederates answered unanimously in disagreement with subject's prior response (Collin et al., 1994). On each trial, the experimenter cued the confederates on the color to choose by tilting her pen as she named the color.

The design for the normative and nonnormative conditions was taken from Saltzstein et al.'s (1972) paradigm. In both conditions, the group was told that a winner(s) would be recognized for the most accurate performance in the color classification test. In the normative, interdependent, condition, they were told the winner would be the most accurate group(s), and that each individual's correct judgment contributed one point toward the group's score. The instructions included the following statement, from Saltzstein et al. (1972), "For each of you, winning...depends on how well the others on your team do, as well as what you do yourself" (p. 330).

In the nonnormative, independent, condition, the group was told that each person was competing with all the individual members of other groups combined. The instructions included the following statement, from Saltzstein et al. (1972), "For each of you, winning...depends only on how well you yourself do, and doesn't depend on what any of the other people here in the room do. Each of you could win...or only some of you or none; whether you win is entirely up to you" (p. 330).

After the administration of both group conditions, the subject was asked to stay in the room to fill out the study survey and the confederates were dismissed. Participants were then given a copy of the debriefing form.

Measures

Prescreening Measure. The Ishihara Test for Color Blindness was administered to prescreen all subjects, in order to rule out defective color vision, before administering the first color classification pretest. A shortened version adopted from Ishihara (1973) was used. It consisted of ten circles with numbers inside them and differing color combinations; the participant was asked to correctly identify the number inside of the circle.

Conformity Measure. Stimuli for the color classification test consisted of ten PowerPoint slides, containing a color sample in a circular shape centered on a black background. Included in the instructions for the color classification test, were a couple of introductory sentences explaining the human eye's perception of wavelengths and their translation into colors, an explanation of the color samples being "in-between" wavelengths, and instructions to sit about two to three feet away from the computer screen (see Appendix A). In the two pretests, participants were told to choose one of two color names along with an adjective (warm, neutral, or cold), that best described the color sample (see Appendix A). In the two group tests, participants were shown each color sample on a computer screen for six seconds, in a similar style to the pretest, but answered verbally. The colors for critical trials (used to elicit conforming responses) were ambiguous, i.e., between the angstrom (wavelength) levels of the standard limits of two colors. Colors for neutral trials (used to alleviate subject's suspicion of the unanimous group) were less ambiguous and fall just within the angstrom limits of a color. This color classification test was adopted from Collin et al. (1994).

Moral Reasoning Measure. The online (SurveyMonkey.com) version of the Defining Issues Test 2 (DIT2) was administered. The DIT2 is an objective test of moral reasoning based on Rest's revision of Kohlberg's cognitive-developmental theory of moral development (Rest, 1979; Rest et al., 1999). On the DIT2, participants were presented with five moral dilemmas and were asked to read a list of 12 items that include prototypic reasoning for each of the stages of moral development. Participants then rated how important they thought each item was in deciding on a course of action for the dilemma, indicated what their decision was, and then ranked the four most important items. At the end of the online DIT2 was a section dedicated to the participant's demographics as well as a section concerning the level of environmental distractions present while the participant completed the test. Each de-identified DIT2 completed by a participant was sent to its manufacturers for scoring. The indices account for rated items that reflect respondents' preferences for higher versus lower stage reasoning. Test-retest reliability estimates range from 0.71 to 0.82 (Rest, Thoma, & Edwards, 1997). The test includes items that serve as reliability checks.

Moral reasoning assayed by hypothesized moral dilemmas, in questionnaires, has been shown to be related to moral action (Haan, Smith, & Block, 1968; Turiel & Rothman, 1972). Researchers propose that the underlying structures of verbal and nonverbal MRA are related (Kohlberg, 1969; Piaget, 1966).

Study Survey. A study survey, adopted from Saltzstein et al. (1972), was administered last. It assessed the subject's understanding of the situation in general, beliefs about the correctness of the group's responses, and the group's right to expect the subject's agreement (see Appendix B). It consisted of seven statements which the participant rated on a 5-point Likert scale, in either agreement or disagreement.

Statistical Analysis

Primary Analyses. In order to determine if factors of moral obligation to the group were involved in the decision to yield to social pressure, the conformity percentages (color choices that changed from the pretest) were compared across the normative and nonnormative conditions, and checked for order effects, using a repeated-measures ANOVA. A linear regression analysis for MRA and conformity percentage was run to determine the relationship between the two. The responses in the study survey (regarding the group's right to expect the subject's agreement, suspicions, and more) were added to the regression analysis. Gender differences were also examined by conformity behavior and MRA.

Stimuli Checks. To check whether the stimuli of critical trials were ambiguous and that of neutral trials were unambiguous, a chi-square goodness-of-fit test was performed for each trial in the second pretests. A significant chi-square test indicated a preference for one color over the other in the given trial, and thus the unambiguity of the particular hue. An insignificant result indicated no preference for either color in the given trial, and thus the ambiguity of a hue. To determine whether subjects' responses were reliable in the group tests, the number of changing neutral trial responses from the second pretest to the group tests were examined, and the responses to both pretests were compared. MRA scores were determined for reliability by the manufacturers of the DIT.

