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An examination of factors that influence suspects' Miranda comprehension and willingness to offer a waiver

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An examination of factors that influence suspects' *Miranda* comprehension and willingness
to offer a waiver

by

Kyle Christopher Scherr

A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
DOCTOR OF PHILOSOPHY

Major: Psychology

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ABSTRACT

This research examined whether factors present during police interrogations reduce the effectiveness of the prophylactic safeguards afforded to suspects through their *Miranda* rights. Specifically, this research tested whether stress interacted with other factors present during the *Miranda* administration process to influence individuals' *Miranda* comprehension and willingness to sign a waiver. Whereas Experiment 1 tested whether the way *Miranda* was administered could exacerbate the effect of stress on suspects' ability to comprehend *Miranda*, Experiment 2 examined whether stress could interact with the way a waiver was described to influence suspects' willingness to sign a waiver. During Experiment 1, participants either were or were not accused of cheating and then administered four *Miranda* comprehension instruments in either an oral or a written fashion. Although the finding that stress undermined participants' ability to comprehend *Miranda* was replicated, there was no evidence that stress and the way *Miranda* was administered interacted to influence participants' ability to comprehend *Miranda*. During Experiment 2, participants were told that their behavior of sharing answers was either a serious or not a serious violation and then were given a waiver to sign that was described as being either a formality or important. Results indicated that participants who were told the waiver was a formality were more willing to sign the waiver compared to participants who were told the waiver was important. However, there was no evidence that stress and the way the waiver was described interacted to influence participants' willingness to sign the waiver. Potential reasons for why an interaction effect was not observed in either experiment are offered. The dissertation ends with a discussion of the implications of these findings and limitations of the two experiments.

CHAPTER 1. DISSERTATION OVERVIEW

The *Miranda v. Arizona* (1966) Supreme Court ruling was a landmark criminal procedure decision in the protection of suspects against police intimidation. Although well-intentioned, the effectiveness and consequences of *Miranda* still are not clear 40 years after the ruling (Leo & Thomas, 1998; White, 2001). For example, whereas many researchers have documented that adults of average intelligence have a good understanding of *Miranda*, these findings have been reported with the caveat that assessments of *Miranda* comprehension have been made in low stress situations (e.g., Grisso, 1998). The implication of this caveat, of course, is that comprehension of *Miranda* might be adversely affected by stress (i.e., an unpleasant state of arousal) – a common reaction to police accusation (Irving, 1980; Gudjonsson, 2003). Indeed, recent investigations have found that stress does compromise individuals' ability to comprehend *Miranda*, which seemingly undermines the protections afforded by the Supreme Court ruling (Rogers, Gillard, Wooley, & Fiduccia, 2010; Scherr & Madon, in press). Another problem of *Miranda* is the heterogeneity of the warnings themselves. This heterogeneity has prompted calls for standardization across jurisdictions - that is, uniformity in *Miranda* length, reading difficulty, and method of administration (e.g., Rogers, 2008). A topic that has received less empirical attention, but is no less important, surrounds the psychological factors that affect whether suspects will waive their *Miranda* rights.

The current proposal addressed some of the aforementioned issues regarding *Miranda*: 1) The effect of stress on suspects' ability to comprehend *Miranda* when different methods of administration are used, 2) the effect of the way the waiver is described on suspects' willingness to sign a waiver of *Miranda*, and 3) the effect of stress on suspects'

willingness to sign a waiver of *Miranda* when different ways of describing the waiver are used. This proposal includes 13 chapters. The current chapter provides an overview of the dissertation. The second chapter provides an overview of the *Miranda* case and decision. The third chapter reviews empirical research on factors that influence *Miranda* comprehension. Chapter four discusses the extant research concerning *Miranda* waivers and the influence of *Miranda* on interrogators' ability to elicit confessions. Chapters five through 12 present the hypotheses, Method, Results, and unique discussions of each experiment. The dissertation ends with the thirteenth chapter discussing the implications and limitations of the two experiments.

CHAPTER 2. THE *MIRANDA* CASE AND RULING

Although it is now standard procedure to Mirandize suspects upon arrest, it was not until very recently that suspects were afforded due process rights (i.e., principle that government must respect legal rights owed to individuals) before a court hearing (e.g., having representation during interrogation). The first chapter of this proposal discusses the *Miranda v. Arizona* (1966) case and decision.

***Miranda v. Arizona* (1966)**

Miranda v. Arizona (1966) involved a young uneducated Hispanic man who was arrested for his involvement in a series of sexual assaults. Ernesto Miranda was charged on one account of robbery and three accounts of sexual assault. Although the first of the two trials was quick, convincing, and resulted in a conviction, the ultimate outcome of the second trial ended with a different conclusion – one that began at the Phoenix police station the day Miranda was arrested.

