# ARE READING AND INFORMATION PROCESSING AFFECTED BY EXISTING POLITICAL BIASES?

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# ABSTRACT

Much research has been devoted to the process of persuasion and how beliefs are changed. Among the research, there are models that aim to explain how existing beliefs affect the processing of new information. This study investigated the information processing when reading pro-attitudinal and counter-attitudinal messages. The analysis was based on the Discrepancy Motives Model and, specifically, it used eye tracking to investigate reading and processing time for pro- and counter-attitudinal political arguments and how those are affected by participant's prior beliefs and political sophistication. The relationship between participant beliefs and argument type was found to have no significant effect on the eye tracking measures of information processing: reading duration, fixation duration, or fixation count. The results are discussed in the context of the model and the implications for research of this nature.

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# CHAPTER ONE: INTRODUCTION

Much research has been devoted to understanding the elements of persuasion and message processing (Clark, 2014). This includes both how to persuade people and how people are persuaded. While there are several models aimed at describing the persuasion process, many models address different potential factors such as source credibility (Jain, & Posavac, 2001) or personality correlates (Janis, 1954). The intention here is to investigate models that describe persuasion in terms related to information processing. After describing some of the relevant models, this study is intended to use eye tracking to explain how people process pro- and counter-attitudinal information. Persuasion is a difficult task with many models devoted to trying to explain the process. One aspect of persuasion is how people observe and process new information. A difference in how information is processed may support the use of particular approaches to persuasion. First, I will describe several models proposed to explain the process of persuasion and I will describe how they address the issue of information processing. Then using the most complete persuasion/information-processing model, I will test the nature of information processing for pro- and counter-attitudinal arguments using eye tracking methods.

A. Models of Persuasion

There are several models that offer explanations for the behaviors we observe when people process new pro- or counter-attitudinal information information. One, the heuristic-systematic model (HSM) of information processing suggests two different methods of message processing. Heuristic processing consists of the individuals' use of automatic rules of thumb to quickly form a judgement, whereas systematic processing involves more effortful and conscious processing of the information (Trumbo, 1999). The Heuristic processing in this model, while faster, appears to utilize less consideration of existing knowledge and beliefs in the process of forming judgements and seems to have less ability to form new, lasting, or more deeply held beliefs than systematic processing (Griffin, Neuwirth, Giese, & Dunwoody, 2002). The HSM would predict greater processing time when systematic processing is used. Other models such as the Discrepancy Motives Model, that will be discussed later in this paper, suggest that pro- and counter-attitudinal arguments are processed differently. If there is indeed a difference in processing time for pro-and counter-attitudinal arguments it may be reflective of a difference in the method of processing used. This may, as the HSM predicts, suggest that one type of argument encourages more systematic processing while the other suggests more heuristic processing. Unfortunately, the HSM doesn't offer a prediction for the type of

processing likely to result from either pro-or counter-attitudinal arguments.

The HSM reflects the characteristics common to many other dual process cognition and information processing theories in which type 1 processing is faster, automatic, nonconscious, associative, and requires less cognitive effort whereas type 2 processing is slower, controlled, conscious, governed by rules, and requires more cognitive effort (Evans & Stanovich, 2013). Another dual process model is the elaboration likelihood model (ELM; Petty & Cacioppo, 1986). The ELM suggests that there are two methods by which a person is persuaded: the central route by which reasoning and consideration allow the individual to be convinced, and the peripheral route by which the individual is convinced by associations. Which route the individual uses is determined by the individual's interest in the topic and motivation to invest cognitive resources. The greater both of these factors are, the more likely the individual will be to engage in central route processing (Petty, Wells, & Brock, 1976; Petty, & Cacioppo, 1979). Alternatively, a lack of interest or available cognitive resources would increase the likelihood of peripheral route processing. This model suggests that an individuals' investment, interest, or possibly even the strength of their beliefs in a particular subject might cause them to engage in more central route processing. In other words, there should be greater information processing when individuals are reading arguments about subjects they have strong opinions on or an

interest in.

Cognitive response theory suggests that persuasion occurs as a result of self-talk conducted in response to a message (Greenwald, 1968). Self-talk which supports the message results in greater persuasion. The nature of the self-talk is a result of existing beliefs and the nature of the presented message. While the model would seem to suggest that greater information processing would occur in cases of greater self-talk, the model itself does not address this and does not provide a clear guide for specifically when we would expect to see increased self-talk.