Results

Pretests

From participant responses in the color classification pretests, two statistics were derived for each participant: the number of differing neutral responses ($M = .32$, $SD = .58$; female $M = .31$, $SD = .53$; male $M = .33$, $SD = .68$) between pretests and the number of differing responses overall ($M = 1.24$, $SD = 1.28$; female $M = 1.18$, $SD = 1.33$; male $M = 1.33$, $SD = 1.24$) between pretests. This checked subject reliability. Subjects who changed 3 or more, out of 4, neutral responses were considered unreliable and excluded from the analyses (this applied to 2 out of the 52 participants).

The neutral trial responses in the participant's second pretest were compared to neutral responses in each group test. From this, each participant received two statistics: the number of differing neutral responses between the second pretest and the normative condition ($M = .48$, $SD = .87$; female $M = .37$, $SD = .66$; male $M = .33$, $SD = .59$) and the number of differing neutral responses between the second pretest and the nonnormative condition ($M = .64$, $SD = .89$; female $M = .44$, $SD = .556$; male $M = .66$, $SD = .68$). This served as a second reliability check for the conformity tests. Subjects who changed 3 or more, out of 4, neutral responses were considered unreliable and excluded from the analyses (this applied to 0 out of the 52 participants).

DIT2

Data was analyzed using each of the moral schema scores and the N2 score, from the DIT2. Responses were checked for reliability, as part of the scoring process done by the manufacturers; none were omitted due to unreliability. Table 2 presents the means and standard deviations for the DIT2 data for males and females.

Table 2

Average Moral Reasoning (DIT2) scores ($M \pm SD$)

Moral Schema	All participants (n = 50)	Males (n = 18)	Females (n = 32)
Personal interest	27.28 ± 12.62	26.33 ± 13.00	27.81 ± 12.57
Maintaining norms	37.96 ± 14.36	35.89 ± 12.64	39.13 ± 15.31
Post-conventional	30.64 ± 13.25	32.78 ± 12.41	29.44 ± 13.73
N2	36.89 ± 13.50	34.18 ± 11.49	38.42 ± 14.46

Note. All scores had a possible range of 0-95.

Group test for Conformity. The total instances of conformity in each group condition were converted into percentages (the number of instances of conformity divided by the total number of critical trials). See Table 3 for conformity means by gender and condition.

Table 3

Conformity percentages across conditions and genders

Condition	All Participants (n = 50)	Male (n = 18)	Female (n = 32)
Normative	60.7 ± 27.1	64.8 ± 22.8	58.3 ± 29.3
Nonnormative	54.3 ± 23.7	56.5 ± 23.7	53.1 ± 29.8

Note. Data are $M \pm SD$.

Six participants conformed on 100% of the critical trials in the normative condition; of those, two conformed on 100% of the critical trials in the nonnormative condition as well. Only two participants showed no conformity in the normative condition; both of these participants also resisted conformity in the nonnormative condition. The mean discrepancy of conformity behavior between conditions was 12.3% ($SD = 16.8\%$). See Figure 1 for a scattergram of individual participants' conformity percentage in each condition.