The procedures law enforcement used to handle the *Miranda* case were problematic from the outset. Miranda was brought down to the Phoenix police station after agreeing to come in for questioning. After being questioned about his involvement in the sexual assault cases, Miranda denied all involvement and offered alibis for each one. Miranda was then asked to stand in a line-up for victims of two of the crimes. Although neither of the victims were positive that Miranda was the man who sexually assaulted them, the detective told Miranda both victims made a positive identification of him. Consequently, Miranda remarked to the detective that he better tell him about the crimes (Cooley & Farmer, 1980). Miranda later signed a form that said he was going to make a statement voluntarily and that he had full knowledge of his legal rights (Stuart, 2004).

It was only after Miranda had given a written statement that the detectives finally arrested him. During the previous phases of questioning and line-up administrations, Miranda had been held without having been accused. Had Miranda ever asked to leave, the detectives would have had no choice but to grant that request. Furthermore, Miranda was never warned of his rights. In fact, the interrogators admitted that they did not explicitly inform Miranda of his rights because they were aware that he had a prior criminal record and that he should have already been cognizant of them. It was this lack of knowledge and warning of his legal rights on which the appeals for Miranda would be based (Stuart, 2004).

The lawyers who presented Miranda's appeal to the Supreme Court made two critical points. First, they pointed out that the majority of citizens are at an enormous legal disadvantage as soon as they become a suspect of a crime (e.g., Kamisar, 1962). Second, they shifted the emphasis from *whether* suspects should be warned of their rights to *when* such warnings should be given (Stuart, 2004). This latter issue was the point from which they planned to extend the *Escobedo v. Illinois* (1964) ruling – a ruling that afforded suspects the right to counsel upon request, but which did not explicitly require that suspects be informed of this right.

The *Miranda* Decision

Miranda is often referred to as a marriage of the Fifth (i.e., right of privilege against self-incrimination) and Sixth Amendments (i.e., right to counsel and right to grand jury indictments). Although the *Miranda* decision is typically thought of as a single constitutional ruling, it was really predicated on three holdings: 1) the Fifth Amendment privilege applies not only at trial or before legislative committees, but also to the informal compulsions of law enforcement officials during custodial questioning, 2) unless safeguards are put into place to

ensure the safety of the suspect, all interrogations will result in compulsion, and 3) statements given during an interrogation are not admissible unless the interrogator warned the suspect of her/his four rights and the suspect knowingly and intelligently waived these rights (*Miranda v. Arizona*, 1966). Although these three holdings, especially the second holding, seem bold and, as some initially criticized, impossible to be certain of, the Supreme Court made some effort to address these criticisms. They admitted that, although they were not certain what occurs in police interrogation rooms, they were fairly confident about interrogation tactics that are used because of the interrogation methods typically recommended in the most often used interrogation manuals (e.g., Inbau, Reid, Buckley, & Jayne, 2001). The Court reasoned that interrogators try to undermine suspects' will to resist and, when necessary, resort to deceptive stratagems such as giving false legal advice and attempts to persuade or trick the suspect out of exercising her/his constitutional rights. Thus, *Miranda* was an attempt by the Supreme Court to ensure a standardized means of fair treatment of criminal suspects. Accordingly, to protect suspects from similar situations as those that occurred in the *Miranda* case, the Supreme Court established safeguards for suspects against self-incrimination and police intimidation during custodial interrogations. The warnings inform suspects of the right to silence, the intent to use their statements against them in court, the right to an attorney, and the right to a court appointed attorney for indigent suspects.

However, the Supreme Court's ruling did not indicate explicit verbiage to be used when *Miranda* was administered. It was assumed by the Court that the warnings would be comprehensible when administered to suspects. Indeed, research has demonstrated that adults of average intelligence demonstrate a good ability to comprehend *Miranda*. Yet, more recent investigations have found that individuals' ability to comprehend *Miranda* is

compromised when individuals' psychological state more closely matches suspects' psychological state during actual police accusations (Rogers et al., 2010; Scherr & Madon, in press). These findings offer initial support for the idea that the protections guaranteed by *Miranda* may not be fully realized. However, the question of whether factors present during the *Miranda* administration process can interact to influence *Miranda* comprehension has not been examined. A review of these factors that have been shown to influence individuals' ability to comprehend *Miranda* is discussed next.

CHAPTER 3. FACTORS THAT INFLUENCE *MIRANDA* COMPREHENSION

Research has demonstrated that both individual difference factors and situational factors influence suspects' *Miranda* comprehension. This research has been diverse in terms of populations and contexts. This chapter begins with the most commonly examined individual difference factor that has been shown to reliably influence *Miranda* comprehension and concludes with various situational factors that affect *Miranda* comprehension.