The Yale attitude change model focuses on the credibility of the communicator, the nature of the message, and the nature of the audience (Hovland, Janis, & Kelley, 1953). In this model, the quality of the communicator, the quality of the message, and the attention of the audience change the effectiveness of a message's ability to persuade. While broadly applicable to the process of persuasion, it does not offer predictions about the nature of information processing during that process.

Inoculation theory suggests that persuasion is prevented by affirming or strengthening existing beliefs (McGuire, 1961). This can be described as motivated reasoning. In motivated reasoning, the intake of new information is affected by existing beliefs such that people are more likely to come to conclusions that they want rather than the conclusions that are indicated by the information (Kunda, 1990). While

this model does not specifically address information processing, if the individual must engage in affirming or strengthening beliefs when confronted with an argument, we would expect to see an accompanying increase in information processing. This is because, in addition to the regular intake of information, the individual will also have to process the argument in terms existing beliefs and finding ways to strengthen those existing beliefs.

While all of these models are relevant to persuasion and information processing to some extent, a recent model directly designed to explain information processing and motivated reasoning is the Discrepancy Motives Model (DMM; Clark &Wegener, 2013), and it may offer a great deal more insight into how arguments are processed. In the DMM, the extent to which someone evaluates new counter-attitudinal information is reflective of how motivated they are to defend their views on that issue. With pro-attitudinal information, the extent of evaluation reflects how motivated they are to bolster their own views. Since these motivations are integral to how the individual assesses new information, factors such as strength of existing beliefs, belief ambivalence, and knowledgeability (e.g. political sophistication) on the subject may affect these motivations. For example, the DMM suggests that someone who has strong beliefs may be more willing to process counter-attitudinal information in an attempt to defend their existing beliefs. Contrarily, those whose beliefs are not as

strong or who are ambivalent in their beliefs will be more willing to process pro-attitudinal information in an attempt to bolster existing beliefs and less willing to process counter-attitudinal information (Clark, Wegener, & Fabrigar, 2008).

In addition to beliefs and belief strength in the DMM, there are effects based on source credibility or argument strength (Clark &Wegener, 2013). These reflect some aspects of the Yale attitude change model. According to the DMM, recipients are likely to have more motivation to consciously process a counter-attitudinal argument from a credible source. This effect is described by the DMM as the result of an increased effort to process information. This increase is motivated by a need to defend existing beliefs from the information provided by the credible but counter-attitudinal source (Clark, Wegener, Habashi, & Evans, 2012; Tobin & Raymundo, 2009). Similarly, pro-attitudinal arguments from non-credible sources are likely to be processed more strongly due to recipients' motivations to bolster their own beliefs (Clark et al., 2012).

Taber and Lodge (2006) found that readers with higher political knowledge spent more time reading attitude-incongruent arguments than attitude-congruent arguments. Participants with lower political knowledge, however, did the opposite, spending more time reading attitude-congruent arguments and even more time when they were less strong in their beliefs. These findings conform to the expectations of

the DMM, where it is proposed that participants with high knowledge and strongly held beliefs spend more time processing attitude-incongruent arguments in order to defend their beliefs, whereas participants with less knowledge and weaker beliefs spent more time processing congruent arguments in order to bolster their beliefs.

B. Information Processing

Previous research has investigated the effects on factors such as reading time for belief congruent and incongruent messages (Taber & Lodge, 2006). Reading time is a commonly used measure. When reading time increases, as was found in Taber and Lodge (2006), it is supposed to indicate an increase in information processing. Previous research, however, has not employed the use of eye tracking to explore these differences in information processing. This leaves the interpretation of the data somewhat ambiguous. While reading time alone may potentially indicate several different things, by analyzing the various measures used in eye tracking studies to indicate processing, we can narrow the potential explanations and strengthen evidence indicating differences in information processing.

In eye tracking research, increased processing is indicated by longer fixations, a greater number of fixations, and longer reading times (Raney, Campbell, & Bovee, 2014). One would therefore expect to see an increase in total reading time, total number of fixations, and the average fixation duration when participants are engaged

in greater information processing.

C. Tolerance for Ambiguity

Tolerance for ambiguity (TA) is a general tendency or ability for an individual to accept a vague or indefinite outcome (Frenkel-Brunswik, 1949). A common current conception of TA is that it is an individual difference or personality factor that indicates an individual's reaction to ambiguous situations or stimuli (Furnham & Marks, 2013). Individuals low in TA would have a stronger desire for a definite answer. Contrarily, individuals high in tolerance for ambiguity are more willing and able to accept less definite answers. Other common traits of those low in tolerance for ambiguity are a tendency for premature selection of a solution, rigid dichotomizing, adherence to one particular solution in an ambiguous situation, and a seeking of certainty (Frenkel-Brunswick, 1951).

