

2012

How uncertain future consequences exacerbate a propensity among suspects to make short-sighted confession decisions

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**How uncertain future consequences exacerbate a propensity
among suspects to make short-sighted confession decisions**

by

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A thesis submitted to the graduate faculty
in partial fulfillment of the requirement for the degree of

MASTER OF SCIENCE

Major: Psychology

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2012

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ABSTRACT

Theorists have speculated (Kassin et al., 2010), and experimental research has confirmed (Madon et al., 2012), that suspects have a propensity to make short-sighted confession decisions; that is, they have a tendency to discount distal consequences when making their confession decisions. The current research examined two potential causes of this effect – the certainty of distal consequences and the temporal distance of distal consequences. In the experiment, participants ($N = 209$) were interviewed about 20 prior criminal and unethical behaviors and were required to admit or deny each one. Participants' denials and admissions were paired with both a proximal consequence and a distal consequence respectively. Results indicated that both the certainty and temporal distance of the distal consequence influenced participants' tendency to make short-sighted admission decisions: The less certain and more temporally remote the distal consequence was perceived, the less impact it exerted on participants' admissions. These results, especially the effect of the distal consequence's certainty, may be particularly relevant to understanding false confessions. Because innocent suspects tend to believe that their innocence will protect them, they may be more inclined to perceive future punishment as an improbable event, which may consequently increase their risk of confession. The effect of temporal distance suggests that, in actual police interrogation situations, suspects may be inclined to discount future punishment when making their confession decisions precisely because that punishment is less proximal than the immediate, aversive consequences that they are having to contend with during the interrogation.

CHAPTER 1. INTRODUCTION

In the criminal justice system, a confession is among the most persuasive forms of incriminating evidence (Gudjonsson, 2003; Kassin, 2008; Leo & Drizin, 2010). So much so, in fact, that in many cases convictions have been determined on the basis of confession evidence alone (Conti, 1999; Kassin et al., 2010; Kassin & Wrightsman, 1985). Indeed, as McCormick (1972) said, “The introduction of a confession makes the other aspects of a trial in court superfluous” (p. 316). The power of confession evidence stems, in large part, from the widely held belief that innocent suspects would not jeopardize their self-interests by confessing to crimes that they did not commit (Gudjonsson, 2003; Kassin, 2005; Kassin & Wrightsman, 1981; Leo, 2004, 2009). Contrary to this widespread belief, however, research has found that sometimes suspects do falsely confess to the crimes of which they are accused (Drizin & Leo, 2004; Garrett, 2008; Kassin & Gudjonsson, 2004). Although the accurate incidence of false confessions may be impossible to know, approximately 25% of DNA exoneration cases have involved false confessions induced by custodial police interrogation (Garrett, 2008; Innocence Project Fact Sheet, 2010).

A core principle that has been implicated in the elicitation of false confessions is the tendency for short-term consequences to influence behavior more strongly than long-term consequences. Drawing on this literature, theorists have speculated that one reason suspects confess to crimes when interrogated by the police is because they have a propensity to make short-sighted confession decisions (Kassin et al., 2010). In support of this idea, Madon, Gyll, Scherr, Greathouse and Wells (2012) found evidence that the well-established phenomenon of temporal discounting is at play when suspects decide whether or not to confess to crimes. Specifically, they found that participants in a mock interrogation situation

suffered from a short-sightedness: Their confession decisions were more strongly influenced by a proximal consequence than a distal consequence. This finding suggests that suspects may enter the interrogation situation with a propensity to make confession decisions on the basis of short-term contingencies. The proposed research examined the extent to which this propensity reflects the certainty and temporal distance of future events. The potential role of these factors on confession decisions was addressed from the perspective of expected utility theory (Edwards, 1962; Hilgendorf & Irving, 1981; Schoemaker, 1982).

Expected Utility Theory

Expected utility theory is the most influential normative framework pertaining to decision making (Kahneman & Tversky, 1979; Kalenscher & Pennartz, 2008; Mongin, 1988). The theory assumes that rational people choose among all available choices or courses of action on the basis of the expected utility of a choice. Conceptually, expected utility is a weight or value assigned to a choice or course of action in which the weight reflects the combination of two factors: *probability* and *utility* (Edwards, 1962; Schoemaker, 1982). Probability is a person's expectations about an outcome's likelihood of occurrence (Gilboa, Postlewaite, & Schmeidler, 2008). For example, there is greater probability that a student with a GPA of 4.0 will achieve academic success in graduate school than a student with a GPA of 2.0; a jury may believe that the probability that a suspect is truly guilty of a crime is greater if the suspect confessed to the crime than if the suspect denied guilt. Utility is a person's judgment about how satisfying or desirable an outcome would be if it were to occur (Mongin, 1988; Schoemaker, 1982). For example, 100 dollars is more desirable than 10 dollars; being incarcerated is less desirable than being questioned by police. Mathematically, the theory defines expected utility as the product of probability and utility

(i.e., Expected utility = \sum probability * utility). According to the theory, a rational decision maker will choose the course of action that will yield the highest expected utility in order to achieve an optimal outcome (Schoemaker, 1982).

The theory proposes that social and environmental influences as well as people's past experiences, and individual preferences, affect their perceptions of an outcome's probability and utility. Therefore, judgments of an outcome's probability and utility are often subjective rather than objective (Kahneman & Tversky, 2000; Trepel, Fox, & Poldrack, 2005). In other words, it is people's subjective beliefs about the probability and utility of the likely consequences, which may or may not be accurate (Gilboa et al., 2008), that influence their behaviors. When people use inaccurate perceptions of probability and utility during decision making, their final decisions can lead to severe and irretrievable errors (Tversky & Kahneman, 1974, 1981). For example, gamblers who mistakenly estimate the odds of winning a lottery may take the wrong action and lose large sums of money; If suspects (especially innocent ones) underestimate the possibility of being convicted, they may decide to waive their *Miranda* Rights or confess during an interrogation, which may result in wrongful convictions (Kassin, 2005; Kassin & Norwick, 2004).

Expected utility theory offers a unique perspective from which to better understand suspects' confession decisions. Although suspects have multiple courses of action available to them during an interrogation (Hilgendorf & Irving, 1981; Ofshe & Leo, 1997), two courses of action stand out. One course of action is to deny guilt. This course of action has associated with it potential proximal consequences such as extended detainment or interrogation, isolation, confrontational questioning, among others. The distal consequences associated with denials include exculpation, or perhaps a lighter sentence if convicted. A

second course of action is to confess. This course of action has associated with it proximal consequences of being released from an interrogation or being given permission to make a phone call, but also potential distal consequences, some of which could be quite devastating, such as conviction, a lengthy prison sentence, and even execution (Drizin & Leo, 2004; Gudjonsson, 2003). When viewed rationally, the distal consequences that are associated with a confession represent more severe outcomes than the proximal consequences that are associated with a denial. Thus, suspects should heavily weigh distal consequences when making their confession decisions. Yet, as reviewed earlier, empirical findings suggest that suspects have a tendency to risk future consequences for the short-term gain of avoiding the proximal consequences that are present during an interrogation (Madon et al., 2012).

However, when understood within the framework of expected utility theory, a confession decision is not solely determined by utility, but rather by a balance of utility and probability. This is important because if suspects perceive the distal consequences associated with a confession as less probable than the proximal consequences associated with a denial, then they might assign less weight to the distal consequences than is warranted when deciding whether or not to confess. In other words, the utility of the distal consequences might be discounted because of their uncertainty.

Consistent with this possibility, decision-making researchers have speculated that, compared with immediate outcomes which are perceived as quite certain, delayed outcomes are associated with implicit uncertainty: The longer the delay, the larger the associated uncertainty (Berns, Laibson, & Loewenstein, 2007; Kalenscher & Pennartz, 2008). For example, Benzion, Amnon and Yagil (1989) estimated individual discount rates from decisions made by college students on delayed monetary choices, and found that the shape of

the discount-rate function was mainly determined by the implicit uncertainty associated with delayed outcomes. Loewenstein and Prelec (1993) found that the tendency for participants to discount delayed outcomes disappeared when the options were framed in terms of sequences. The authors reasoned that this effect may have occurred because participants interpreted the outcomes as certain when framed in sequences, regardless of the size of delay. Consistent with their reasoning, the time discounting behaviors appeared again when the sequenced options were stated probabilistically, thereby causing uncertainty considerations to dominate participants' choices (Keren & Roelofsma, 1995). Finally, uncertainty has been proposed to be the fundamental process underlying time delay: the more remote the outcome, the less likely it is perceived to happen (Keren & Roelofsma, 1995).