Individual Differences Effects

Research addressing the influence of individual differences on suspects' *Miranda* comprehension has mostly centered around intelligence (e.g., mental retardation). Studies have consistently found that adults with mental retardation, defined as an IQ less than 70, demonstrate considerably worse comprehension than non-impaired adults (Clare & Gudjonsson, 1991; Everington & Fulero, 1999; Fulero & Everington, 1995; O'Connell, Garmoe, & Goldstein, 2005). For example, mentally retarded individuals' raw scores are approximately 65% worse than non-impaired adults and approximately 45% worse than juveniles on instruments that assess comprehension of *Miranda*. Furthermore, on assessments that do not require construction of verbal responses (i.e., individuals simply respond by saying a sentence is either the same or different than an original statement), almost 80% of mentally retarded individuals performed worse than would be expected by chance alone (Fulero & Everington, 1995). It is also possible that the effect of suspects' intelligence will interact with various situational factors and cause suspects to have an even worse comprehension of *Miranda*. This seems especially likely for situational factors that have already been reliably shown to influence suspects' ability to comprehend *Miranda*. I

review these situational factors next, beginning with a discussion of the theoretical and empirical research relevant to stress effects, followed by a discussion of the effects associated with *Miranda* warning characteristics.

Stress

Processing efficiency theory. One theory regarding the effect of stress on cognitive functioning that is especially relevant to the hypotheses tested in the current research is processing efficiency theory (Eysenck, 1982, 1983, 1992, 1997). According to this theory, stress expends valuable cognitive resources that would otherwise be used for efficient cognitive functioning, and by so doing, compromises the efficiency of individuals' working memory system. This theory has important implications for *Miranda* comprehension and waivers. First, regarding comprehension, the theory suggests that when suspects are experiencing stress as a result of police accusation, their ability to comprehend their rights will be worse, take longer, and suffer from inaccuracies. Several investigations have supported this hypothesized effect using decision making outcomes (e.g., Derakshan & Eysenck, 1998; MacLeod & Donnellan, 1993). Second, regarding waivers, the theory suggests that when suspects are experiencing stress, they should be more susceptible to the manipulative tactics police commonly use to attain a *Miranda* waiver. For example, drawing on the reasoning of informational social influence (Cialdini & Griskevicius, 2010), according to which people conform to behaviors that they believe are correct, appropriate, or socially desirable, suspects who are experiencing stress may be especially likely to look to others in the environment to determine proper behaviors. In the context of an interrogation, this would be the police. Therefore, when suspects look to the police for an appropriate course of action, some tactics police have been observed to use, such as downplaying and trivializing

the importance of the warnings (Leo, 1996b; Simon, 1991), may be especially effective for getting suspects to waive their rights.

Myriad empirical research has supported the idea that stress compromises various cognitive functions. Research has found that high levels of anxiety undermined eyewitness memory performance (e.g., Bothwell, Brigham, & Pigott, 1987; Deffenbacher, 1994; Peters, 1988). Indeed, a meta-analysis found that high levels of stress negatively impacted both the accuracy of eyewitness identifications and the recall accuracy of crime-related details (Deffenbacher, Bornstein, Penrod, & McGorty, 2004). Stress has also been shown to impair other memory performance tasks (Eichenbaum, Otto, & Cohen, 1992; LeDoux, 1995; Lupien, et al., 2005; Newcomer, Craft, Hershey, Askins, & Bardgett, 1994), compromise the processing of inaccessible information (Bargh & Thein, 1985; Pratto & Oliver, 1991), undermine work performance (MacKenzie, Smith, Hasher, Leach, & Behl, 2007; Sandstrom, Rhodin, Lundberg, Olsson, & Nyberg, 2005) and lead to a loss of distance cues in perception (Callaway & Thompson, 1953).

Furthermore, two recent studies offer direct support for the idea that stress compromises individuals' ability to comprehend *Miranda*. One study examined the influence of situational factors on individuals' ability to comprehend *Miranda*, including stress evoked by an accusation of having committed a mock crime (Rogers et al., 2010). In this study, participants either were or were not accused of having stolen a watch. Although participants were told they may be accused of stealing a watch, participants who were accused of stealing the watch, nonetheless, reported feeling more stress and demonstrated worse recall and reasoning on *Miranda* comprehension instruments than did participants who were not accused of stealing the watch. Another recent study found similar results

employing a paradigm involving an actual accusation of cheating instead of a mock crime. The results of this study indicated that participants who were accused of cheating on an experimental task reported feeling more stress than participants who were not accused of cheating and, consequently, demonstrated significantly worse comprehension of *Miranda* (Scherr & Madon, in press). These findings are important because they provide support for prior theoretical speculation that, although adults with an average intelligence level demonstrate a satisfactory comprehension of *Miranda*, suspects' psychological state at the time of arrest likely influences their ability to satisfactorily comprehend *Miranda* (Grisso, 1998; Oberlander & Goldstein, 2001).

The findings of this literature raise the possibility that the effect of stress on *Miranda* comprehension may be even more pronounced when other factors that are known to affect *Miranda* comprehension are present. I next review three such factors with a particular emphasis on the methods by which *Miranda* is administered to suspects – an issue that was a major focus of this research.