Many of these characteristics of TA suggest that low TA individuals would be highly motivated to defend their beliefs, to avoid ambiguity. Since the increased processing effort seen in the DMM is a result of motivation to bolster or defend beliefs it seems reasonable to expect to see higher motivation to process information for those low in TA and lower motivation to process in individuals high in TA. This is due to the individuals' willingness or ability to accept the existence of arguments and facts that are incongruous with their beliefs. Since individuals with high TA would be

more comfortable with uncertainty, they would have less motivation to bolster or defend their beliefs and, as a result, would spend less time processing arguments.

D. Hypotheses

This study will use eye tracking methods to investigate the effect of pro- and counter-attitudinal arguments on information processing. Tolerance for ambiguity will also be investigated as a factor. Opinions on gun control will be the used in this study. Gun control is a controversial topic in the United States, both facts and culture play an important role in forming peoples' beliefs about gun control (Braman, Kahan, & Grimmelmann, 2005).

In the present study, the DMM predicts that individuals with stronger beliefs concerning gun control should spend more time processing counter-attitudinal arguments. Those with less strong beliefs however should spend more time processing pro-attitudinal arguments. If we apply the HSM to the present study we see it does not propose a direction for increased processing, instead it merely suggests that if increased processing is occurring it is due to an increase in systematic processing. This is because systematic processing requires more effortful, conscious processing which is indicative of greater information processing. This is potentially consistent with the DMM's description if the increase in information processing reflects type two processing being engaged to defend or bolster beliefs. Somewhat contradictory to

the DMM, the inoculation theory suggests that we should expect to see greater information processing when participants read counter-attitudinal arguments. One potential explanation for the contradiction is that inoculation theory does not include the interaction of belief strength in its model. If, however, the relationship predicted by the inoculation theory occurs it would be identifiable in the resulting data analysis.

The DMM also suggests that participants with greater levels of political knowledge should spend more time processing attitude incongruent arguments than less politically knowledgeable participants. The ELM suggests that individuals will engage in greater information processing when they are interested and motivated by the subject of the argument, whereas, the DMM suggests an interaction between the argument type and interest.

Previous research has not explored the effect of TA on the processing time of arguments. However, given that increased processing time is motivated by the need to defend or bolster existing beliefs, a greater TA would reduce that motivation.

Hypothesis 1: Pro-or counter-attitudinal arguments will affect argument reading times, fixation counts, and average fixation duration. Participants with more strongly held beliefs should have increased processing when reading counter-attitudinal arguments than pro-attitudinal arguments. Participants with more weakly-held beliefs should have increased processing when reading pro-attitudinal arguments. Increased

processing is measured by an increase in argument reading times, fixation counts, and average fixation duration.

Hypothesis 2: High tolerance for ambiguity will reduce argument reading times, fixation count, and average fixation duration in all conditions. High TA should reduce the motivations which cause increased information processing when reading both pro- and counter-attitudinal arguments. Since those motivations are a result of the participant's difficulty in accommodating counter attitudinal information, a higher tolerance (high TA) for information which may be incompatible with existing beliefs should reduce motivation to defend or bolster.

# CHAPTER TWO: METHOD

## A. Participants

Twenty-three native English speakers (4 Male, 19 Female) were recruited for participation in this study. They were recruited via the MTSU research pool. Participants were students in general psychology classes who received class credit for their participation. All participants provided consent to participate. Each participant received a visual acuity test to ensure that they met a minimum 20/25 vision standard maintained for eye tracking testing in the lab. Average experiment duration was around 15 to 20 minutes.

## B. Materials and Procedures

Participants were first screened in the psychological pretesting at the beginning of the semester. The first screening measure (See Appendix A). was designed to assess their position on the issue of gun control. These six arguments were originally "…drawn from print and online publications of real issue relevant interest groups (including the NRA, NAACP, Brady Anti-Handgun Coalition, and the platforms of the Republican and Democratic parties)" (Taber & Lodge, 2006, p. 760) The participants rated how much they agreed with each of the arguments using a 9-point Likert scale (1=*Strongly Disagree* 9=*Strongly Agree*). Half of the items were reverse scored; after reversing the scores for those items, scores for individual items were

totaled. Scores above the median indicated a pro-gun control stance while scores below the median indicate an anti-gun control stance.