Applying these findings to the custodial interrogation situation raises the possibility that suspects may assign different probabilities to the proximal and distal consequences that are associated with their confession decisions. The proximal consequences that are associated with the decision to deny guilt (e.g., physical discomfort, isolation, confrontational questioning, etc.) as well as those that are associated with the decision to confess (e.g., being released from interrogation, being able to make a phone call, etc.) are temporally near and may, therefore, be perceived as having a high probability of occurrence. By contrast, the distal consequences that are associated with the decision to deny guilty (e.g., exculpation) or to confess (e.g., conviction, incarceration, execution) are temporally remote and may, therefore, be perceived as less probable by comparison.

Hypothesis and Research Overview

Drawing on the above theoretical analysis, I proposed that the tendency for proximal consequences to influence suspects' confession decisions more strongly than distal

consequences stems from the probabilistic nature of distal consequences as well as their temporal distance. In line with this idea, my thesis tested whether the tendency for a proximal consequence to influence admissions of guilt more strongly than a distal consequence was greater the (a) less certain and (b) more temporally remote a distal consequence was perceived. I tested the influence of a distal consequence's certainty and temporal distance on admission decisions with a paradigm adapted from Madon et al. (2012). Following their procedures, participants in the current experiment were subjected to an interview in which they were required to admit or deny 20 prior criminal and unethical behaviors. Participants made their admission decisions in the context of a contingency pairing in which denials were paired with a proximal consequence (answering a set of repetitive questions) and admissions were paired with a distal consequence (meeting with a police officer in the future). In addition, prior to the start of the interview, the certainty of the distal consequence was varied to be either low (20% certain) or high (100% certain) and the temporal distance of the distal consequence was varied to be in the distant (one-month) or the near (one-week) future.

CHAPTER 2. METHOD

Participants

Two hundred and nine students who were enrolled in introductory psychology courses at Iowa State University participated in the experiment in exchange for partial fulfillment of a course requirement. In the sample, 56.7% participants were female and 43.3% were male. The mean age of participants was 19.3 ($SD = 2.20$). Participants included 190 Caucasians, 3 Asians, 9 African Americans, 1 Latina/o, 5 who self-described as multi-ethnic, and 1 who did not indicate her or his ethnicity. Of these participants, 2 were suspicious, 6 failed to understand the directions, and 12 misreported the experimental condition to which they had been assigned. As reported in the results, excluding these participants for the main analyses did not meaningfully alter the findings.

Design

Participants were randomly assigned to a 2 (Certainty: low vs. high) \times 2 (Temporal distance: one-month vs. one-week) \times 2 (Question Order: sequential vs. reverse) between-subjects experimental design. All participants were interviewed about 20 prior criminal and unethical behaviors and were required to admit or deny each one. Participants made their admission decisions in the context of a contingency pairing that involved both a proximal consequence and a distal consequence. The proximal consequence was having to immediately answer a set of 32 repetitive questions each and every time they denied a behavior. The distal consequence was having to meet with a police officer in the future if they tended to admit to the behaviors. The number of admissions that would require this meeting was left unspecified. The certainty of the distal consequence was manipulated to be either low or high. In the low certainty condition, participants ($n = 108$) were told that the

police officer would meet with only one in five students whose interview responses met the requirement. In the high certainty condition, participants ($n = 101$) were told that the police officer would meet with every student whose interview responses met the requirement. Accordingly, the probability of having to meet with the police officer in the future was either 20% (low certainty) or 100% (high certainty). To manipulate the temporal distance of the distal consequence, participants were either told that the potential meeting with the police officer would be in one-month ($n = 101$) or in one-week ($n = 108$). Finally, question order counterbalanced the presentation of the 20 interview questions to control for potential order effects.

Materials

Interview questions. The interview questions assessed whether or not participants had ever engaged in 20 criminal (e.g., transporting fireworks across state lines) and unethical (e.g., starting or spreading a rumor about someone) behaviors (Appendix A3). Participants were required to respond ‘yes’ (coded as 1) or ‘no’ (coded as 0) to each question. These coded responses were summed to form a new variable reflecting the total number of admissions made by each participant. The 20 interview questions were developed on the basis of a pilot study ($N = 96$) in which participants (a) admitted or denied 53 criminal and unethical behaviors and (b) rated the seriousness of each behavior (Appendix H). The order of the questions was matched for seriousness and counterbalanced to eliminate potential order effects.

Repetitive question set. Thirty-two repetitive questions were included in the set (Appendix B). These questions assessed participants’ perceptions about how the “average Iowan” and “average American” would feel (e.g., hostile, disoriented, jealous) when

engaging in the criminal or unethical behavior about which participants had just denied. Participants answered the repetitive questions on a computer that was programmed with a 4-second delay between each question. Each repetitive question set required approximately 7 minutes to complete. Because the repetitive questions were unrelated to the hypotheses tested in this study, and were developed simply to provide participants with a proximal consequence, participants' responses to the repetitive question set were not recorded and are not discussed further.

Suspicion check. To probe for suspicion, participants were asked if they believed that they had been misled in any way during the experiment and if so, to describe how (Appendix C). All responses were examined to identify participants who were suspicious about the veracity of the meeting with the police officer.

Contingency pairing check. To examine participants' understanding of the contingency pairing, they were asked under which condition they had been required to answer the repetitive questions (Appendix D). The response options were (a) "When I gave a 'NO' response," (b) "When I gave a 'YES' response," and (c) "Sometimes when I gave a 'NO' response and sometimes when I gave a 'YES' response".

Certainty manipulation check. The perceived certainty of the potential meeting with the police officer was assessed with four items (Appendix E). Two of these items were assessed prior to the debriefing and two were assessed during the debriefing. Prior to the debriefing, participants were asked: (1) "*How likely do you believe it is that the police officer will contact you for a meeting?*", with endpoints 1 (*not at all likely*) and 5 (*very likely*), and; (2) "*I am _____% certain that I will have to meet with the police officer.*", with open-ended responses ranging from 0% to 100%. During the debriefing, participants were

asked: (3) *“Before the interview, when I first told you about the police officer, how sure were you that you would have this meeting if your score required it?, with endpoints 1 (not at all sure) and 7 (very sure).* Also during the debriefing, participants were told *“This experiment manipulated two factors. One factor was the perceived certainty of the potential meeting with the police officer. Whereas some participants were given the impression that the police officer would definitely contact them for this meeting if their score met the requirement, others were given the impression that only 20% of students whose score met the requirement would be contacted”*. Participants were then asked: (4) *“Which statement best reflects what you experienced?”* Response options were (a) I was told that the police officer would meet with about 20% of students whose scores met the requirement, (b) I was told that told that the police officer would meet with all students whose scores met the requirement, and (c) I was not told anything about the likelihood of meeting with the police officer.

Temporal distance manipulation check. Participants’ understanding of the temporal distance of the potential meeting with the police officer was assessed with two items, one that was assessed prior to the debriefing and one that was assessed during the debriefing (Appendix F). First, prior to the debriefing, participants were asked *“When do you think that you will meet with the police officer?”* with response options (a) In one-week, (b) In one-month, and (c) Not sure. During the debriefing, it was explained to participants that some had been told that the meeting with the police officer would be next week, whereas others had been told it would be next month. Participants were then asked *“What were you told?”*. Response options were (a) I was told that the police officer would meet with me in one-week, (b) I was told that the police officer would meet with me in one-month, and (c) I was not told anything about when the police officer would meet with me.