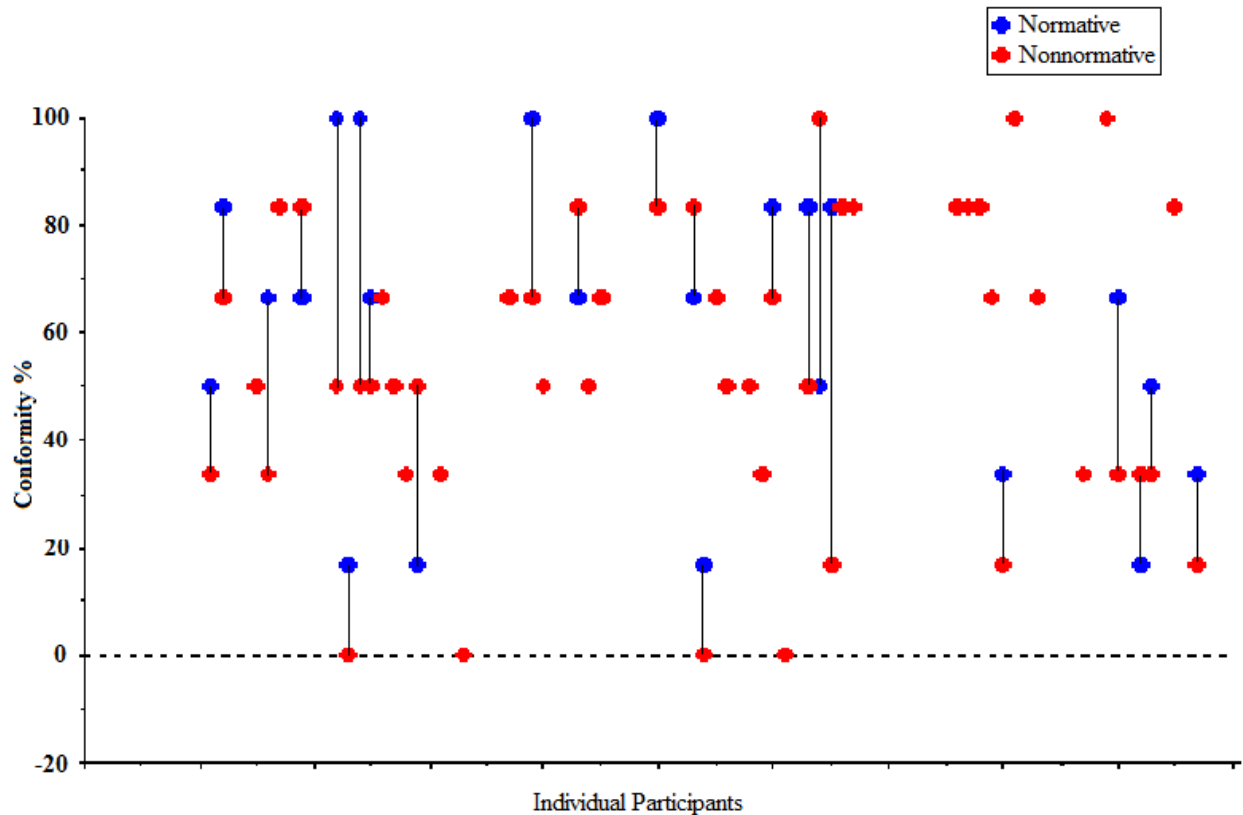


Figure 1. Data on individual participants' conformity behavior in the normative versus nonnormative condition (lines denote discrepancy size). Participants with no discrepancy are denoted by a single red dot.

Study Survey. Participant responses to the items were on a 5-point Likert scale. See Table 4 for the complete study survey statistics and Appendix B for the survey. To examine the validity of the group test for conformity, the last two questions of the study survey, concerning participant suspicion, were analyzed. The overall suspicion level (on a 5-point Likert scale; 0 = no suspicion and 4 = suspicion) was insufficient to warrant a problem with validity ($M = 1.44 \pm SD = 1.50$). The overall belief that the group members were trying to “trick” the participant (on a 5-point Likert scale; 0 = no tricking and 4 = tricking) was insufficient to warrant a problem with validity ($M = 1.70 \pm SD = 1.27$).

Table 4

Mean & SD of responses to the first 5 questions on the study survey

Statement	All participants (n = 50)	Males (n = 18)	Females (n = 32)
1. How correct were the other group member's responses in the color classification test?	3.20 ± .93	3.11 ± 1.02	3.25 ± .88
2. Do the group members have a right to expect you to go along with their responses, in the condition where you were working towards a group goal?	1.78 ± 1.50	1.72 ± 1.41	1.81 ± 1.58
3. Do the group members have a right to expect you to go along with their responses, in the condition where you were working towards an independent goal?	.92 ± 1.24	1.00 ± 1.24	.88 ± 1.26
4. The other group members might give a wrong answer because different people see things differently.	3.62 ± .53	3.61 ± .50	3.63 ± .55
5. The other group members might give a wrong answer because one person may be wrong and the others go along.	3.52 ± .81	3.39 ± .61	3.56 ± .91

Note. 0 = disagree, 1 = disagree somewhat, 2 = undecided, 3 = agree somewhat, 4 = agree

Inferential Analyses

Color Classification Test. A Chi-Square Goodness of Fit test was run, as a manipulation check, to measure the ambiguity or unambiguity of the colors in the color classification test. An insignificant result indicated ambiguity, while a significant result indicated less or no ambiguity. All neutral trials were significantly unambiguous, as was meant, and all but one critical trial were

insignificant indicating ambiguity, as was meant. See Table 5 for data on the color classification stimuli.

Table 5

Summary Data for the Color Classification Pretest

Trial	Color Choices	Trial Type ^a	X^2 for Choices
1	Yellow/Green	N	32.00**
2	Blue/Purple	N	20.48**
3	Red/Orange	C	.32
4	Green/Blue	C	9.68*
5	Red/Orange	N	50.00**
6	Purple/Pink	C	2.00
7	Yellow/Orange	N	32.00**
8	Yellow/Green	C	2.00
9	Red/Pink	C	.72
10	Blue/Purple	C	2.88

Note. ^aN = neutral, C = critical; * $p < .01$; ** $p < .001$ (df = 1)

Conformity. An independent t-test showed there were no significant gender differences in conformity behavior between conditions (normative: $t(48) = .809, p = .423$; nonnormative: $t(48) = .410, p = .683$). The two conformity conditions were examined for order effects (normative condition first: $n = 26$; nonnormative condition first: $n = 24$), using a repeated-measures ANOVA. The conditions were with-in factors and order and gender were used as between factors in two separate analyses. Results showed significant differences in conformity between condition ($F(1, 48) = 5.552, p = .0226$), but not order ($p = .103$). There were no significant differences in conformity between genders ($p = .599$). See Figure 2 for a box plot of the data on conformity percentages in the normative and nonnormative conditions.