The second screening survey (See Appendix B) assessed the salience and strength of their beliefs concerning gun control. In the original study, Taber and Lodge (2006) presented four questions and participants rated the strength of their agreement on a 100-point scale. For this study, the rating response was modified into a 9-point Likert scale (1=*Strongly Disagree,* 9=*Strongly Agree*) to make it easier for participants to rate how much they agreed with the statements. Higher scores indicated stronger beliefs about gun control.

Participants who scored as strongly pro-or strongly anti-gun control in the pretesting were invited to an eye tracking session. Data about eye movements, including reading time, number of fixations and the duration of those fixations, were recorded using an Eyelink CR 2000 eye tracker manufactured by SR-Research (http://www.sr-research.com/). Eye tracking data were stored and processed using the SR-Research Data Viewer software package. Two computers were utilized for the experiment. The first, a Dell Precision 390 running the Eyelink operating system, was used as the “Host PC” and operated the eye tracking camera. The second computer, a Dell OptiPlex 780 with Windows 7, was used as the “Display PC” and deployed the experiment and recorded data from the eye tracker. Dell UltraSharp 1907FPF LCD

monitors were used for both the Host PC and the Display PC.

Before participating the participants were informed that the goal of the experiment was to observe how reading political arguments affected reading comprehension. The researcher then informed each participant of the steps required to properly adjust the physical setup. The forehead rest and chin rest were adjusted so that the participant was comfortable and the device was able to accurately track the participant's eyes. Once the adjustments were complete, the participants were instructed to keep their head stable during the course of the experiment.

After completing the physical setup, the experimenter calibrated the eye tracker and validated that the calibration was successful. Once the eye tracker was able to accurately track the participant's eyes, the experimenter explained to the participants that they would be reading some arguments concerning gun control and would be rating the argument's strength. The reading time and fixations were recorded by the eye tracking equipment. The 9-point Likert rating scale was presented on screen after the participant finished reading each argument (1=*Very Weak* to 9=*Very Strong*). After verbally providing an answer, the participants focused on a fixation point before moving onto the next argument.

The participants read eight pro-gun control and eight anti-gun control arguments. The arguments used (See Appendix C) were edited by Taber and Lodge

(2006) to control for possible confounds of length and complexity This technique is customary for eye tracking research involving text (Raney et al., 2014). The order in which the arguments were presented was randomized for each participant.

In the post-test, participants completed the gun control and strength of position measures from the pretest a second time to evaluate any changes in position or belief strength that may have occurred due to the arguments presented. Due to difficulties recruiting enough participants with the pretest screening procedure, some participants were recruited from the research pool and the first seven completed only the post-test measures. Others who were recruited from the research pool later completed both the pre-test and post-test measures in their single study session.

After reading the arguments, participants completed the general political knowledge survey (See Appendix D). Many of the items used were selected from Mondak (2003). However, two questions as marked in the appendix were added for this study in order to reflect changes in American politics after the article was published. Additionally, all questions were modified for this study to be answered in multiple choice format with one correct answer, two incorrect answers, and an “I don’t know” response. The scores could range from 0-10, with one point for a correct answer and zero for anything else.

Finally, participants completed the 20 item Ambiguity Tolerance scale

(MacDonald, 1970). The ambiguity tolerance scale is designed to measure an individual's general tendency to accept vague or indefinite, information and outcomes. Some sample questions include: "I have always felt that there is a clear difference between right and wrong." and "It bothers me when I don't know how other people react to me.". Participants received a thorough debriefing explaining the purpose of the study after completing the measures.

# CHAPTER THREE: RESULTS

Of the 23 participants, 7 did not have pretesting data and 8 participants did the pretesting measures at the experiment location before the experiment. However, posttest data was collected for all participants. It was expected that participants would not change their beliefs between the pretest and the posttest. A paired samples *t*-test was performed to compare scores for gun control beliefs pre- and post-test. There was not a significant difference between pretest ($M = 29.94$, $SD = 8.13$) and posttest belief scores ($M = 28.75$, $SD = 6.09$) $t(15) = 0.76$, $p = .46$. Because there was no significant difference, the post-test data were used in all subsequent analyses. Note that these data suggest, as expected, that participant beliefs concerning gun control were not significantly changed during the course of the experiment.