Perceived aversiveness of the distal consequence. Participants' perceptions of the aversiveness of the distal consequence (i.e., the potential meeting with the police officer) was assessed with six items (Appendix G). Five of these items were bipolar adjectives that followed the question stem "*Please indicate how you feel about having to possibly meet with a police officer to discuss your answers; I am (1) nervous – calm; (2) reluctant – eager; (3) unenthused – enthused; (4) concerned – unconcerned; (5) not looking forward to – looking forward to*". For the sixth item, participants were asked "*How much do you hope that you won't have to meet with a police officer to discuss your answers to the illegal behavior survey?*", with endpoints 1 (*not at all*) and 7 (*a lot*). The scores for the first five questions were reverse coded as necessary and then averaged into a single scale where higher numbers indicated greater perceived aversiveness of the distal consequence ($\alpha = 0.81$). This scale is subsequently referred to as the aversiveness scale.

Interview Room and Cover Story

All participants were interviewed individually in a small room that included a desk, a personal computer, and two chairs – one for the participant and the other for the experimenter. Next to the computer was a pencil vase that held two pencils each engraved with "Ames Police Department". In addition, there were two colored flyers that were affixed to the wall directly above the computer monitor. These flyers offered safety tips for crime prevention. One flyer was obtained from the website of the university's Department of Public Safety and had a university logo printed on it. The other flyer was obtained from the website of the Ames Police Department and had a police department emblem printed on it. These props supported the cover story that the experiment was a partnership between

professors in the Psychology Department and law enforcement personnel and that it was designed to examine rates of illegal behaviors among college students.

Procedures

After obtaining informed consent and providing the cover story, the experimenter obtained and recorded each participant's name, email address, cell phone number, and university student id number (Appendix A2). This information was collected in order to maximize the apparent inevitability of being successfully reached for the future meeting with the police officer if a participant's interview responses met the requirement. Cultivating this perception was especially important among participants in the high certainty condition because they were told that all participants whose scores met the requirement would be contacted. Next, the experimenter explained the contingency pairing by reciting the following script:

“I'm going to ask you some yes/no questions that will assess whether or not you've ever engaged in a variety of criminal and unethical behaviors.

Every time you answer NO to one of these questions, you'll be asked some additional follow-up questions in order to get some more information.

You'll answer these additional questions on the computer during your session today. On the other hand, if you tend to answer YES to the

questions I ask you, then I will sign you up to meet with one of the police officers involved in this research to discuss your answers in more detail.

We're doing this to get more information about people's illegal behavior.

So, let's see...you would meet with Officer Schiller. Assuming that your score requires that you have this meeting, he would contact you in the next

few weeks to set things up. These appointments have generally lasted about an hour. So, basically, if you answer YES a lot, you'll need to meet with Officer Schiller.”

Immediately after reciting this script, the experimenter manipulated the temporal distance of the potential meeting with the police officer. Whereas some participants were told that the potential meeting with the police officer would be in one-month, others were told that it would be in one-week. Correspondingly, to provide a visual representation of the meeting's temporal distance, the experimenter circled the current date and the anticipated week of the future meeting on a wall calendar that was in participants' direct line of sight. Next, the experimenter manipulated the certainty of the potential meeting with the police officer. In the low certainty condition, the experimenter told participants that the police officer could only meet one in five students whose scores met the requirement. By contrast, the experimenter told participants in the high certainty condition that the police officer would meet with every student whose score met the requirement.

After the experimental manipulations had been induced, participants were interviewed individually about their prior criminal and unethical behaviors. Participants answered the set of 32 repetitive questions each and every time they denied a behavior. Though participants could avoid the proximal consequence of the repetitive questions by admitting to a behavior, they believed that doing so increased their risk of the distal consequence of having to meet with the police officer in either one-month or one-week. Following the interview, participants completed two self-report questionnaires that assessed demographic information, suspicion, and their understanding on the contingency pairing and

experimental manipulations. Participants were then debriefed and their contact information was destroyed.

CHAPTER 3. RESULTS

Preliminary Analyses

Dependent variable. The total number of admissions that participants made in response to the interview questions constituted the dependent variable. Preliminary analyses indicated that the residuals of the dependent variable were normally distributed, $W = 0.99$, $p = .25$.

Suspicion and contingency pairing checks. Examination of participants' responses to the suspicion question revealed that there were 2 participants who doubted the veracity of the meeting with the police officer. In addition, a frequency analysis indicated that 6 participants did not correctly report the contingency pairing that was associated with their interview responses, one of whom was identified as suspicious as well.

Certainty manipulation check. I performed four separate analyses to test the effectiveness of the certainty manipulation (Appendix E). First, I performed a cross-tabulation analysis to identify participants who incorrectly reported the certainty condition to which they had been assigned. Results revealed that 12 participants had incorrect responses. Second, I performed three separate independent-sample t-tests with the assumption of unequal variances. The independent variable in each analysis was the certainty condition to which participants had been assigned (low vs. high). The dependent variables were participants' responses to the three remaining certainty manipulation check items. The results indicated significant or nearly significant differences for all three of the analyses performed: (1) Participants in the low certainty condition believed that they were less likely to be contacted by the police officer for the meeting ($M = 2.00$, $SD = 0.77$) than participants in the high certainty condition ($M = 2.27$, $SD = 1.23$), $t(162.6) = 1.89$, $p = 0.060$; $d = 0.27$;

95% CI [-0.012, 0.56]; (2) Participants in the low certainty condition reported a lower percentage likelihood of having to meet with the police officer ($M = 25.44\%$, $SD = 21.05\%$) than those in the high certainty condition ($M = 34.67\%$, $SD = 29.79\%$), $t(174.7) = 2.55$, $p = 0.012$; $d = 0.36$; 95% CI [2.09, 16.36]; and (3) During the debriefing, when asked to retrospectively report how sure they were that they would have the meeting with the police officer, participants in the low certainty condition reported being less sure ($M = 2.97$, $SD = 1.48$) than those in the high certainty condition ($M = 3.58$, $SD = 1.81$), $t(186.1) = 2.60$, $p = 0.010$; $d = 0.37$; 95% CI [0.15, 1.06]. Overall, these results support the effectiveness of the certainty manipulation.

Temporal distance manipulation check. I examined participants' responses to the two temporal distance manipulation check items with separate cross-tabulation analyses (Appendix F). Results indicated that, for both analyses, all participants correctly reported the temporal distance of the distal consequence. These results support the effectiveness of the temporal distance manipulation.

Main Analyses

The data were initially analyzed with a 2 (Certainty) \times 2 (Temporal distance) \times 2 (Question order) between-subjects factorial ANOVA in which the total number of admissions was the dependent variable. The results yielded significant main effects for certainty, $F(1, 201) = 9.06$; $p = 0.003$; $\eta^2 = 0.043$, and temporal distance, $F(1, 201) = 4.24$; $p = 0.041$; $\eta^2 = 0.021$, but not for question order, $F(1, 201) = 2.56$; $p = 0.11$; $\eta^2 = 0.013$. There were no significant interactions, $F_s(1, 201) \leq 0.03$; $p_s \geq 0.87$; $\eta^2_s = 0.00$. Because none of the effects involving question order were significant, the model was simplified to a 2

(Certainty) \times 2 (Temporal distance) between-subjects factorial ANOVA in which the total number of admissions served as the dependent variable.

As shown in Figure 1, results based on the simplified model did not show a significant interaction between certainty and temporal distance, $F(1, 205) = 0.00$; $p = 0.97$; $\eta^2 = 0.00$. Therefore, I focused on the main effects of the two factors. Results indicated a significant main effect for certainty, $F(1, 205) = 8.53$; $p = 0.004$; $\eta^2 = 0.040$. A comparison of the marginal means corresponding to the total number of admissions made in each certainty condition indicated that participants in the low certainty condition ($M = 11.55$, $SD = 3.78$) made more admissions relative to participants in the high certainty condition ($M = 10.02$, $SD = 3.79$), $d = 0.40$; 95% CI [0.50, 2.56]. There was also a significant main effect for temporal distance, $F(1, 205) = 4.50$; $p = 0.035$; $\eta^2 = 0.021$. A comparison of the marginal means corresponding to the total number of admissions made in each temporal distance condition indicated that participants who were told that the potential meeting with the police officer would be in one-month ($M = 11.34$, $SD = 3.79$) made more admissions than participants who were told that the potential meeting would be in one-week ($M = 10.23$, $SD = 3.78$), $d = 0.29$; 95% CI [0.078, 2.14]. Overall, these results indicate that the tendency for the proximal consequence to influence the number of admissions more strongly than the distal consequence was greater the less certain and the more temporally remote participants perceived the distal consequence. The fact that the interaction between certainty and temporal distance was not significant means that the effects of certainty and temporal distance on participants' admission decisions were additive rather than multiplicative.