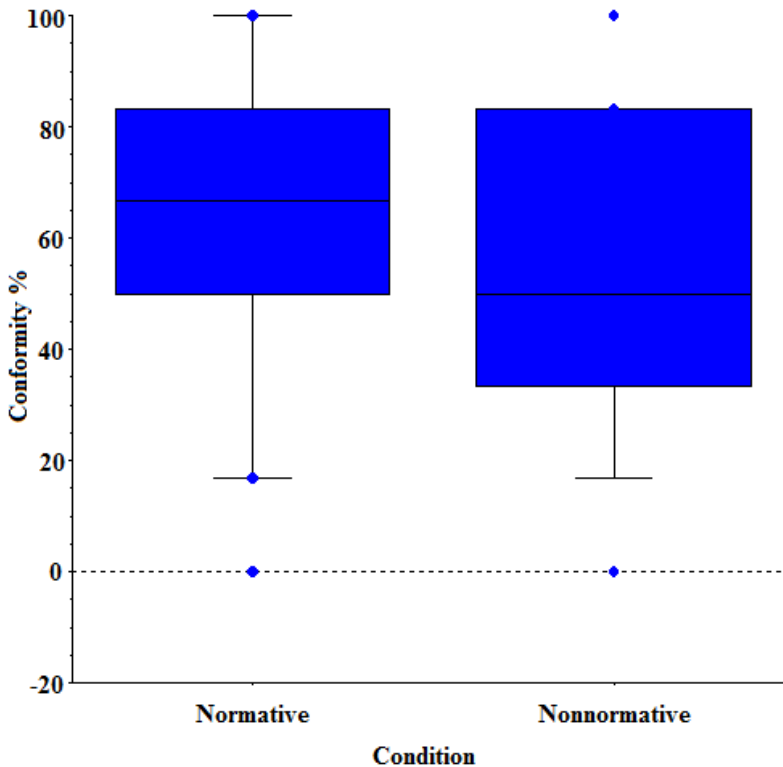


Figure 2. Data on conformity % in the normative and nonnormative conditions.

MRA. Independent t-tests showed no significant gender differences in the DIT2 scores (personal interest: $t(48) = -.395, p = .695$; maintaining norms: $t(48) = -.762, p = .450$; post-conventional: $t(48) = .854, p = .398$; N2: $t(48) = -1.065, p = .292$). All participants used significantly more reasoning pertaining to the maintaining norms schema, stage 4, than the personal interest schema, stage 2-3, ($t(49) = -3.223, p = .0023$) or the post-conventional schema, stage 5-6, ($t(49) = 2.165, p = .0353$). See Table 2 for means and standard deviations.

MRA & Conformity. A linear regression analysis was performed to determine the relationship between MRA and conformity behavior in the normative condition (where feelings of moral obligation are most likely to arise). A significant negative correlation was found between conformity percentages and the N2 index of the DIT2, $b = -.305, t(49) = -2.218, p =$

.0313. MRA, as indicated by the N2, also explained a significant proportion of variance in conformity behavior, $R^2 = .093$, $F(1, 48) = 4.92$, $p = .0313$. See Figure 3 for the regression plot.

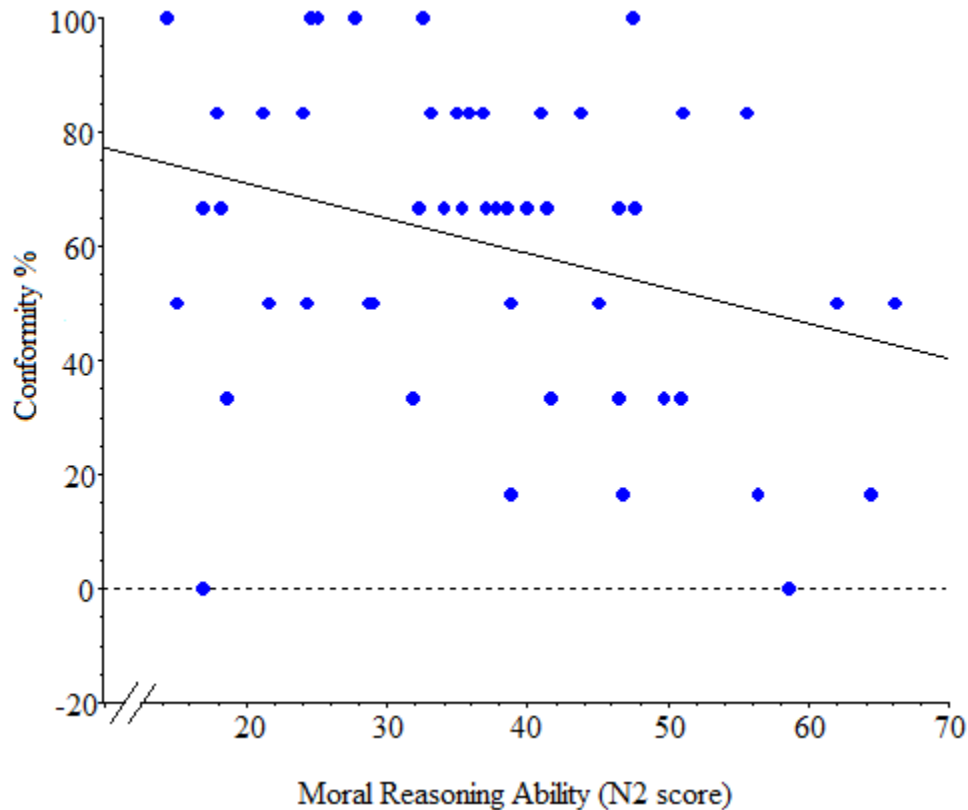


Figure 3. Regression plot for the normative conformity condition percentages and MRA scores from the N2 index of the DIT2.