To separate participants into pro- and anti-gun control groups a median split was performed based on gun control position scores. The median for these data was 30. The split was successful in that there was a significant difference between pro-gun control scores ($n = 12$, $M = 33.25$, $SD = 2.80$) and anti-gun control scores ($n = 11$, $M = 23.82$, $SD = 3.97$) $t(21) = -6.63$, $p < 0.001$. However, the means for both groups were on the pro-gun control end of the response scale.

As a manipulation check a mixed factorial ANOVA was conducted with the factors of gun control position (pro- or anti-; between participants) and argument type

(pro- or anti-gun control; within participants). The dependent variable was the rating provided to the argument. Alpha was set at .05 throughout.

I expected an interaction such that pro-gun control participants would rate pro-gun control arguments more highly, and anti-gun control participants would rate anti-gun control arguments more highly. This interaction was not significant, $F(1, 21) = 2.64$, $MSE = 27.61$, $p = .12$, $\eta^2_p = .11$. Post hoc $t$ tests indicated that there was no difference between pro- ($M = 43.17$, $SD = 6.00$) and anti-gun control argument ratings ($M = 39.58$, $SD = 7.32$) for pro-gun control participants, $t(11) = 1.79$, $p = .10$, $d = .54$. The difference for anti-gun control participants was also not significant, $t(10) = -0.61$, $p = .56$, $d = .27$; pro-gun control argument ratings $M = 42.73$ ($SD = 5.64$) and anti-gun control argument ratings $M = 44.18$ ($SD = 5.21$). Whereas these differences were not significant and reflect a failed manipulation check, the effect size for pro-gun control participants is medium and the means are in the expected direction. The lack of significance could be a result of the small sample size.

To evaluate hypothesis 1, mixed factorial ANOVAs were conducted with the factors of gun control position (pro- or anti-; between participants), argument type (pro- or anti-gun control; within participants), and attitude strength (high or low; between participants). The dependent variables were total reading time, number of fixations, and average fixation duration. Alpha was set at .05 throughout.

For all analyses, the hypothesis predicts a three-way interaction. However, this interaction was not significant in any analysis. In fact, the attitude strength factor did not participate in any significant interactions. There was a significant attitude strength main effect for the number of fixations and average fixation duration dependent variables, but in the absence of the predicted interaction, it was difficult to interpret. In the analyses reported below, I removed attitude strength from the analysis and tested a more basic prediction of the various models: There should be an interaction between participant position and argument type such that counter-attitudinal arguments require more processing. Descriptive statistics for the three analyses are presented in Table 1.

Table 1

*Descriptive Statistics for Two Way ANOVAs*

| Condition | Mean | SD | n |
|---|---|---|---|
| Total Reading Duration in Milliseconds | | | |
| Pro-Gun Control Arguments | | | |
| Anti-Gun Control Participants | 138854.7 | 40284.32 | 11 |
| Pro-Gun Control Participants | 137576.3 | 36072.42 | 12 |
| Anti-gun Control Arguments | | | |
| Anti-Gun Control Participants | 137364.8 | 42629.98 | 11 |
| Pro-Gun Control Participants | 140348.6 | 37509.65 | 12 |
| Total of Fixation Durations | | | |
| Pro-Gun Control Arguments | | | |
| Anti-Gun Control Participants | 1797.28 | 261.52 | 11 |
| Pro-Gun Control Participants | 1763.60 | 242.31 | 12 |
| Anti-gun Control Arguments | | | |
| Anti-Gun Control Participants | 1845.14 | 303.96 | 11 |
| Pro-Gun Control Participants | 1806.01 | 258.30 | 12 |
| Total Fixation Count | | | |
| Pro-Gun Control Arguments | | | |
| Anti-Gun Control Participants | 509.27 | 133.90 | 11 |
| Pro-Gun Control Participants | 511.92 | 136.75 | 12 |
| Anti-gun Control Arguments | | | |
| Anti-Gun Control Participants | 502.45 | 153.81 | 11 |
| Pro-Gun Control Participants | 510.33 | 109.94 | 12 |

For average fixation duration, the interaction was not significant, $F(1, 21) = 0.02$, $MSE = 3795.31$, $p = .88$, $\eta^2_p = .001$. The same was true for total reading time, $F(1, 21) = 0.29$, $p = .60$, $\eta^2_p = .014$, and number of fixations, $F(1, 21) = 0.03$, $MSE = 2740.49$, $p = .87$, $\eta^2_p = .001$.

Because of the lack of effects in the information processing measures, analyses were not conducted investigating the moderating effects of tolerance for ambiguity and political knowledge on the interaction between position and argument type.