Nearly identical results were obtained when the analysis excluded participants who were suspicious about the potential meeting with the police officer and/or who misreported

the contingency pairing or experimental manipulations ($n = 19$). The interaction between certainty and temporal distance was not significant, $F(1, 186) = 0.21$; $p = 0.65$; $\eta^2 = 0.00$, and the main effects of certainty and temporal distance were significant, $F_s(1, 186) \geq 5.48$; $p_s \leq 0.020$; $\eta^2_s \geq 0.029$.

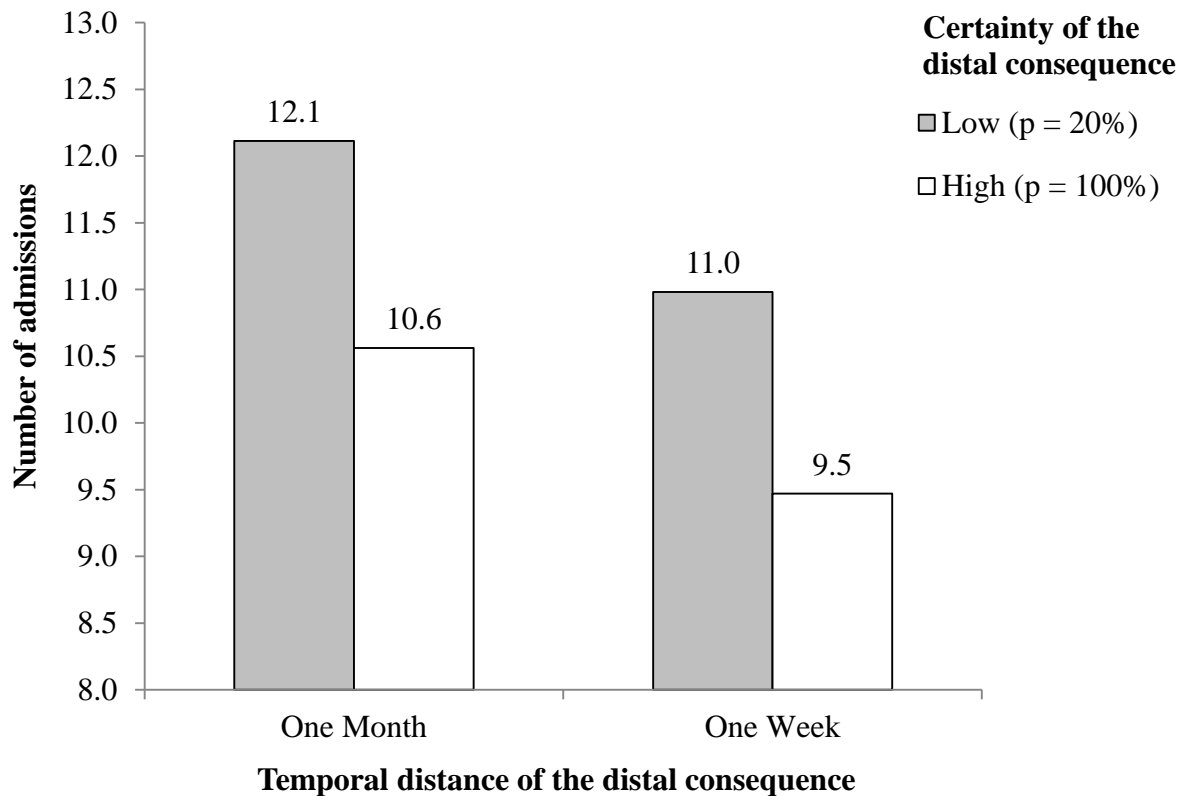


Figure 1. Admissions in each combination of certainty and temporal distance manipulations.

Values reflect the average number of admissions. The number of admissions could range from 0 to 20. The tendency for the proximal consequence to influence the number of admissions more strongly than the distal consequence was greater the less certain and the more temporally remote participants perceived the distal consequence.

Supplemental Analyses

I performed a series of supplemental analyses to explore two potential explanations for the effect of the temporal distance manipulation on participants' admissions. First, I examined whether the observed effect was due to the perceived certainty of the distal consequence. Past research has demonstrated that the perceived certainty (or probability) of an event is tied to its temporal distance (Keren & Roelofsma, 1995). That is, all else being equal, people perceive events as less certain the more temporally remote those events are judged to be. To explore whether this was the case in these data, I examined how the temporal distance of the distal consequence influenced its perceived certainty with three separate 2 (Certainty) \times 2 (Temporal distance) between-subjects factorial ANOVAs. The dependent variables were participants' responses to three of the certainty manipulation check items – i.e., the items that assessed (1) how likely participants believed it was that the police officer would contact them, (2) how certain (0 – 100%) participants were that they would have to meet with the police officer, and (3) participants' retrospective accounts of how sure they were that they would have the meeting with the police officer if their score required it (Table 1, Appendix E). Across all three analyses, the only significant main effect to emerge was for certainty, $F_s(1, 200) \geq 3.86$; $p_s \leq 0.05$; $\eta^2_s \geq 0.019$. Neither the main effect of temporal distance nor the interaction between certainty and temporal distance were significant, $F_s(1, 200) \leq 1.63$; $p_s \geq 0.20$; $\eta^2_s \leq 0.008$. These results indicate that the perceived certainty of the distal consequence was not influenced by its temporal distance. Rather, the potential meeting with the police officer was perceived to be just as likely regardless of whether it was expected to be in one-week or one-month. Thus, even though

people generally perceive events as less certain the more temporally remote they are (Keren & Roelofsma, 1995), that did not appear to be the case in these data.

Second, I explored whether the effect of the temporal distance manipulation on participants' admissions was due to its perceived aversiveness, which in terms of expected utility theory corresponds to perceived utility. In particular, I examined whether the potential meeting with the police officer had less influence on participants' admissions in the one-month condition than in the one-week condition because it was perceived as less aversive the farther in the future it was anticipated to be. To test whether this was the case, I performed two separate 2 (Certainty) \times 2 (Temporal distance) between-subjects factorial ANOVAs. The dependent variables were the aversiveness scale (which reflected how aversive participants perceived the potential meeting with the police officer to be), and the extent to which participants hoped that they could avoid meeting with the police officer. Across both analyses, neither the interaction of certainty and temporal distance nor the main effects of these variables were significant, $F_s(1, 201) \leq 2.70$, $p_s \geq 0.10$; $\eta^2_s \leq 0.013$. These results suggest that the effect of temporal distance on participants' admissions was not due to its perceived aversiveness (i.e., utility).

Table 1. Summary of intercorrelations, means, and standard deviations for participants' responses on the three certainty perception questions.

	1	2	3
1. How likely do you believe it is that the police will contact you for a meeting? 1 (<i>not at all likely</i>) – 5 (<i>very likely</i>)	–	0.726*** <i>N</i> = 207	0.423*** <i>N</i> = 202
2. I am ____% certain that I will have to meet with the police officer.		–	0.461*** <i>N</i> = 202
3. Debriefing: Before the illegal behavior survey, when I first told you about the police officer, how sure were you that you would have this meeting if your score required it? 1 (<i>not at all sure</i>) -7 (<i>very sure</i>)			–
<i>M (SD)</i>	2.13 (1.02) <i>N</i> = 207	29.86 (25.96) <i>N</i> = 207	3.26 (1.67) <i>N</i> = 204

Note. *** $p < .0001$.

CHAPTER 4. DISCUSSION

Prior theory and research relevant to police interrogation have indicated that suspects have a propensity to make their confession decisions on the basis of short-term contingencies. In other words, their confession decisions are more strongly influenced by proximal consequences than by distal consequences (Kassin et al., 2010; Madon et al., 2012). The findings of this research provided evidence in support of two underlying causes of this short-sighted propensity – the uncertainty and temporal distance of distal consequences. Consistent with my hypotheses, this study demonstrated that the tendency for the proximal consequence to influence admissions more strongly than the distal consequence was greater the less certain and more temporally remote the distal consequence was perceived.