***Miranda* Warning Effects**

Early research regarding characteristics of *Miranda* warnings assumed that there was general uniformity across jurisdictions (Rogers, 2008). However, more recent reviews refuted this assumption showing, for instance, that there were 21 different versions of *Miranda* in New Jersey jurisdictions alone (Greenfield, Dougherty, Jackson, Podboy, & Zimmermann, 2001). Furthermore, there were vast differences between state and federal jurisdictions (Helms, 2003) – 945 different warnings used across 638 jurisdictions (Rogers, Harrison, Shuman, Sewell, & Hazelwood, 2007; Rogers, Hazelwood, Harrison, Sewell, & Shuman, 2008a). These findings provide evidence of the differences in warnings. What

implications, then, does this difference in warnings have on suspects' ability to comprehend the different warnings? The research on *Miranda* comprehension across different *Miranda* warnings is discussed next.

***Miranda* length.** Ample research has demonstrated that there are substantial differences in the length of *Miranda* warnings. These studies show that *Miranda* warnings range from 21 to 408 words, with the average length being approximately 96 words (Rogers, 2008). The vast majority (i.e., 76%) of warnings reviewed had between 76 and 124 words. Some researchers have advocated against such lengthy warnings and suggested using shorter warnings based on evidence from cognitive psychology showing that people generally have the capacity to process between five and nine chunks of information (Miller, 1956). In the case of *Miranda* warnings, a particular aspect of the warning (e.g., a sentence) would constitute one chunk of information. In light of this work, researchers have estimated that the upper word limit that would be expected to allow satisfactory comprehension of *Miranda* is less than 75 words (Rogers, et al., 2007).

Despite concern over the potential influence of word length on *Miranda* comprehension, there exists only one investigation that has empirically tested this hypothesized effect. This research focused explicitly on juveniles' ability to comprehend a shortened version of *Miranda* (Ferguson and Douglas, 1970). A shortened warning was designed that was supposed to lead to increased understanding in juveniles. Both delinquent and non-delinquent juveniles were brought into a room resembling an interrogation room. The juveniles were told that they were suspected of being a part of a crime. The researchers, posing as interrogators, then read either the actual or the shortened *Miranda* to the juveniles and asked if the juveniles wanted to talk to them (i.e., waive their *Miranda* rights). If

juveniles offered a waiver (90 out of 94 did!), then the experimenters proceeded to ask the juveniles what they expected their rights to be after having done so.

Surprisingly, no significant differences in juveniles' understanding of their rights between the actual and shortened *Miranda* conditions were found (Ferguson and Douglas, 1970). Although no compelling arguments for the lack of differences were offered, it may be the case that stress reduced comprehension in both conditions. Indeed, it is likely that most juveniles, upon being brought into an interrogation room and being accused of a crime, would feel a great deal of stress. Thus, the cognitive functioning of the juveniles in both conditions could have been significantly inhibited due to the stressful situation. Nonetheless, because there has only been one investigation examining the influence of warning length on suspects' ability to comprehend *Miranda* and the findings of this research were inconclusive, more research is needed to make any firm conclusions.

***Miranda* reading difficulty.** Research addressing differences in reading difficulty of *Miranda* warnings has yielded similar results to those ascertained regarding the length of *Miranda* warnings (Rogers, 2008). Using the Flesch-Kincaid assessment to measure reading difficulty (DuBay, 2004), researchers have been able to determine grade levels associated with many *Miranda* warnings. Of the *Miranda* warnings reviewed, nearly 80% were written at the sixth grade level or higher – indeed, 2.2% of the warnings were written at the college level. This was the case even though 70% of incarcerated individuals have a sixth grade education or less (Haigler, Harlow, O'Conner, & Campbell, 1992).

The discrepancy between the education of incarcerated individuals and the average reading level of *Miranda* warnings has led to research designed to study the influence of *Miranda* reading level on recently arrested adults' and juveniles' ability to comprehend the

warnings (e.g., Rogers, et al., 2008a; Rogers, Hazelwood, Sewell, Shuman, Blackwood, & Hayley, 2008b). This research has examined adult detainees and juveniles' level of comprehension by asking them to paraphrase different warnings presented at different reading levels. For both adults and juveniles, satisfactory comprehension was very difficult to achieve even when the warnings were written at a 6th grade level, the lowest grade level studied. For example, only 38.5% of adult detainees achieved a good level of comprehension when the warnings were written at this reading level and this percentage dropped to 20.5% when the reading level of the warning was between 8th and 10th grade.