# CHAPTER FOUR: DISCUSSION

As expected, participants' beliefs were not significantly altered during the course of the experiment. However, participants' ratings of arguments also did not differ based on the type of argument. There are several possible explanations. One is that the arguments presented were not sufficiently differentiated between pro-and anti-gun control for any effect to appear. Another possibility is that the participants were not strongly enough pro- or anti-gun control for an effect to appear Despite the significant difference in position found between the two groups based on the median split the sample of college students might not have addressed the much wider range of opinions that exist in the general population. This is supported by the non-significant difference in argument ratings between pro- and anti-gun control participants. However, that may also be explained by the demand characteristics of the experiment task. Particularly, the process of rating several political arguments and being asked to rate those argument's strength likely raised suspicions among participants and may have affected their ratings. To avoid this issue a comprehensive and convincing cover story and the inclusion of non-political arguments may be beneficial. The non-political arguments may potentially serve as a control condition for the pro- and counter-attitudinal arguments.

Contrary to expectations, and previous research, no effect was found on the

measures that indicate information processing (reading time, fixation count, and total average fixation duration). This may again be due to the number of participants or a lack of participants who were sufficiently strongly pro- or anti-gun control.

At face value, the results suggest that information processing is not affected by the presence of pro- or counter-attitudinal arguments. This contradicts the existing literature on the subject and the findings of several models. If true, this finding indicates that information is processed similarly regardless of whether it is pro-or counter-attitudinal. The finding offers an optimistic possibility for persuasion research by suggesting that, during the intake of new information, the type of information (e.g., pro- or counter-attitudinal) does not necessarily change how that information is processed. Instead any difference in how that information is understood or interpreted would, therefore, have to occur after the initial information processing stage. Similar information processing for varying arguments also increases the possibility for people to be influenced by text of either type and increases the possibility for people to agree on the basic information found in text regardless of whether it has an effect on their beliefs.

However, potential methodological issues make it unreasonable to conclude that these relationships do not necessarily exist. Future research should endeavor to include clearly differentiated participants with strong beliefs. Research using the

DMM should be careful of the multiple and complex interactions suggested by the model. More research is needed to clarify these relationships and to ensure that the effects of all the suggested factors are present and necessary to accurately model information processing during the process of reading arguments intended to persuade.

While the use of eye tracking measures such as fixations to measure information processing holds promise, future measures should endeavor to make better use of the strengths of eye tracking. Research in which pro- and counter-attitudinal arguments are presented simultaneously would allow for researchers to compare which arguments participants chose to spend time reading. The use of interest areas and the analysis of information processing at the level of individual words should be explored in future research as a potential source of information. Seeing how participants choose to read the articles may provide a much-needed dimension to this line of persuasion research. This is particularly true given research showing that people choose attend to pro-attitudinal media (Knobloch-Westerwick, & Meng, 2009). Similarly, continued investigation of the specific mechanisms involved in the process of persuasion may greatly benefit future research. A greater degree of control in the research process may help elucidate the precise mechanisms at work in the process of persuasion.

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# APPENDICES

# APPENDIX A: GUN CONTROL POSITION MEASURE

Please rate how you feel about the following statements.

Measured as a 9 point Likert scale (1=Strongly disagree, 9=Strongly agree)

1. Curbing gun violence is very important, but limiting the right to bear arms is not really an effective way to do this.
2. Everyone's rights and freedoms are important, but sometimes, as with gun control, it is necessary to limit freedom for the greater public good.
3. Guns, like cars, should only be used by responsible citizens. Gun control laws just insure that responsible people are using guns in a responsible manner.
4. Over the past few years our right to bear arms has been eroding. This encroachment on our rights must be stopped.
5. There should be no limits on the number of guns someone can own.
6. It is not the government's job to pick and choose the types of weapons it finds acceptable for citizens to own.

# APPENDIX B: ATTITUDE STRENGTH MEASURE

Please answer the following questions.

Measured as a 9 point Likert scale (1=Completely uninterested, 9=Strongly agree)

1. How much do you personally care about the issue of gun control?
2. Compared to how you feel about other public issues, how strong are your feelings regarding the issue of gun control?
3. Some people report that they are very certain of their feelings on the issue of gun control. Others say they are not certain at all. How certain are you of your feelings on the issue of gun control?
4. People have told us they have thought a lot about some issues and haven't thought at all about some other issues. How would you rate the amount of thinking you have done about the issue of gun control?