Regression analyses completed with conformity percentages in the normative condition and the personal interest schema reached significance ($b = .29$, $R^2 = .084$, $F(1, 48) = 4.394$, $p = .0414$). Regression analyses completed with normative conformity percentages and the maintaining norms schema did not reach significance ($p = .098$), nor did one run with the post-conventional schema ($p = .712$). Regression analyses completed with conformity percentages in the nonnormative condition were not found to be significant with any schemas or the N2 index.

Study Survey. For participant suspicion ratings, an independent t-test showed there was not a significant gender difference ($t(48) = -.569$, $p = .572$). The same was found for participant ratings on the statement pertaining to trickery ($t(48) = -1.072$, $p = .289$). A regression analysis,

with suspicion as predictor of normative conformity, showed those participants with high suspicion levels (score of 3-4; $n = 15$) did not behave in a different pattern than others ($F(1, 48) = .220, p = .6409$). The same applies to those who agreed with the statement regarding trickery (score of 3-4; $n = 11$; $F(1, 48) = .644, p = .426$).

A regression analysis completed with normative conformity percentages and the survey item “how correct were the others” proved the item to be a significant predictor ($b = .428, R^2 = .184, F(1, 48) = 10.792, p = .0019$). The following other survey items proved insignificant in regression analyses with normative conformity: do others have a right to expect you to go along in the group goal condition ($F(1, 48) = 3.003, p = .09$) or in the independent condition ($F(1, 48) = 3.722, p = .06$), others may respond incorrectly because people see things differently ($F(1, 48) = .47, p = .50$), others may respond incorrectly because one is wrong and the others go along ($F(1, 48) = .103, p = .75$). Further regression analyses with MRA scores and survey items all proved insignificant.

Post-hoc Analyses

After finding N2 scores to be significant predictors of normative conformity percentages, we added each of the survey items, separately, to the regression. When the survey item “do others have a right to expect you to go along in the group goal condition” was added to the regression as a predictor of normative conformity, along with N2 scores, it increased the prediction strength, $R^2 = .154, F(2, 47) = 4.267, p = .0198$. The survey item was a weaker predictor of MRA, compared to N2 scores ($b = .246, p = .0727$ versus $b = -.308, p = .0263$).

When the survey item “how correct were the others” was added to the regression as a predictor of normative conformity, along with N2 scores, it increased the prediction strength, R^2

= .236, $F(2, 47) = 7.271$, $p = .0018$. The survey item was a stronger predictor of MRA, compared to N2 scores ($b = .385$, $p = .0047$ versus $b = -.234$, $p = .0781$).

A regression analysis with N2 scores as a predictor of discrepancy of conforming behavior between conditions proved insignificant ($F(1, 48) = .001$, $p = .978$); the other schemas proved to be insignificant predictors as well.

Discussion

The purpose of this study was to investigate the relationship between moral reasoning ability and conformity behavior in group scenarios. Specifically, undergraduate students enrolled in introductory psychology courses at The University of Texas at Austin were asked to complete a normative (members are interdependent) and a nonnormative (members are independent) group test of conformity where a color classification task was used. Subjects also completed the Defining Issues Test 2, to measure moral reasoning. Results showed a significant difference in conformity levels between the normative and nonnormative conditions—the normative elicited more conformity. Finally, moral reasoning scores, as measured by the DIT2, were examined in light of participants' conformity behavior in the normative group condition; MRA was found to be a significant predictor of conformity in the normative condition, in a regression analysis.

Four MRA scores were obtained via the DIT2: the N2, which measures the extent to which one is acquiring higher level reasoning, the P-score, the Maintaining norms score, and the Personal interest score, which indicate the percent of adherence to stages 5-6, 4, and 2-3, respectively. Gender differences were nonexistent between MRA scores, which past research supports (see Dong, 2009 for a review). The mean MRA scores found in this study were close to those of other studies, for the given education level (see Dong, 2009 for a review).

The conformity levels found in the current study are higher than those found in other studies. The mean percent of trials conformed to was 62% in the normative condition, with 96% of participants conforming more than once, and 55% in the nonnormative, with 92% of participants conforming more than once. Most studies find 60-70% of participants conform more than once, and to fewer than 37% of trials (see Bond & Smith, 1996 for a review). Also, no gender differences in conformity were found in the current study, but past research shows more

conformity among females (Asch, 1951-56; Collin, Di Sano, & Malik, 1994; Eagly, 1978). The conformity statistics in this study may be higher than those of other studies because of the less objective nature of the stimuli used in the group test: colors. This idea is supported by the original study to use a color classification test to elicit conformity—similar to our results, Collin et al. (1994) found 97% of their participants conformed more than once. Also, participants who answered that they felt the other group member's answers were correct during the normative group test were much more likely to conform. This suggests that conformity percentages may be inflated by a weak opinion regarding the colors in the test. On the other hand, a weak opinion could be more easily influenced by social pressure in those with low MRA, accounting for the increased conformity in the current study.