In actual interrogation situations, suspects typically face aversive proximal consequences for denials, such as extended detainment, confrontational questioning, and isolation. One way that suspects can escape from these aversive consequences is to confess, but doing so increases their risk of incurring distal consequences, such as conviction, probation, incarceration, and, in some instances, even execution. Because the distal consequences facing suspects are typically more severe than the proximal consequences that are present during an interrogation, it is in suspects' best interests to heavily weigh distal consequences when making their confession decisions even if it means that they will have to endure proximal consequences as a result. However, prior research has demonstrated the opposite tendency. Madon et al (2012) provided evidence that suspects have a tendency to risk the distal consequences that are associated with a crime in order to avoid the proximal consequences that are delivered by police during an interrogation. The findings of the current research explained this counterintuitive tendency as arising out of the perceived

certainty and temporal distance of distal consequences. That is, the findings of the current research indicated that suspects are willing to risk uncertain, future punishment in order to achieve the short-term gains that a confession can provide.

Uncertainty of Distal Consequences

According to expected utility theory, people's decisions are based on both the utility and probability of future events (Kahneman & Tversky, 1979; Schoemaker, 1982). In other words, the less certain a future event is perceived to be, the more heavily it is discounted during decision-making. Consistent with this, the findings of the current research indicated that the less certain the distal consequence was described, the less influence it had on participants' admission decisions. Applying this finding to the police interrogation situation suggests that suspects' confession decisions will be more heavily influenced by factors that are present during an interrogation than by future punishment to the extent that they perceive the future punishment to be uncertain.

The idea that suspects make short-sighted confession decisions because of the uncertainty of future punishment may help to understand why innocent suspects sometimes confess to crimes that they did not commit. Compared to guilty suspects who may perceive future punishment as relatively likely, innocent suspects often hold the naïve (and incorrect) belief that their innocence will set them free (Kassin & Gudjonsson, 2004; Kassin & Norwick, 2004). Innocent suspects, for instance, may believe that additional, exculpatory evidence will prove their innocence or that the real perpetrator will be identified and arrested. As a result, innocent suspects may perceive future punishment as improbable, thereby increasing the extent to which their confession decisions are influenced by the aversive factors present during a police interrogation.

Temporal Distance of Distal Consequences

The findings of the current research also suggested that the temporal distance of distal consequences may partially underlie suspects' tendency to make confession decisions on the basis of short-term contingencies. Even though the distal consequence of meeting with a police officer was constant, it exerted less impact on participants' admission decisions when it was expected to occur in one-month versus one-week. This is an important finding because in the criminal justice system, the proximal consequences that are associated with police interrogation (and which are typically operating at the time that suspects make their confession decisions) are essentially immediate, whereas the distal consequences that suspects will incur if they are convicted are temporally remote. In the present research, the more remote the distal consequence was, the more that participants discounted it when making their admission decisions. Accordingly, within the context of a real police interrogation, suspects may be inclined to discount future punishment when making their confession decisions precisely because that punishment is less proximal than the immediate, aversive consequences that they are having to contend with during the interrogation.

Limitations

There are two limitations pertaining to this study that warrant considerations. First, whereas past research has demonstrated that people tend to equate temporal distance with uncertainty (Berns et al., 2007; Kalenscher & Pennartz, 2008), this was not the case in these data. In the present study, the perceived certainty of the distal consequence did not differ across the one-week and one-month conditions, thereby indicating that the temporal distance of the distal consequence did not influence its perceived certainty. A likely explanation for this unexpected pattern may be that the time separating the one-week condition from the one-

month condition was small, corresponding to only three weeks. Had the difference been larger, say 1 year, then it might have been the case that the perceived certainty of the distal consequence would have differed significantly across the temporal distance conditions.

Second, two aspects of the current study raise questions about the external validity of the findings. The first consideration pertains to the sample. The current experiment relied on a population of college students who may be less susceptible to coercion than the typical suspect (Gudjonsson, 2003). As a result, the magnitude of the effects that we observed might be systematically different from those that occur during police interrogation. The second consideration pertains to the experimental situation. Ethical constraints prevented us from creating an experimental situation that was as coercive as an actual custodial interrogation. For example, participants in the current experiment encountered consequences that were less serious than those encountered by real suspects, and participants were questioned in a physical environment that was less intimidating than that of an actual interrogation room. Nevertheless, the experimental design has been reliably used to uncover the underlying psychological causes of behavior, including the causes of criminal confessions (e.g., Johnson & Downing, 1979; Latané, Williams, & Harkins, 1979; Madon et al., 2012; Milgram, 1974; Russano, Meissner, Narchet, & Kassin, 2005).

Conclusions

Past research has demonstrated that suspects have a propensity to make their confession decisions on the basis of short-term contingencies (Madon et al., 2012). The current study examined two potential causes of this effect. Drawing on the tenets of expected utility theory (Edwards, 1962; Hilgendorf & Irving, 1981; Schoemaker, 1982), I hypothesized that suspects are more likely to discount a distal consequence to the extent that

they perceive it as uncertain and temporally remote. Consistent with these hypotheses, the results showed that a distal consequence exerted less influence on participants' admission decisions the less certain it was to occur and the farther in the future it was scheduled. Thus, participants exhibited greater short-sightedness in their admission decisions the more uncertain and temporally remote they perceived a distal consequence to be. These results, especially the effect of the distal consequence's certainty on admissions, may be particularly relevant to understanding false confessions. Because innocent suspects tend to believe that their innocence will protect them, they may be more inclined than guilty suspects to perceive future punishment as an improbable event. An important step toward protecting the innocent, therefore, is to limit the use of manipulative interrogation tactics, especially those that suggest leniency which may give suspects the impression that future punishment is uncertain.

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Appendix A: Study Material

Appendix A1: Informed Consent

INFORMED CONSENT DOCUMENT

Title of Study: College Student Behaviors

Investigators: *Stephanie Madon, Max Guyll, Gary Wells*

This is a research study. Please take your time in deciding if you would like to participate. Please feel free to ask questions at any time.

INTRODUCTION

The purpose of this study is to examine incident rates of illegal behaviors among college students. You are being invited to participate in this study because you are a student in a designated psychology class.

DESCRIPTION OF PROCEDURES

If you agree to participate in this study, your participation will last between 60 and 90 minutes during which time you will be asked to complete surveys designed to assess your demographic information (e.g., age, gender), personality traits, mood, behaviors, and perceptions. You may also be interviewed by staff involved in this project. You may decline to answer any question or to stop participating at any time without penalty.

RISKS

No physical risks are associated with participation in this study. In addition, because all of your responses will be anonymous, there are also no privacy or legality issues raised by your responses to questions assessing illegal behaviors. However, it is anticipated that some participants may feel a normal amount of unease responding to the questions that assess illegal behaviors.

BENEFITS

If you decide to participate in this study you will benefit by having had the educational opportunity for involvement in research. Additionally, it is hoped that the information gained in this study will benefit society by providing valuable information about incident rates of illegal behaviors among college students.

COSTS AND COMPENSATION

You will not incur any costs from participating in this study. You will be compensated for your participation with two research credits in your approved psychology course. As noted on your course syllabus, participation in experiments is one of the available options for acquiring experimental credit in your psychology course. Other options may include writing research papers or taking quizzes. Information about these alternatives is provided in your course syllabus.

PARTICIPANT RIGHTS

Your participation in this study is completely voluntary and you may decline to participate or leave the study at any time. If you decide to not participate in the study or leave the study early, it will not result in any penalty or loss of benefits to which you are otherwise entitled.

CONFIDENTIALITY

Records identifying participants will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. However, federal government regulatory agencies, auditing departments of Iowa State University, and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy your records for quality assurance and data analysis. These records may contain private information. To ensure confidentiality to the extent permitted by law, the following measures will be taken: You will be (a) assigned a unique code that will be used instead of your name; (b) your data will be combined with the data collected from other participants so that no individual information will be identifiable; (c) only members of the research team will have access to your data; and (d) your data will be kept in a locked file cabinet and/or in password protected computers that are located in restricted and locked rooms. If the results are published, your identity will remain anonymous.

QUESTIONS OR PROBLEMS

You are encouraged to ask questions at any time during this study.