# APPENDIX C: GUN CONTROL ARGUMENTS

*Instructions for Argument Strength Task*

In this section, we will ask you to read a set of arguments on gun control and tell us how WEAK or STRONG you believe each argument is. PLEASE NOTE: We want to know how WEAK or STRONG you believe the argument is, NOT WHETHER YOU AGREE OR DISAGREE WITH THE ARGUMENT. Please try to leave your feelings about gun control aside and indicate how strong or weak you feel the argument is. Please be as objective as possible.

Measured as a 9 point Likert scale (1=Very weak, 9=Very strong)

Gun Control (Pro):

1. A study in a prominent medical journal found that you or a member of your family are 43 times more likely to be killed by your own gun than by an intruder's. Guns aren't the protection many people think they are. We need stricter gun control.
2. Self-defense arguments for the need of guns are silly: guns only become necessary for self-defense because there are so many guns out there. Thus, guns should be outlawed outright -- then we won't need to worry about self-defense.
3. The United States has the highest murder rate of all industrialized nations. It is also the only industrialized country that has lenient gun laws. We therefore say: bring down the number of guns, bring down the murder rate.
4. Several recent school tragedies highlight the fact that guns have become a menace to our children. It's very simple: our schoolyards should not be battlefields. We need to reduce access to guns; we need stricter gun control.
5. In one poll of imprisoned felons, only 27% report buying guns on the black market; the rest got their weapons through legal channels. Obviously, tougher gun controls are needed to keep these ‘legal' guns out of criminal hands.
6. Recent trials against gun manufacturers have consistently found them guilty, and have forced the gun industry to pay out huge sums of money. If the courts can find good reason to rein in the gun industry, then it is high time for Congress to follow suit.
7. A study of 743 gunshot deaths reports that 398 occurred in a home where a gun was kept. Only 9 of the 743 were deemed to be justified by the police. It follows that gun owners are not as responsible as they claim to be.
8. A gun should only be fired if one's life is in danger and all other options have been exhausted. Most ‘self-defense' shootings do not meet these criteria. Thus use of guns in self-defense only contributes to the crime rate.

Gun Control (Con):

1. A main reason why our murder rate is so high is that most crime victims do not resist. These victims are twice as likely to be injured compared to those who defend themselves. Carrying a gun is thus one's ultimate protection against violent crime.
2. The liberal media distorts gun issues: they only talk about tragedies involving guns. Yet guns were used defensively 2.5 million times last year. The real tragedy would be to outlaw guns -- crime would spiral out of control.
3. The Bill of Rights guarantees the right of all citizens to bear arms. Quite simply, gun control measures are unconstitutional infringements on a basic right of citizenship.
4. Most privately-owned guns in American are owned by sportsmen and are used for completely peaceful purposes. These guns pose no risk to society, but they are unfairly targeted by gun control legislation.
5. Stricter gun control laws have not passed Congress, reflecting serious misgivings the American people have about gun control. However, the courts have repeatedly ignored the will of the people, finding gun manufacturers in the wrong. We need to limit the power of the courts in gun control cases.
6. A national council reported in 1991 that handgun accidents killed less than 15 children under the age of 6. This number is minuscule when compared to the total number of accidental deaths of young children. It simply is not worth outlawing guns to save just a handful of lives.
7. Laws that require guns to be locked up defeat the purpose of gun ownership: how can I protect my family if I must first retrieve my gun from its locker? We thus need to repeal laws regulating guns in private homes.
8. Gun control legislation can only regulate guns sold through legal outlets. But these days, many criminals buy their guns illegally. Gun control legislation therefore cannot regulate the most dangerous guns in society.

# APPENDIX D: POLITICAL KNOWLEDGE SURVEY

General political knowledge questions: (Original questions from Mondak, 2000) Questions three and ten which were not derived from Mondak (2000) are marked by an *

Please answer the following questions to the best of your ability without using the internet or external sources of information. Please select "I don't know" if you do not know the answer."