Group test conditions for eliciting conformity have previously been manipulated in terms of creating a group versus independent goal, similar to the normative and nonnormative conditions in the current study (Deutsch & Gerard, 1955; Jackson & Saltzstein, 1958; Saltzstein et al., 1972). Conformity levels were found in similar ratios to those in past research, with higher conformity in the normative condition (Deutsch & Gerard, 1955; Jackson & Saltzstein, 1958). This supports the hypothesis that feelings of moral obligation to the group are arising, by creating interdependence among group members, and thus more conformity is elicited. This is an important finding to the current study, in regards to understanding how one's moral reasoning ability is activated under social pressure.

However, this study may not have used the strongest method of producing feelings of moral obligation to the group. Though proven to be significantly different, the percentages between conditions have potential for greater levels of significance. Future research could

attempt to make a larger distinction between conditions to make an even greater impact on conformity levels.

The main hypothesis of this study, that there is a negative correlation between MRA and conformity behavior in group scenarios, was supported by the present results. MRA, as measured by the N2 index of the DIT2, was found to be a significant predictor of conformity behavior in the normative condition. The significance of this relationship was increased when the participant's opinion of the other group members' right to expect him or her to conform in the group goal condition was included in the regression analyses. Significance also increased upon the addition of the participant's agreement that the other group members were accurate to the regression analysis.

This relationship between MRA and conformity has only been examined before by Saltzstein, Diamond, and Belenky, in 1972, to my knowledge, without significant results. The current study paradigm was modeled after Saltzstein et al.'s (1972), but changes were made to avoid the mistakes of the original study. In Saltzstein et al.'s (1972) study, rather than using confederates (as was done in the current study), subjects were tricked into thinking they were viewing their fellow subjects' responses, by producing their answers on a console. Buzzers played through headphones to denote turn-taking. With this approach, Saltzstein et al. claimed to find fewer instances of conformity than in similar research. Saltzstein et al. noted that the differences in results were likely due to greater subject suspicion in their design. In the present study, suspicion levels were relatively low, and MRA was measured using a complex measure (DIT2) not available at the time of the original study. The differences in study design, between the original by Saltzstein et al. and the current, explain the contrary findings and account for the current study's significant results.

The results in this study support past studies on group conformity, regarding findings of participant feelings of moral obligation to either the group members or experimenter. In past conformity studies, participants made remarks that attributed their responses, whether conforming or not, to feelings of moral obligation (Asch, 1951-56; Deutsch & Gerard, 1955). Numerous conforming subjects in the Deutsch and Gerard (1955) study claimed to feel morally obligated to agree with the group. A number of nonconforming subjects in Asch's (1951) study, admitted to believing the majority's unanimous responses were correct, but continued their opposition in order to answer in accordance with their own perspective. In other words, they felt an obligation to the experimenter to base responses on their personal perception only. Finally, a few conforming subjects in the Asch (1951-56) study attributed their conforming responses to an obligation not to "spoil" the experimenter's results. They believed that the experimenter hoped the group members' responses would be unanimous. The findings of the present study support the existence of these participant feelings of moral obligation in group tests for conformity, and support the hypothesis that MRA can affect one's course of action under social pressure.

Moral development is a life-long process, which has been determined to occur in stages (Kohlberg, 1969). Each stage is characteristics of different types of justification for actions and behavior and moral principles (Kohlberg, 1969). In this way, one can see how moral development may be involved when making the decision of whether or not to conform, producing different behavior according to the subsequent stage one is at in moral development. The current study supports this hypothesis.

The results of this study are important to many areas of society, and affect all ages. Especially of interest is the growing field of moral development education, which many businesses, education systems, and etc. are implementing for their employees and students (see

Lapsley & Yeager, 2013 for a review)—knowing conformity may be lessened by moral education could be of value.

Future research should examine moral development's involvement in behavior under social pressure in greater depth, examining whether other cognitive developments, outside of the moral realm, are predicative of conformity behavior. Future research could also test the generalizability of the findings of this study by using a larger sample size, different age groups and cultures, etc.

