

The effect of black and white visual contrast on moral judgement.

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ABSTRACT

The present experiment investigated the effect of black and white visual contrast on moral judgement. Participants were presented with a short text on a moral dilemma with either a black and white checkered border or a neutral gray border and were then asked to respond to a question about whether the action taken by the protagonist of the story was morally right or wrong on a 9-point scale. It was hypothesized that those in the black and white condition would record responses that deviated farther from the central score of 5 on the 9-point scale; however, the results did not support this hypothesis. The results are discussed in terms of why statistical significance was not found.

1. Introduction

Intuition plays a central role in an individual's moral perception of the world. Contrary to rationalist theorists who argue that moral judgements are based on careful critical analysis of the available information, the social intuitionist model presents an alternate view in which moral judgements are primarily the result of 'gut feelings' (Haidt, 2001). From the social intuitionist perspective, judgement based on intuition comes first, with moral reasoning occurring only after the judgement has already been made (Haidt, 2001).

Color is also believed to influence judgement due to its strong symbolic power (Gan, Fang, & Ge, 2016). The effect of color on perception has been well-researched in fields such as advertising, with one study finding that consumers could be primed to perceive an unfamiliar brand as being eco-

friendly by merely changing the color of the logo (Sundar & Kellaris, 2017). In the field of sports, Krenn (2015) found that the color of the uniform worn by athletes affected how the players were judged.

The colors black and white are particularly influential in moral judgement because of the cultural conceptions of morality that have been attached to these two colors in western countries (Kareklas, Brunel, & Coulter, 2014). For instance, white has positive connotations of purity and goodness whereas black is often linked to evil and darkness (Gan et al., 2016). These associations are thought to have developed as a result of humans being diurnal creatures (Lakens, Semin, & Foroni, 2012). For example, the darkness of night is associated with danger and uncertainty, which evokes negative emotions (Sherman & Clore, 2009).

These contrasting connotations of black and white have been supported in past

studies. For instance, Sherman and Clore (2009) used the Stroop effect to test whether there was an interaction between color and morality. They found that participants were able to name the color of the words much more quickly when the words written in black were negative moral concepts and the words written in white were positive moral concepts (Sherman & Clore, 2009). In another study, non-Chinese speaking participants were presented with words written in Chinese characters and asked to guess whether they had positive or negative meanings (Lakens et al., 2012). Similar to Sherman and Clore's (2009) findings, Lakens et al. found that participants were affected by the color of the font. Specifically, Chinese characters written in white font were more likely to be linked to positive meanings, whereas those in black font were linked to negative meanings.

Zarkadi and Schnall (2013) studied the effect of the visual contrast of black and white on moral judgement by having participants respond to a moral dilemma printed on a piece of paper with different borders. One hundred-eleven volunteers from a psychology research website were randomly assigned to one of three conditions each with a different colour border: black and white, gray, or blue and yellow. The participants were asked to read the moral dilemma and then respond to a question about whether the action taken by the protagonist of the story was right or wrong using a 7-point scale. They hypothesized that those placed in the black and white condition would record responses that deviated more from the central score of 3 on the 7-point scale due to the contrasting moral concepts associated with these two colors. The gray condition served as the control and the blue and yellow condition was created to ensure that participants were not just responding to any visual contrast of

the border regardless of color. Their findings supported their hypothesis.

The present experiment was based on Zarkadi and Schnall's (2013) study but only two border conditions were used; black and white versus gray. Specifically, participants in the black and white condition were given a short text with a black and white checkered border. These participants were asked to read the text and respond to a question about whether the action taken in the story was right or wrong using a 9-point scale. In the gray condition, participants were given the same text but with a neutral gray border and were asked to respond to the same question.

Based on previous research by Zarkadi and Schnall (2013) which found that participants in the black and white condition recorded responses that were on the more extreme ends of the scale compared to the participants in the gray condition, it was expected in the present experiment that the color of the border would affect the participants' moral judgement in the same way.

2. Methods

2.1 Participants

Thirty college students (6 males and 24 females) participated in this experiment at the Lansdowne Campus of Camosun College in Victoria, British Columbia. The age of participants ranged from 18 to 44 years with a mean age of 23.0 years. The participants were randomly assigned to the two groups with each group consisting of 15 participants. The black and white condition consisted of 13 females and 2 males and ranged in age from 18 to 44 years with a mean age of 22.5 years. The gray condition consisted of 11 females and 4 males and ranged in age from 18 to 36 years with a

mean age of 23.5 years. Participants were randomly selected from various areas around the college campus. All participants completed the experiment.