- For further information about the study contact Stephanie Madon, Ph.D. (294-2932, madon@iastate.edu), Max Guyll, Ph.D. (294-8006, guyll@iastate.edu), or Gary Wells (294-6033).
- If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Director, (515) 294-3115, Office of Research Assurances, Iowa State University, Ames, Iowa 50011.

PARTICIPANT SIGNATURE

Your signature indicates that you voluntarily agree to participate in this study, that the study has been explained to you, that you have been given the time to read the document and that your questions have been satisfactorily answered. You will receive a copy of the written informed consent prior to your participation in the study if you wish.

Participant's Name (printed) _____

(Participant's Signature)

(Date)

INVESTIGATOR STATEMENT

I certify that the participant has been given adequate time to read and learn about the study and all of their questions have been answered. It is my opinion that the participant understands the purpose, risks, benefits and the procedures that will be followed in this study and has voluntarily agreed to participate.

(Signature of Person Obtaining Informed Consent)

(Date)

Appendix A2: Contact Information Sheet

Contact Information Record

Department of Psychology • IOWA STATE UNIVERSITY

Part I. Student Contact Information

1. Student's Name:

Last

First

Middle

2. Student ID#:

3. E-mail:

4. Cell-Phone:

Part II. Appointment Information

1. Date:

2. Time:

3. Location:

4. Officer:

5. Study Name:

Appendix A3: Interview Questions

Interview Questions

Have you ever:

1. Drank, bought, or tried to buy alcohol before you were 21?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	82.3%
2. Tried, used or experimented with any illegal drugs such as marijuana, cocaine, crack, LSD, or any other illegal drug?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	26.8%
3. Cheated on an exam, homework, school project, or helped another person cheat?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	61.7%
4. Transported fireworks across state lines?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	33.0%
5. Used something that belonged to somebody else without permission, such as something that belonged to a family member, friend, roommate or acquaintance?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	86.6%
6. Hunted or fished without a license?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	31.6%
7. Made a harassing, threatening, or prank phone call or text message?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	45.5%
8. Failed to wear a seat belt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	67.9%
9. Knowingly kept something of value that you received in error, such as extra change given to you by a cashier or extra merchandise from a store or from an internet purchase?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	53.1%
10. Texted somebody while driving since it became illegal in Iowa?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	75.6%
11. Engaged in criminal mischief such as a senior prank, egging a house or car, or TP-ing a house?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	73.2%
12. Invaded another's privacy such as by reading another's diary, text messages or emails without permission?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	57.4%
13. Jumped or cut in line such as at the dining hall, movie theater, or grocery store?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	78.0%
14. Purposefully not returned something that you borrowed like a book, clothing, or money?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	39.2%
15. Driven a vehicle while under the influence of alcohol or any other drug like marijuana, cocaine, LSD, etc.?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	22.0%
16. Ran a red light?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	62.7%
17. Started or spread a rumor about someone?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	53.6%
18. Been publicly intoxicated?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	52.2%
19. Bought or held stolen goods worth \$25 or more?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	10.0%
20. Illegally downloaded music, movies, software, or anything else?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	66.5%

Note. The last column indicates the admission rates for each behavior in the experiment.

Appendix A4: Questionnaire 1

Questionnaire 1 (Folder 1)

1. Sometimes experiments study questions that are not obvious. Do you believe that is the case in this experiment? No: _____ Yes: _____ If yes, please indicate what research questions you believe might be under investigation in this experiment.

2. Please indicate what you knew about this experiment before participating.

Appendix A5: Questionnaire 2

Questionnaire 2 (Folder 2)

1. What is your gender? Female _____ Male _____
2. What is your age? _____
3. Please indicate your ethnicity/race:
- _____Caucasian
- _____Asian
- _____African American
- _____Native American
- _____Indian
- _____Latina/o
- _____Multi-ethnic (please specify) _____
4. What was your ACT composite score (estimate if necessary) _____. If you took this test more than once, report your highest score. If you did not take the ACT mark this box:
5. Compared to others, how high was your ACT composite score? If you took this test more than once, respond with respect to your highest score. If you did not take the ACT mark this box:

1	2	3	4	5
Much lower than average	Lower than average	Average	Higher than average	Much higher than average

Questionnaire 2 (Folder 2)

1. Did you answer any additional questions about Iowans and Americans as a result of some of your responses to the illegal behavior survey? (circle your answer)

Yes..... (Continue to Question #2)

No..... (Skip to Question #7)

2. Did you answer the additional questions about Iowans and Americans when you gave a 'no' response or a 'yes' response to the illegal behavior survey?

a) when I gave a 'no' response

b) when I gave a 'yes' response

c) sometimes when I gave a 'no' response and sometimes when I gave a 'yes' response

3. The additional questions about Iowans and Americans were...

soothing	1	2	3	4	5	irritating
varied	1	2	3	4	5	repetitive
interesting	1	2	3	4	5	boring
pleasant	1	2	3	4	5	unpleasant
enjoyable	1	2	3	4	5	annoying

4. If you could have, how much would you have liked to have skipped the additional questions about Iowans and Americans altogether?

1	2	3	4	5
not at all	a little bit	moderately	quite a bit	a lot

5. Overall, how tempted were you to give a particular answer on the illegal behavior survey just to avoid having to answer the additional questions about Iowans and Americans again?

1	2	3	4	5
not at all tempted	a little tempted	moderately tempted	quite tempted	very tempted

6. How glad were you when the additional questions about Iowans and Americans were completely done?

1	2	3	4	5
not at all glad	a little glad	moderately glad	quite glad	very glad

Questionnaire 2 (Folder 2)

The experimenter is currently scoring your responses to the illegal behavior survey. Depending on your score, you may be signed up to meet with a police officer in a few weeks to discuss your answers.

7. Did the experimenter tell you that you might have to meet with a police officer to discuss your answers to the illegal behavior survey?

Yes No

8. Please indicate how you feel about having to possibly meet with a police officer to discuss your answers.

I am.....

nervous	1	2	3	4	5	calm
reluctant	1	2	3	4	5	eager
unenthused	1	2	3	4	5	enthused
concerned	1	2	3	4	5	unconcerned
not looking forward to	1	2	3	4	5	looking forward to

9. How likely do you believe it is that the police officer will contact you for a meeting?

1	2	3	4	5
not at all likely	a little likely	moderately likely	quite likely	very likely

10. Please complete the following statement with a percentage (0-100%):

I am _____% certain that I will have to meet with the police officer.

11. When do you think that you will meet with the police officer?

- a. In one-week
- b. In one-month
- c. Not sure

12. How likely do you think it is that your score on the illegal behavior survey will require that you meet with a police officer to discuss your answers?

1	2	3	4	5
not at all likely	a little likely	moderately likely	quite likely	very likely

13. How much do you hope that you won't have to meet with a police officer to discuss your answers to the illegal behavior survey?

1	2	3	4	5
not at all	a little	moderately	quite a bit	a lot

14. What were you told about the illegal behavior survey? (circle your answer)

(a) I was told that I would be signed up to meet with a police officer to discuss my answers if I said "**YES**" to the questions on the illegal behavior survey.

(b) I was told that I would be signed up to meet with a police officer to discuss my answers if I said "**NO**" to the questions on the illegal behavior survey.

(c) I was **NEVER** told that I might have to meet with a police officer to discuss my answers to the illegal behavior survey.

**PLEASE LET THE EXPERIMENTER KNOW THAT YOU
ARE DONE WITH THIS SET OF SURVEYS**

Appendix A6: Debriefing Statement

DEBRIEFING STATEMENT

(Write down the participants' responses to these questions)

1. Do you have any questions about the study?
2. What did you think about this experiment?
3. Did anything stand out as unusual?
4. Can you explain to me the purpose of the study?
5. Do you think you were misled in any way? (If yes)...Can you explain how?

6. Before the illegal behavior survey, when I first told you about the police officer, how sure were you that you would have this meeting if your score required it?

1	2	3	4	5	6	7
not at all sure			moderately sure			very sure

7. Before the illegal behavior survey, when I first told you about the police officer, how likely did you think it was that you could somehow get out of the meeting even if your score required it?