References

- Asch, S. E. (1951). Effects of group pressure upon the modification and distortion of judgments. In H. Guetzkow (Ed.), *Groups, leadership and men; research in human relations*. Oxford England: Carnegie Press. (pp. 177-190).
- Asch, S. E. (1952a). Effects of group pressure on the modification and distortion of judgments. In G. E. Swanson, T. M. Newcomb, & E. L. Hartley (Eds.), *Readings in social psychology* (2nd ed., pp. 2-11). New York: Holt.
- Asch, S. E. (1952b). *Social psychology*. Englewood Cliffs, NJ: Prentice-Hall.
- Asch, S. E. (1955). Opinions and social pressure. *Scientific American*, 193, 33-35.
- Asch, S. E. (1956). Studies of independence and conformity. A minority of one against a unanimous majority. *Psychological Monographs*, 70(9, Whole No. 416).
- Bay, D. D., & Greenberg, R. R. (2001). The relationship of the DIT and behavior: A replication. *Issues in Accounting Education*, 16(3), 367-380.
- Bond, R., & Smith, P. B. (1996). Culture and conformity: A meta-analysis of studies using Asch's (1952b, 1956) line judgment task. *Psychological Bulletin*, 119(1), 111-137.
- Cialdini, R. B. & Trost, M. R. (1998). Social influence: Social norms, conformity, and compliance. In D. T. Gilbert & S. T. Fiske (Eds.), *The handbook of social psychology*. Boston: McGraw-Hill. Vol. 2 (4th Ed., pp. 151-192).
- Collin, C. A., Di Sano, F., & Malik, R. (1994). Effects of confederate and subject gender on conformity in a color classification task. *Social Behavior And Personality*, 22(4), 355-364. doi:10.2224/sbp.1994.22.4.355
- Costanzo, P. R. & Shaw, M. E. (1966). Conformity as a function of age level. *Child Development*, 37, 967-975.

- Deutsch, M., & Gerard, H. B. (1955). A study of normative and informational social influences upon individual judgment. *The Journal Of Abnormal And Social Psychology*, 51(3), 629-636. doi:10.1037/h0046408
- Dong, Y. (2009). Norms for DIT2 : From 2005-2009. Office for the Study of Ethical Development. University of Alabama.
- Eagly, A. H. (1978). Sex differences in influenceability. *Psychological Bulletin*, 85(1), 86-116.
- Goodwin, K. A., Kukucka, J. P., & Hawks, I. M. (2013). Co-witness confidence, conformity, and eyewitness memory: An examination of normative and informational social influences. *Applied Cognitive Psychology*, 27(1), 91-100.
- Guandong, S., Qin Hai, M., Fangfei, W., & Lin, L. (2012). The Psychological Explanation of Conformity. *Social Behavior & Personality: An International Journal*, 40(8), 1365-1372.
- Haan, N., Smith, M., & Block, J. (1968). Moral reasoning of young adults: Political-social behavior, family background, and personality correlates. *Journal Of Personality And Social Psychology*, 10(3), 183-201. doi:10.1037/h0026566
- Haney, C., Banks, C., & Zimbardo, P. (1973). Interpersonal dynamics in a simulated prison. *International Journal Of Criminology & Penology*, 1(1), 69-97.
- Iscoe, I., Williams, M., & Harvey, J. (1963). Modifications of children's judgments by a simulated group technique: A normative developmental study. *Child Development*, 34, 963-978.
- Ishihara, S. (1973). *Ishihara's test for Colour-Blindness*. Tokyo: Kanchara Shuppan.
- Jackson, J. M., & Saltzstein, H. D. (1958). The effect of person-group relationships on conformity processes. *The Journal Of Abnormal And Social Psychology*, 57(1), 17-24. doi:10.1037/h0048403

- Kelman, H. (1958). Compliance, identification and internalization: Three processes of attitude change. *Journal of Conflict Resolution*, 2, 51-60.
- Kohlberg, L. (1969). Stages and sequence: The cognitive-development approach to socialization. In D. A. Goslin (Ed.), *Handbook of socialization theory and research*. Chicago: Rand-McNally.
- Lapsley, D. K., & Yeager, D. (2013). Moral-character education. In W. M. Reynolds, G. E. Miller, I. B. Weiner (Eds.), *Handbook of psychology, Vol. 7: Educational psychology (2nd ed.)* (pp. 147-177). Hoboken, NJ US: John Wiley & Sons Inc.
- Lee-Zorn, C. (2013). Is conformity a mediating variable on increased risk-taking behavior across years of membership in the Greek system? *Dissertation Abstracts International*, 73.
- Milgram, S. (1963). Behavioral Study of obedience. *The Journal Of Abnormal And Social Psychology*, 67(4), 371-378. doi:10.1037/h0040525
- Mori, K., & Arai, M. (2010). No need to fake it: Reproduction of the Asch experiment without confederates. *International Journal Of Psychology*, 45(5), 390-397.
- Piaget, J. (1966). *The moral judgment of the child*. New York: Free Press. (Original work published 1932).
- Rest, J. R. (1979). *Development in judging moral issues*. Minneapolis: University of Minnesota Press.
- Rest, J., Narvaez, D., Bebeau, M., & Thoma, S. (1999). *Postconventional moral thinking: A neo Kohlbergian approach*. Mahwah, NJ: Erlbaum.
- Rest, J., Thoma, S., & Edwards, L. (1997). Designing and validating a measure of moral judgment: Stage preference and stage consistency approaches. *Journal of Educational Psychology*, 89(1), 5-28.