2.2 Materials and Apparatus

The materials presented to participants were drawn from the Zarkadi and Schnall (2013) study. These materials consisted of a short text of the Heinz dilemma, which was originally created by American psychologist Lawrence Kohlberg (as cited in Zarkadi & Schnall, 2013). The Heinz dilemma presented the story of a man named Heinz whose wife was gravely ill. He discovered that a pharmacist in town possessed a drug that could cure her illness; however, he could not afford to purchase it and the pharmacist refused to negotiate with him by lowering the cost. He ultimately makes the decision to steal the drug in order to save his wife. Below the short story was a question printed in bold letters: “How right or wrong was it of Heinz to steal the drug?” with a rating scale from “right” (1) to “wrong” (9). The original study conducted by Zarkadi and Schnall (2013) implemented a 7-point scale for recording responses; however, in the current study the scale was increased from a 7-point to a 9-point scale in order to increase power through the use of a more sensitive dependent measure. The text was printed in black Arial font with the main text in 12-point font and the rating scale in 20-point font.

There were two conditions for this experiment: the black and white condition utilized a high-contrast black-and-white checkered border with a width of 2 cm, which enclosed the short text of the Heinz dilemma and the question. The gray condition utilized a simple gray-toned border with a border of the same width. As the effect of the difference in visual contrast

of the borders was the primary focus of this experiment, the information contained within the borders was the same (see Appendix A for the materials used in this experiment).

2.3 Procedure

Upon signing the informed consent form, participants were given either a copy of the dilemma with the black and white border or the grey border. These copies were shuffled in advance to ensure that participants were randomly assigned to either condition. The participants were asked to read the text and respond to the question below the text by circling their response with a pen that was provided. No further instruction was provided and no time restriction was set.

Participants were only given partial disclosure about the nature of this experiment prior to the completion of the task in order to prevent reactivity. They were then fully debriefed after their response was recorded and questions about the experiment were answered as needed.

3. Results

The level of significance set in this experiment was 0.05. The average deviation from the central score of the black and white condition was 2 ($SD = 1.21$) and the average deviation from the central score of the gray condition was 1.53 ($SD = 1.09$). See Figure 1 for a summary of descriptive statistics. These data were analyzed using a t -test and the results were not statistically significant, $t(28) = 1.07$, $p = 0.29$, suggesting that there was no difference across the two groups in how much they deviated from the central score.

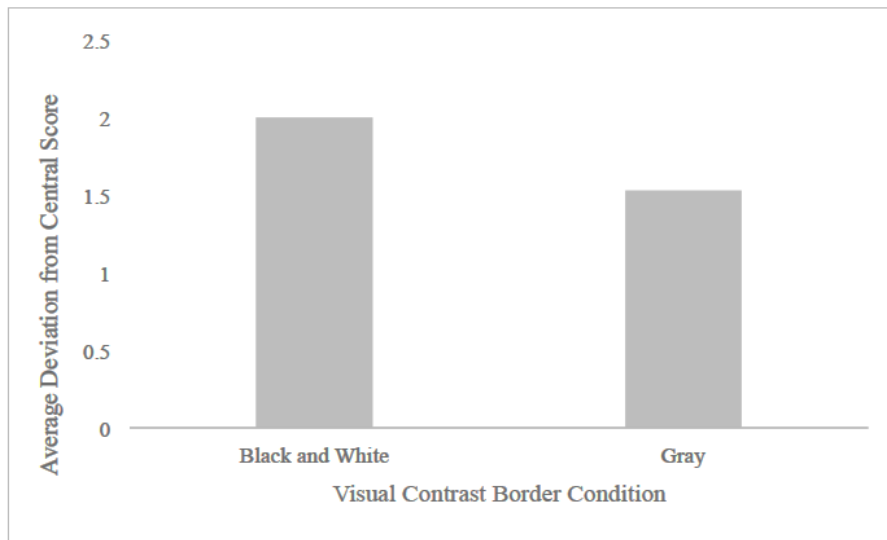


Figure 1. The average deviation score in the two border conditions.

4. Discussion

The hypothesis of the current experiment was that the scores of the participants in the black and white condition would deviate from the central score to a greater degree than those in the gray condition; however, this was not supported by the findings.

There are several possible explanations for the lack of statistical significance. One possible reason is that the sample size of 30 was too small and did not therefore provide enough power to detect a difference. Another possible reason for the lack of significance could have been social desirability affecting participant responses. That is, due to the highly personal nature of making moral judgements, conducting the experiment face-to-face with the experimenter present may have affected the ability of participants to respond honestly to the moral dilemma.

In order to overcome these issues in future studies, it may be more appropriate to conduct the experiment using a mail questionnaire rather than a face-to-face format. Not only would this allow the experimenter to efficiently administer the

conditions to more participants, but it would also address the problem of social desirability bias as participants would not need to make moral judgements in front of the experimenter.

The current results are not consistent with previous research which found that colors, particularly black and white, affected moral

judgement (Zarkadi & Schnall, 2013); however, this subject matter is still worthy of further study due to its potentially wide-reaching implications in the criminal justice system. For instance, if those who are responsible for making a determination of guilt are swayed by factors other than sound moral reasoning, individuals whose cases are going through the criminal justice system could be significantly impacted. The only way to ensure that this does not happen is to improve our understanding of the role external factors like color play in such evaluations.

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