1	2	3	4	5	6	7
not at all likely			moderately likely			very likely

8. Had your score required the meeting with the police officer, when did I tell you that you would meet with him? Was it...

- a) In one-week
- b) In one-month
- c) In one-year

Those are all of the questions I had for you. Now I'd like to tell you more about the study.

First, all of your responses are anonymous, will be combined with the responses of other participants, and will be kept in a secured, locked office and password protected computer that can only be accessed by members of the research team.

All participants in the study completed a battery of surveys designed to assess their demographic information, personality traits, mood, illegal behaviors, and perceptions and experiences. While completing the survey about illegal behaviors, participants were also asked additional follow-up questions every time they gave a 'no' response to the illegal behavior survey. Did you understand that you had to answer the additional follow-up questions every time you answered NO to a question on the illegal behavior survey?

RECORD ANSWER HERE: _____

Participants were also told that, depending on how they answered the illegal behaviors survey, they might be signed up to meet with a police officer. Did you understand that you might have to meet with a police officer if you answered YES to most of the questions?

RECORD ANSWER HERE: _____

No participants were actually signed up to meet with a police officer. The purpose of the additional questions and possible meeting with the police officer was to examine how strongly immediate consequences, like the additional questions, versus distal consequences, like meeting with a police officer, influence people's willingness to confess to illegal behavior. Because you responded to the illegal behavior survey in the context of an experiment that included experimental manipulations and other controlled factors, the research team cannot assume that your responses to the illegal behaviors survey reflect your actual past behaviors.

This experiment manipulated two factors. One factor was the perceived certainty of the potential meeting with the police officer. Whereas some participants were given the impression that the police officer would definitely contact them for this meeting if their score met the requirement, others were given the impression that only 20% of students whose score met the requirement would be contacted. Which statement best reflects what you experienced? (CIRCLE THE PARTICIPANT'S RESPONSE)

- A) I was told that the police officer would meet with about 20% of students whose scores met the requirement.
- B) I was told that told that the police officer would meet with all students whose scores met the requirement.
- C) I was not told anything about the likelihood of meeting with the police officer.

We manipulated the perceived certainty of meeting with the police officer in order to examine whether it affected participants' responses to the illegal behavior survey. In particular, we hypothesized that the potential meeting with the police officer would more greatly influence participants' responses to the illegal behavior survey when the meeting was characterized as certain versus uncertain.

The other factor that was manipulated in the study was how far in the future the meeting would be. Whereas some participants were told that the meeting would be next week, others were told it would be next month. What were you told? (CIRCLE THE PARTICIPANT'S RESPONSE)

- A) I was told that the police officer would meet with me in one-week.
- B) I was told that the police officer would meet with me in one-month.
- C) I was not told anything about when the police officer would meet with me.

We manipulated how far in the future the meeting would be in order to examine whether its distance in time would affect participants' responses to the illegal behavior survey. We hypothesized that the potential meeting with the police officer would more greatly influence participants' responses to the illegal behavior survey when it was closer in time (i.e., one-week) versus more distant (i.e., one-month).

It's very important that you not share this information with others who might participate in our study in the future. If a participant knew what the study was about before participating, their data would be invalid and our study would be ruined. Do you promise not to tell?

RECORD ANSWER HERE: _____

If somebody asks you what the study is about, you can tell them it's about illegal behaviors. The findings of this research have the potential to provide important insights into the way in which situational factors present during police questioning can influence a suspect's willingness to confess to a crime. We did not tell you this information before because knowing the true purpose of a study can lead participants to consciously or unconsciously alter their responses. If that were to occur, the integrity of the research findings would be compromised. In closing, I'd like to thank you for volunteering to be in this study. Your participation has been very valuable because it will further the field's understanding of circumstances that can influence how confessions are shaped by situational factors. A blank consent form containing contact information is available for you at the exit if you would like to take it.

Appendix B: Repetitive Question Set

Thinking about the average IOWAN...

How invulnerable do you think the average IOWAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How self-important do you think the average IOWAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How gratified do you think the average IOWAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How resentful do you think the average IOWAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How doubtful do you think the average IOWAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How guilty do you think the average IOWAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How self-righteous do you think the average IOWAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How jealous do you think the average IOWAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How disoriented do you think the average IOWAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How worthless do you think the average IOWAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How self-assured do you think the average IOWAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How self-conscious do you think the average IOWAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How happy-go-lucky do you think the average IOWAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How surprised do you think the average IOWAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How strong do you think the average IOWAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How hostile do you think the average IOWAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

Thinking about the average AMERICAN...

How invulnerable do you think the average AMERICAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How self-important do you think the average AMERICAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How gratified do you think the average AMERICAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How resentful do you think the average AMERICAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How doubtful do you think the average AMERICAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How guilty do you think the average AMERICAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How self-righteous do you think the average AMERICAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How jealous do you think the average AMERICAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How disoriented do you think the average AMERICAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How worthless do you think the average AMERICAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How self-assured do you think the average AMERICAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How self-conscious do you think the average AMERICAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How happy-go-lucky do you think the average AMERICAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How surprised do you think the average AMERICAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How strong do you think the average AMERICAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

How hostile do you think the average AMERICAN would be while engaging in the illegal or unethical behavior (e.g., drinking, buying, or trying to buy alcohol before the age of 21)?

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

Appendix C: Suspicion Check

1. Sometimes experiments study questions that are not obvious. Do you believe that is the case in this experiment? No: _____ Yes: _____ If yes, please indicate what research questions you believe might be under investigation in this experiment.

2. Please indicate what you knew about this experiment before participating.

Appendix D: Contingency Pairing Check

1. Did you answer the additional questions about Iowans and Americans when you gave a 'no' response or a 'yes' response to the illegal behavior survey?
 - a) When I gave a 'no' response
 - b) When I gave a 'yes' response
 - c) Sometimes when I gave a 'no' response and sometimes when I gave a 'yes' response

Appendix E: Certainty Manipulation Checks

Questionnaire 2

1. How likely do you believe it is that the police officer will contact you for a meeting?

1	2	3	4	5
not at all likely	a little likely	moderately likely	quite likely	very likely

2. Please complete the following statement with a percentage (0-100%):

I am _____% certain that I will have to meet with the police officer.

Debriefing Statement

3. Before the illegal behavior survey, when I first told you about the police officer, how sure were you that you would have this meeting if your score required it?

1	2	3	4	5	6	7
not at all sure			moderately sure			very sure

4. This experiment manipulated two factors. One factor was the perceived certainty of the potential meeting with the police officer. Whereas some participants were given the impression that the police officer would definitely contact them for this meeting if their score met the requirement, others were given the impression that only 20% of students whose score met the requirement would be contacted. Which statement best reflects what you experienced? (CIRCLE THE PARTICIPANT'S RESPONSE)

- A) I was told that the police officer would meet with about 20% of students whose scores met the requirement.
- B) I was told that the police officer would meet with all students whose scores met the requirement.
- C) I was not told anything about the likelihood of meeting with the police officer.

Appendix F: Temporal Distance Manipulation Checks

Questionnaire 2

1. When do you think that you will meet with the police officer?
 - a. In one-week
 - b. In one-month
 - c. Not sure

Debriefing Statement

2. The other factor that was manipulated in the study was how far in the future the meeting would be. Whereas some participants were told that the meeting would be next week, others were told it would be next month. What were you told? (CIRCLE THE PARTICIPANT'S RESPONSE)
 - A) I was told that the police officer would meet with me in one-week.
 - B) I was told that the police officer would meet with me in one-month.
 - C) I was not told anything about when the police officer would meet with me.

Appendix G: Perceived Aversiveness

1. Please indicate how you feel about having to possibly meet with a police officer to discuss your answers.

I am.....

nervous	1	2	3	4	5	calm
reluctant	1	2	3	4	5	eager
unenthused	1	2	3	4	5	enthused
concerned	1	2	3	4	5	unconcerned
not looking forward to	1	2	3	4	5	looking forward to

2. How much do you hope that you won't have to meet with a police officer to discuss your answers to the illegal behavior survey?