Method of *Miranda* administration. In addition to variations in the length and complexity of *Miranda* warnings, research examining various jurisdictions has identified differences in the method by which *Miranda* is administered. This research has found that *Miranda* warnings are typically administered to suspects either in an oral fashion (67%) or in a written fashion (29%). Very few jurisdictions, by contrast, administer *Miranda* via an audio recording (4%; Kassin et al., 2007; Rogers & Shuman, 2005). Much like the research on the influence of warning length on *Miranda* comprehension, there have been few investigations addressing the influence of method of administration on *Miranda* comprehension. The few investigations that have been performed found that when *Miranda* was administered at a 6th grade level, suspects' failure to comprehend their rights more than doubled when the *Miranda* warnings were administered in an oral fashion compared to a written fashion. That is, suspects failed to comprehend approximately 62% of the content of *Miranda* warnings when these warnings were administered in an oral fashion (Rogers, 2008). The finding that suspects generally demonstrated a worse ability to comprehend *Miranda* warnings when they are administered in an oral fashion compared to a written fashion

mirrors the general trend in the psychological literature showing that individuals are generally worse at comprehending, remembering, and recalling information after hearing it than reading it (e.g., Green, 1981; Hildyard & Olson, 1978; 1982; Hron, Kurbjuhn, Mandl, & Schnotz, 1985; Rickheit & Strohner, 1983).

Although research has compared the effects of method of administration on suspects' ability to comprehend *Miranda*, the effect of method of administration has never been examined in combination with stress. It could be the case that the effect that different methods of administration have on *Miranda* comprehension is more pronounced when suspects are under stress. Accordingly, a major aim of the research was to systematically examine how stress influences suspects' *Miranda* comprehension when *Miranda* warnings were administered in an oral fashion versus a written fashion.

CHAPTER 4. *MIRANDA* WAIVERS AND THEIR CONSEQUENCES

In addition to the role that stress has been shown to play in suspects' ability to comprehend *Miranda*, it is plausible that stress also plays a role in suspects' willingness to offer a waiver of *Miranda*. Although no research has examined whether stress plays a role in influencing suspects' willingness to offer a *Miranda* waiver, the idea is very important because of the potentially devastating consequences it can have on suspects' eventual legal outcome. Indeed, when suspects offer a waiver of *Miranda*, they put themselves on trajectories that are extremely disadvantageous to their successful navigation of the interrogation process. In particular, *Miranda* waivers increase the likelihood that suspects will be subjected to police intimidation without the aid of knowledgeable legal counsel, making suspects increasingly more vulnerable to interrogation tactics designed to elicit a confession. Because of this relationship, *Miranda* has been criticized because of its potential to damage police's ability to elicit confessions (e.g., Cassell 1996, 1999; Grano, 1991, 1996a, 1996b). The issue of the effect of *Miranda* on the elicitation of confessions has received much attention in the extant literature and continues to be an area that is heavily debated from scholars both for and against the protections afforded by *Miranda*. This chapter first discusses the influence *Miranda* has on police's ability to elicit confessions and concludes with some explanations in the literature for why suspects offer *Miranda* waivers.

The Influence of *Miranda* on the Elicitation of Confessions

Perhaps the most hotly debated issue surrounding *Miranda* is its effect on the ability of police to elicit confessions from suspects. Some scholars have argued that *Miranda* is a disadvantage and burden to police (e.g., Cassell, 1996; Grano, 1992), while other scholars have refuted this premise (e.g., Leo, 1996a, 1996b; Schulhofer, 1996). Although this debate

continues to exist, growing evidence suggests that *Miranda* has not handcuffed police and that confession rates have not significantly been reduced since the *Miranda* ruling (Cassell & Fowles, 1998; Leo, 1996a, 1996b; Schulhofer, 1996).

The criticism against *Miranda* and its ability to reduce police effectiveness at eliciting confessions was based initially on speculation, but later came to be backed by some empirical support. Grano (1992) has been instrumental in the case against *Miranda*. Grano criticized *Miranda* as improperly informing suspects about their protections before and during interrogation. Namely, he criticized *Miranda* on three premises. First, he argued that *Miranda* is truth-defeating meaning that it prevents police from the discovery of truth. Second, he argued that *Miranda* puts interrogators and suspects on equal ground which is detrimental to eliciting confessions from guilty suspects. Third, he argued that *Miranda* promotes form over substance by causing the courts to be mistakenly focused on whether certain requirements are met rather than the essence of the case in whole.

Building on Grano's initial reasoning, some scholars have argued that *Miranda* needs to be overturned at all cost because it holds the potential to lower conviction rates by restricting the ability of police to obtain confessions. Some scholars have argued that the only way to restrict *Miranda* from having this effect on the legal system is to make it the job of the courts to decide whether or not confessions were obtained voluntarily. Thus, by making it the job of the courts to determine whether or not confessions were given voluntarily, *Miranda* warnings, which were designed to ensure voluntary confessions, would not be necessary (e.g., Cassell, 1996, 1999).

In support of the above criticisms, Cassell (1996) reported that *Miranda* is responsible for the loss of convictions in 3.8% of all serious criminal cases and that this loss

represents a serious social cost to the United States. He further argued that the criminal justice system could avoid such high social costs if the prophylactics of *Miranda* were replaced with a different set of safeguards. Although he based these conclusions on a simple examination of reports of convictions prior to and immediately after the *Miranda* ruling, the ideas aroused support for the replacement of *Miranda*'s safeguards, but also some skepticism of the validity of the findings. Indeed, very quickly, serious flaws in the data collection, analyses, and reasoning of the critics of *Miranda* were identified (Schulhofer, 1996).