1. Whose responsibility is it to determine if a law is constitutional or not?
    1. President
    2. Congress
    3. Supreme Court
    4. I don't know
2. Would you say that one of the parties is more conservative than the other at the national level?
    1. No
    2. Yes (The Republicans)
    3. Yes (The Democrats)
    4. I don't know
3. *Who is the current vice president of the United States?
    1. Tim Kaine
    2. Mike Pence
    3. Joe Biden
    4. I don't know
4. Whose responsibility is it to appoint federal judges and justices?
    1. Supreme Court
    2. President
    3. Congress
    4. I don't know
5. How long is a U.S. Senate term?
    1. 4 years
    2. 6 years
    3. 8 years
    4. I don't know
6. How many members are there in the U.S. House?
    1. 100
    2. 270
    3. 435

    4. I don’t know
7. How many members are there in the U.S. Senate?
    1. 100
    2. 270
    3. 435
    4. I don’t know
8. How long is a term on the U.S. Supreme Court?
    1. 4 years
    2. 8 years
    3. Indefinite
    4. I don’t know
9. How old must a person be to be elected to the U.S. House?
    1. 18
    2. 25
    3. 35
    4. I don’t know
10. * How old must a person be to be elected president?
    1. 18
    2. 25
    3. 35
    4. I don’t know

APPENDIX E: IRB APPROVAL

**IRB**
**INSTITUTIONAL REVIEW BOARD**
Office of Research Compliance,
010A Sam Ingram Building,
2269 Middle Tennessee Blvd
Murfreesboro, TN 37129

**IRBN007 – EXEMPTION DETERMINATION NOTICE**

Friday, February 03, 2017

Investigator(s): Kevin Anderson (Student PI), and William Langston (FA)
Investigator(s') Email(s): ka4r@mtmail.mtsu.edu; william.langston@mtsu.edu
Department: Psychology

Study Title: Reading and information processing as affected by existing political biases
Protocol ID: **17-1142**

Dear Investigator(s),

The above identified research proposal has been reviewed by the MTSU Institutional Review Board (IRB) through the **EXEMPT** review mechanism under 45 CFR 46.101(b)(2) within the research category *(2) Educational Tests* A summary of the IRB action and other particulars in regard to this protocol application is tabulated as shown below:

| | | |
|---|---|---|
| IRB Action | EXEMPT from furhter IRB review*** | |
| Date of expiration | **NOT APPLICABLE** | |
| Participant Size | 20 - 40 | |
| Participant Pool | **MTSU Psychology Research Pool** | |
| Mandatory Restrictions | 1. Mandatory signed informed consent<br>2. 18 years of age or older | |
| Additional Restrictions | **1. Inclusion Criteria: Individuals who have strong pro or counter attitudes to gun control.**<br>**2. Exclusion Criteria: Individuals who have vision too poor to see the arguments while seated at the eye tracker.** | |
| Comments | NONE | |
| Amendments | **Date** N/A | **Post-Approval Amendments** NONE |

***This exemption determination only allows above defined protocol from further IRB review such as continuing review. However, the following post-approval requirements still apply:

- Addition/removal of subject population should not be implemented without IRB approval
- Change in investigators must be notified and approved
- Modifications to procedures must be clearly articulated in an addendum request and the proposed changes must not be incorporated without an approval
- Be advised that the proposed change must comply within the requirements for exemption



- Changes to the research location must be approved – appropriate permission letter(s) from external institutions must accompany the addendum request form
- Changes to funding source must be notified via email (irb_submissions@mtsu.edu)
- The exemption does not expire as long as the protocol is in good standing
- Project completion must be reported via email (irb_submissions@mtsu.edu)

- Research-related injuries to the participants and other events must be reported within 48 hours of such events to compliance@mtsu.edu

The current MTSU IRB policies allow the investigators to make the following types of changes to this protocol without the need to report to the Office of Compliance, as long as the proposed changes do not result in the cancellation of the protocols eligibility for exemption:

- Editorial and minor administrative revisions to the consent form or other study documents
- Increasing/decreasing the participant size

The investigator(s) indicated in this notification should read and abide by all applicable postapproval conditions imposed with this approval. Refer to the post-approval guidelines posted in the MTSU IRB's website. Any unanticipated harms to participants or adverse events must be reported to the Office of Compliance at (615) 494-8918 within 48 hours of the incident.

All of the research-related records, which include signed consent forms, current & past investigator information, training certificates, survey instruments and other documents related to the study, must be retained by the PI or the faculty advisor (if the PI is a student) at the sacure location mentioned in the protocol application. The data storage must be maintained for at least three (3) years after study completion. Subsequently, the researcher may destroy the data in a manner that maintains confidentiality and anonymity. IRB reserves the right to modify, change or cancel the terms of this letter without prior notice. Be advised that IRB also reserves the right to inspect or audit your records if needed.

Sincerely,

Institutional Review Board
Middle Tennessee State University

Quick Links:

Click here for a detailed list of the post-approval responsibilities. More information on exmpt procedures can be found here.