1	2	3	4	5
not at all	a little	moderately	quite a bit	a lot

Appendix H: Pilot Study Material

Appendix H1: College Students Behavior Survey

College Student Behaviors Survey

Have you ever:

- | | | |
|--|------------------------------|-----------------------------|
| 1. Exceeded the speed limit while driving? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 2. Driven without a license or with a suspended license? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 3. Hit a parked car or damaged property without reporting it? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 4. Driven off without paying for gas? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 5. Run a red light? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 6. Failed to wear a seat belt? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 7. Provided alcohol to someone under the age of 21? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 8. Provided cigarettes to someone under the age of 18? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 9. Been publicly intoxicated? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 10. Had sexual relations with a person who was under the age of 16 while you were an adult? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 11. Lied to a legal authority such as a police officer or judge? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 12. Cheated on an exam, homework, school project, or helped another person cheat? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 13. Padded hours at work, such as by arriving late, leaving early, or taking long lunch breaks? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 14. Switched a price tag on merchandise or somehow paid less for merchandise than it actually cost? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 15. Altered a check, license, transcript, report card or other official document? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 16. Created or used a fake ID? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 17. Lied on a school or employment application? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 18. Snuck into a movie theater without paying? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 19. Submitted the same work for credit in two courses, such as the same paper or the same project? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 20. Urinated or defecated in an inappropriate place such as on the sidewalk, in an alley, in a doorway, or on somebody's private property? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

- | | | |
|--|------------------------------|-----------------------------|
| 21. Made a harassing, threatening, or prank phone call or text message? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 22. Littered? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 23. Engaged in criminal mischief such as a senior prank, egging a house or car, or TP-ing a house? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 24. Jumped or cut in line such as at the dining hall, movie theater, or grocery store? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 25. Started or spread a rumor about someone? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 26. Participated in hazing? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 27. Spit on someone? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 28. Knowingly kept something of value that you received in error, such as extra change given to you by a cashier or extra merchandise from a store or from an internet purchase? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 29. Had food or beverages at a restaurant or bar and left without paying? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 30. Used something that belonged to somebody else without permission, such as something that belonged to a family member, friend, roommate or acquaintance? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 31. Purposefully not returned something that you borrowed like a book, clothing, or money? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 32. Invaded another's privacy such as by reading another's diary, text messages or emails without permission? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 33. Texted somebody while driving since it became illegal in Iowa? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 34. Stolen property worth \$25 or more? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 35. Obtained or used any prescription drugs for non-medical purposes (like getting high, staying awake, or to have fun?) | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 36. Tried, used or experimented with any illegal drugs such as marijuana, cocaine, crack, LSD, or any other illegal drug? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 37. Vandalized property, like keying a car, slashing a tire, spraying graffiti, or destroying mailboxes? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 38. Illegally downloaded music, movies, software, or anything else? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 39. Hunted or fished without a license? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 40. Driven a vehicle while under the influence of alcohol or any other drug like marijuana, cocaine, LSD, etc.? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 41. Trespassed or broken into buildings for fun or to look around? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

42. Assaulted someone with the intent of harming him or her, either with your bare hands or with any kind of object or weapon? Yes No
43. Smoked, bought, or tried to buy cigarettes before you were 18? Yes No
44. Carried an illegal or concealed weapon, like a gun, knife, or club? Yes No
45. Engaged in a non-violent sex offense such as exposing yourself to someone or voyeurism (being a peeping Tom)? Yes No
46. Drank, bought, or tried to buy alcohol before you were 21? Yes No
47. Been joyriding (borrowed someone's car without permission)? Yes No
48. Shoplifted something worth \$25 or more? Yes No
49. Taken credit for someone else's work, ideas, or answers as your own (plagiarism)? Yes No
50. Sold any type of illegal drug or controlled substance, like prescription drugs, marijuana, crack, or any other kind of drug? Yes No
51. Intentionally set fire to destroy property that did not belong to you? Yes No
52. Transported fireworks across state lines? Yes No
53. Bought or held stolen goods worth \$25 or more? Yes No

Appendix H2: Seriousness Survey

Folder 2

1. How serious of an offense is exceeding the speed limit while driving?

1	2	3	4	5	6	7
Not at all						Extremely

2. How serious of an offense is driving without a license or with a suspended license?

1	2	3	4	5	6	7
Not at all						Extremely

3. How serious of an offense is hitting a parked car or damaging property without reporting it?

1	2	3	4	5	6	7
Not at all						Extremely

4. How serious of an offense is driving off without paying for gas?

1	2	3	4	5	6	7
Not at all						Extremely

5. How serious of an offense is running a red light?

1	2	3	4	5	6	7
Not at all						Extremely

6. How serious of an offense is failing to wear a seatbelt?

1	2	3	4	5	6	7
Not at all						Extremely

7. How serious of an offense is providing alcohol to someone under the age of 21?

1	2	3	4	5	6	7
Not at all						Extremely

8. How serious of an offense is providing cigarettes to someone under the age of 18?

1	2	3	4	5	6	7
Not at all						Extremely

9. How serious of an offense is being publicly intoxicated?

1	2	3	4	5	6	7
Not at all						Extremely

10. How serious of an offense is having sexual relations with a person who is under the age of 16 while you are an adult?

1	2	3	4	5	6	7
Not at all						Extremely

11. How serious of an offense is lying to a legal authority such as a police officer or judge?

1	2	3	4	5	6	7
Not at all						Extremely

12. How serious of an offense is cheating on an exam, homework, school project, or helping another person cheat?

1	2	3	4	5	6	7
Not at all						Extremely

13. How serious of an offense is padding hours at work, such as by arriving late, leaving early, or taking long lunch breaks?

1	2	3	4	5	6	7
Not at all						Extremely

14. How serious of an offense is switching price tags on merchandise or somehow paying less for merchandise than it actually costs?

1	2	3	4	5	6	7
Not at all						Extremely

15. How serious of an offense is altering a check, license, transcript, report card or other official document?

1	2	3	4	5	6	7
Not at all						Extremely

16. How serious of an offense is creating or using a fake ID?

1	2	3	4	5	6	7
Not at all						Extremely

17. How serious of an offense is lying on a school or employment application?

1	2	3	4	5	6	7
Not at all						Extremely

18. How serious of an offense is sneaking into a movie theater without paying?

1	2	3	4	5	6	7
Not at all						Extremely

19. How serious of an offense is submitting the same work for credit in two courses, such as the same paper or the same project?

1	2	3	4	5	6	7
Not at all						Extremely

20. How serious of an offense is urinating or defecating in an inappropriate place such as on the sidewalk, in an alley, in a doorway, or on somebody's private property?

1	2	3	4	5	6	7
Not at all						Extremely

21. How serious of an offense is making harassing, threatening, or prank phone calls or text messages?

1	2	3	4	5	6	7
Not at all						Extremely

43. How serious of an offense is smoking, buying, or trying to buy cigarettes before you are 18?

1	2	3	4	5	6	7
Not at all						Extremely

44. How serious of an offense is carrying an illegal or concealed weapon, like a gun, knife, or club?

1	2	3	4	5	6	7
Not at all						Extremely

45. How serious of an offense is engaging in a non-violent sex offense such as exposing yourself to someone or voyeurism (being a peeping Tom)?

1	2	3	4	5	6	7
Not at all						Extremely

46. How serious of an offense is drinking, buying, or trying to buy alcohol before you are 21?

1	2	3	4	5	6	7
Not at all						Extremely

47. How serious of an offense is joyriding (borrowing someone's car without their permission)?

1	2	3	4	5	6	7
Not at all						Extremely

48. How serious of an offense is shoplifting something worth \$25 or more?

1	2	3	4	5	6	7
Not at all						Extremely

49. How serious of an offense is taking credit for someone else's work, ideas, or answers as your own (plagiarism)?

1	2	3	4	5	6	7
Not at all						Extremely

50. How serious of an offense is selling any type of illegal drug or controlled substance, like prescription drugs, marijuana, crack, or any other kind of drug?

1	2	3	4	5	6	7
Not at all						Extremely

51. How serious of an offense is intentionally setting fire to destroy property that does not belong to you?

1	2	3	4	5	6	7
Not at all						Extremely

52. How serious of an offense is transporting fireworks across state line?

1	2	3	4	5	6	7
Not at all						Extremely

53. How serious of an offense is buying or holding stolen goods worth \$25 or more?

1	2	3	4	5	6	7
Not at all						Extremely