One flaw was that the majority of the studies that examined the impact of *Miranda* on confession and conviction rates were conducted in the years immediately following the *Miranda* decision. The timing of these studies is noteworthy for two reasons. First, later studies showed much smaller effects (Rosenberg, 2008; Schulhofer, 1996). Second, most of the evidence that pointed toward *Miranda* having a detrimental effect on confession and conviction rates was done before criminal justice practitioners had sufficient opportunity to adapt to the changes in interrogation protocol that *Miranda* necessitated (Schulhofer, 1996). Thus, in the year or two immediately following *Miranda*, police and interrogators had not had time to adjust their methods in ways that would overcome some of the challenges *Miranda* posed for them in eliciting confessions and convictions. However, since the *Miranda* ruling, interrogation practices have evolved and now place great importance on the use of psychological coercion (e.g., minimization, rapport building, etc.; White, 2001). In fact, the majority of the law enforcement community sees *Miranda* as sustaining a level of professionalism in modern policing and that the effects of *Miranda* are negligible (Cassell, 1996). Indeed, an American Bar Association (1988) report of prosecutors, judges, and police officers found that compliance with *Miranda* does not pose a serious problem to law

enforcement. Additionally, reports of observations and video recordings of actual police interrogations indicate that four out of every five suspects waive their *Miranda* rights and decide to answer questions without representation (Leo, 1996b). Though this evidence indicates that *Miranda* has not handicapped interrogators' abilities to elicit confessions from suspects as was initially feared, it does not explain why suspects waive their rights.

***Miranda* Waivers**

As previously indicated, one of the most surprising statistics regarding *Miranda* is that four out of every five suspects offer a waiver of *Miranda* (Leo, 1996b, Schulhofer, 1996). This statistic begs the question as to why suspects choose to navigate the interrogation without the knowledgeable aid of a lawyer. Although research bearing on this issue is scant, three main reasons have been proposed. These reasons reflect both individual differences and situational factors.

Knowledge of the criminal justice system. Knowledge of the criminal justice system is an individual difference factor that is defined as the level of experience an individual has had with the criminal justice system (e.g., number of times arrested; Leo, 1996b; Softley, 1980). One investigation in Great Britain and another in the United States examined the criminal histories of suspects who had offered a waiver of *Miranda*. These investigations found that suspects with no prior criminal history were more likely to waive their *Miranda* rights than suspects who had experience with the criminal justice system (Leo, 1996b; Softley, 1980).

The power of innocence. Researchers have also hypothesized that innocent suspects are more likely to offer a waiver of *Miranda* because they believe they can convince police of their innocence by talking to them. Research testing this idea found that innocent

participants were significantly more likely to sign a waiver than were guilty participants. In fact, 81% of innocents signed compared to only 36% of guilty participants. Furthermore, of the 29 innocent individuals who signed the waiver, 21 of them stated they did so because they were innocent (e.g., “I did nothing wrong”), suggesting, therefore, they had nothing to hide (Kassin & Norwick, 2004).

***Miranda* waivers as a confidence game.** Another hypothesized reason suspects offer a waiver of *Miranda* is because of police manipulations used to gain and exploit suspects’ trust. Leo (1996b) observed three different police departments and found that these police departments tended to all use similar techniques when attempting to get suspects to offer a *Miranda* waiver. This research found that many of the techniques used to elicit confessions, such as minimization and rapport building, are also used to persuade suspects to waive their *Miranda* rights. The use of these techniques for the purpose of obtaining *Miranda* waivers has been characterized as a confidence game (Leo, 1996b). Interrogators first offer suspects hope of a successful outcome to the interrogation in exchange for their trust. Next, after interrogators have earned suspects’ trust, the interrogators exploit it. Interrogators will attempt to convince suspects that their relationship is a symbiotic one, rather than an adversarial one – that is, they have a mutually shared goal and they can count on each other by working together to attain that goal. Interrogators then convince suspects that the only way to work together is if suspects agree to talk. Finally, having gained and exploited suspects’ trust, interrogators get suspects to offer a *Miranda* waiver.