- Reysen, M. B. (2005). The effects of conformity on recognition judgments. *Memory, 13*(1), 87-94. doi:10.1080/09658210344000602
- Saltzstein, H. D., Diamond, R. M., Belenky, M. (1972). Moral judgment level and conformity behavior. *Developmental Psychology, 7*(3), 327-336. doi:10.1037/h0033349
- Stricker, L. J., Messick, S., & Jackson, D. N. (1970). Conformity, anticonformity, and independence: Their dimensionality and generality. *Journal of Personality and Social Psychology, 16*, 494-507.
- Trautmann-Lengsfeld, S., & Herrmann, C. (2013). EEG reveals an early influence of social conformity on visual processing in group pressure situations. *Social Neuroscience, 8*(1), 75-89.
- Turiel, E., & Rothman, G. R. (1972). The influence of reasoning on behavioral choices at different stages of moral development. *Child Development, 43*(3), 741-756. doi:10.2307/1127628

Appendix A
The Online Color Classification Pretest

Instructions for the Color Classification Test

In the next section, you will be shown 10 color samples.

Colors are differentiated to human eyes depending on their wavelength. The wavelength of colors ranges from 400 – 700 nanometers, from violet to red. The colors in the samples will fall somewhere in between the wavelengths of two basic colors, such as yellow and green. You will be asked to determine which color (of two available options) the color sample is closest to in wavelength. For example, if the color sample is lime-green, you will determine whether it is closer on the spectrum to the wavelength of yellow or the wavelength of green.

You will also be asked to choose an adjective (warm, cold, or neutral) you feel best describes the color sample.

Please sit about two to three feet away from your computer screen. It is important that you answer to the best of your own ability.

Click "next" to continue.

Prev

Next

Color Classification Test: Sample 1



*** 12. Choose the option that best describes the color sample above.**

- This color is yellow
- This color is green

*** 13. Choose the option that best describes the color sample above.**

- This color seems warm
- This color seems neutral
- This color seems cold

Prev

Next

Color Classification Test: Sample 2



*** 14. Choose the option that best describes the color sample above.**

- This color is blue
- This color is purple

*** 15. Choose the option that best describes the color sample above.**

- This color seems warm
- This color seems neutral
- This color seems cold

Prev

Next

Color Classification Test: Sample 3



*** 16. Choose the option that best describes the color sample above.**

- This color is red
- This color is orange

*** 17. Choose the option that best describes the color sample above.**

- This color seems warm
- This color seems neutral
- This color seems cold

Prev

Next

Color Classification Test: Sample 4



***18. Choose the option that best describes the color sample above.**

- This color is green
- This color is blue

***19. Choose the option that best describes the color sample above.**

- This color seems warm
- This color seems neutral
- This color seems cold

Prev

Next

Color Classification Test: Sample 5



***20. Choose the option that best describes the color sample above.**

- This color is red
- This color is orange

***21. Choose the option that best describes the color sample above.**

- This color seems warm
- This color seems neutral
- This color seems cold

Prev

Next

Color Classification Test: Sample 6



*** 22. Choose the option that best describes the color sample above.**

- This color is purple
- This color is pink

*** 23. Choose the option that best describes the color sample above.**

- This color seems warm
- This color seems neutral
- This color seems cold

Prev

Next

Color Classification Test: Sample 7



*** 24. Choose the option that best describes the color sample above.**

- This color is yellow
- This color is orange

*** 25. Choose the option that best describes the color sample above.**

- This color seems warm
- This color seems neutral
- This color seems cold

Prev

Next

Color Classification Test: Sample 8



***26. Choose the option that best describes the color sample above.**

- This color is yellow
- This color is green

***27. Choose the option that best describes the color sample above.**

- This color seems warm
- This color seems neutral
- This color seems cold

Prev

Next

Color Classification Test: Sample 9



***28. Choose the option that best describes the color sample above.**

- This color is red
- This color is pink

***29. Choose the option that best describes the color sample above.**

- This color seems warm
- This color seems neutral
- This color seems cold

Prev

Next

Color Classification Test: Sample 10



***30. Choose the option that best describes the color sample above.**

- This color is blue
- This color is purple

***31. Choose the option that best describes the color sample above.**

- This color seems warm
- This color seems neutral
- This color seems cold

Prev

Done

Appendix B
The Study Survey

Study Survey

Please answer the following questions or statements to the best of your ability. Mark an X underneath the description that best represents your opinion regarding the study you just participated in.

1. How correct were the other group member's responses in the color classification test?

Almost always	Sometimes	Every Once in a While	Rarely	Never

2. Do the group members have a right to expect you to go along with their responses, in the condition where you were working towards a group goal?

Almost always	Sometimes	Every Once in a While	Rarely	Never

3. Do the group members have a right to expect you to go along with their responses, in the condition where you were working towards an independent goal?

Almost always	Sometimes	Every Once in a While	Rarely	Never

4. The other group members might give a wrong answer because different people see things differently.

Agree	Agree Somewhat	Undecided	Disagree Somewhat	Disagree

5. The other group members might give a wrong answer because one person may be wrong and the others go along.

Agree	Agree Somewhat	Undecided	Disagree Somewhat	Disagree

6. The other group members might give a wrong answer because of some kind of trick.

Agree	Agree Somewhat	Undecided	Disagree Somewhat	Disagree

7. I have feelings of suspicion regarding this study's intentions.

Agree	Agree Somewhat	Undecided	Disagree Somewhat	Disagree