The second experiment aimed to empirically examine if the stress suspects experience during the *Miranda* administration process makes them more vulnerable to subsequent police manipulations. If suspects perceive police as allies, as the confidence game hypothesis

suggests they do, then they may be more likely to be influenced by police manipulations. Indeed, many individuals believe that police serve to help and benefit everyone, although this belief is less common among minorities (Jesilow, Meyer, & Namazzi, 1995; Reisig & Parks, 2000; Sampson & Bartusch, 1998). Furthermore, other research claims that individuals may be especially likely to look to others to determine correct behaviors when they are experiencing stress (Cialdini & Griskevicius, 2010). Moreover, police tend to regard suspects as being especially vulnerable to police manipulations when suspects are experiencing stress (Leo, 1996b) and an empirical examination has found that men are more susceptible to police manipulations aimed at eliciting confessions when experiencing stress (Forrest, Wadkins, & Miller, 2002). Accordingly, when suspects experience stress, it seems possible that they are more influenced by the manipulations police use to attain a *Miranda* waiver. Experiment 2 addressed whether suspects are more susceptible to police manipulations when they are experiencing stress by examining whether two factors present during the *Miranda* administration process, namely stress and the description of the waiver, could interact to influence suspects' willingness to offer a waiver.

It is apparent then, that over 40 years after the *Miranda* decision was handed down, many questions still remain unanswered surrounding the effectiveness and consequences of the protections *Miranda* was intended to provide. This research attempted to shed light on some of these issues. Experiment 1 examined whether stress interacts with the way *Miranda* is administered to influence suspects' ability to comprehend *Miranda*. Experiment 2 investigated whether stress interacts with the way *Miranda* is described to influence suspects' willingness to waive their *Miranda* rights. The next chapter provides an overview of Experiment 1.

CHAPTER 5. EXPERIMENT 1: HYPOTHESES AND OVERVIEW

Conceptual Overview of Experiment 1

The first experiment addressed two main goals. The first goal was to examine whether the type of method used to administer *Miranda* influences suspects' *Miranda* comprehension. The second goal was to examine whether stress and method of administration interact such that the effect of stress on suspects' *Miranda* comprehension differs depending on whether *Miranda* is presented in an oral versus a written fashion. The tendency for stress to reduce cognitive functioning may be particularly pronounced for the more difficult task of oral comprehension. Indeed, cognitive efficiency is especially likely to be compromised when individuals engage in difficult tasks (Eysenck, 1997).

Experiment 1 Overview

The aims of Experiment 1 were examined by manipulating participants' stress with an accusation of cheating. The procedures were adapted from a paradigm developed by Rusanno and colleagues (2005). In this paradigm, participants are paired with a confederate with whom they complete logic problems. The experimenter instructs the pair to work independently on some problems and together on others. The confederate asks some participants (but not others) for help on a problem the pair was instructed to work on alone. Shortly after, the pair is separated and the participant is accused of cheating. In the current research, I modified this paradigm such that all participants were asked for help on a problem, but only half of the participants were accused of cheating. The manipulation of the accusation was intended to influence participants' stress levels such that participants who were accused of cheating would feel more stress than those who were not accused of cheating. After the accusation manipulation, all participants had their comprehension of

Miranda assessed. Half of participants were administered *Miranda* in an oral fashion, whereas the other half of participants were administered *Miranda* in a written fashion. The different measures of the *Miranda* rights comprehension assessment served as the primary dependent variables for Experiment 1.

Hypotheses of Experiment 1

Experiment 1 tested two hypotheses. First, it tested the prediction that participants who were administered *Miranda* in an oral fashion would have a lower level of *Miranda* comprehension compared to participants who were administered *Miranda* in a written fashion – that is, there would be a main effect of method of administration. Second, it tested the prediction that the effect of stress on *Miranda* comprehension would be stronger when the comprehension instruments were administered in an oral fashion compared to a written fashion – that is, an interaction was hypothesized to occur between the accusation and method of administration manipulations.

CHAPTER 6. EXPERIMENT 1: METHOD

Participants

Participants were 125 undergraduates recruited from the Psychology Department's research participant pool at Iowa State University. Minors and non-native English speakers were not allowed to participate. The sample included 54 males and 71 females. The mean age of participants was 19 and approximately 83% of the sample identified themselves as Caucasian. In exchange for their participation, students earned credit in their introductory courses.

Design

Participants were randomly assigned to a 2 (Accusation: no accusation vs. accusation) x 2 (Method of Administration: written vs. oral) between subjects experimental design. Participants assigned to the accusation condition were accused of cheating during the experiment, whereas participants assigned to the no accusation condition were not. The accusation manipulation was designed to vary the amount of stress that participants experienced during the session. Participants assigned to the written method of administration condition were administered *Miranda* in a written fashion (i.e., they were only shown the comprehension instruments, not read them), whereas participants assigned to the oral method of administration condition were administered *Miranda* in an oral fashion (i.e., they were only read the comprehension instruments, not shown them).

Materials

Miranda rights comprehension instruments – II (MRCI-II). Participants' comprehension of their *Miranda* rights were assessed with the *Miranda Rights Comprehension Instruments – II (MRCI-II)*; Goldstein, Zelle, & Grisso, in preparation). This

instrument is a revised and updated version of Grisso's (1998) *Instruments for Assessing Understanding and Appreciation of Miranda Rights*. The new instrument provides updated language and a more explicit assessment of individuals' understanding of *Miranda's* fifth prong, which pertains to the right to counsel at any time, even after the interrogation has commenced.

The comprehension assessment consists of four instruments that were each designed to assess a different aspect of individuals' understanding of *Miranda*. One instrument is the *Comprehension of Miranda Rights – II* (CMR-II). The CMR-II includes the fifth prong of the *Miranda* warnings, as well as more simplified wording of the warnings than Grisso's (1998) previous instrument. The CMR-II instrument assesses participants' comprehension of the basic meaning of the five *Miranda* warnings (Appendix A). Participants are asked to explain the meaning of each warning statement. Responses are considered inadequate, questionable, or adequate, and scored 0, 1, or 2, respectively. CMR-II total scores can range from 0 (i.e., five inadequate answers) to 10 (i.e., five adequate answers).

The second instrument is the *Comprehension of Miranda Rights – Recognition – II* (CMR-R-II). The CMR-R-II assesses participants' comprehension of five *Miranda* warnings. Instead of relying on participants' verbal expressive skills, however, the CMR-R-II assesses *Miranda* comprehension through recognition. The CMR-R-II presents three pre-constructed sentences for each of the five *Miranda* warnings (Appendix B). Participants are instructed to report whether each sentence is or is not identical in meaning to the original *Miranda* warning it is paired with. Scoring for the CMR-R-II is dichotomous, with incorrect responses receiving 0 points and correct responses receiving 1 point. Total scores can range

from 0 (i.e., incorrect recognition of each of the 15 pre-constructed sentences) to 15 (i.e., correct recognition of each of the 15 pre-constructed sentences).

The third instrument is the *Comprehension of Miranda Vocabulary – II* (CMV-II). It contains 16 legal vocabulary words, six of which were included in the original instrument (Grisso, 1998) and ten of which are new. The CMV-II assesses participants' comprehension of legal vocabulary often used in *Miranda* warnings (e.g., attorney, right, interrogation, appoint, etc.). Participants are asked to define the 16 legal vocabulary words administered to them (Appendix D). Responses are considered inadequate, questionable, or adequate, and scored 0, 1, or 2, respectively. Total scores can range from 0 (i.e., inadequate responses to all 16 words) to 32 (i.e., adequate responses to all 16 words).

The fourth instrument is the *Function of Rights in Interrogation* (FRI). The FRI has not been altered from the original version (Grisso, 1998). It assesses participants' comprehension of the significance of *Miranda* rights in interrogation and legal proceedings. Participants are presented with four scenarios, each of which is accompanied by a picture related to a legal proceeding. Participants' understanding of the significance of their rights afforded by *Miranda* is assessed via fifteen standardized questions (Appendix C). The questions assess whether participants recognize the adverse nature of interrogation and grasp both the significance of the right to counsel and the right to silence. Responses are considered inadequate, questionable, or adequate, and scored 0, 1, or 2, respectively. Total scores can range from 0 (i.e., inadequate responses to all 15 questions) to 30 (i.e., adequate responses to all 15 questions).

Manipulation check. Participants were asked to respond to seven questions that were designed to assess the effectiveness of the accusation of cheating (Appendix E).

Participants reported how stressed, worried, anxious, nervous, concerned, tense, and scared they felt on rating scales with anchors 1 (*Not at all*) to 7 (*Extremely*). Participants' responses to these seven questions were averaged to create one variable per participant with higher values indicating greater stress, $\alpha = .97$.

Familiarity with the legal system. Research has found that prior experience with the law can influence individuals' knowledge of *Miranda* (e.g., Leo, 1996b; Softley, 1980). To control for this potential influence, the current study asked participants to indicate whether they had been arrested and used these self-reports as a control in all of the main analyses.

Logic problems. Participants were given two packets of logic problems (Appendix G). Participants were instructed to work on one of the packets by themselves and as a team on the other. These packets are subsequently referred to as the individual and team logic packets, respectively. Each packet contained three logic problems of moderate difficulty.

ACT scores. Prior investigations have demonstrated that intelligence can have a significant influence on individuals' comprehension of *Miranda* (e.g., Clare & Gudjonsson, 1991; O'Connell, Garmoe, & Goldstein, 2005). To account for this potential influence among participants, ACT scores were assessed, which have been shown to significantly correlate with standard measures of intelligence (e.g., California test, Otis-Lennon, Lorge-Thorndike, Henmon-Nelson; Koenig, Frey, & Detterman, 2008). Participants indicated their ACT scores in response to an open-ended item that asked them to report their scores as accurately as possible.

Listening and reading comprehension. Participants' general listening and reading comprehension were assessed using the listening comprehension, passage comprehension,

and reading vocabulary subsections of the *Woodcock-Johnson Psycho-Educational Battery-Revised* (WJ-R; Woodcock & Johnson, 1989, 1990), presented in Appendix H. To assess participants' listening comprehension, participants were read sentences and instructed to respond with a word that best completed each sentence. Participants' reading comprehension was assessed in two ways: 1) Participants were shown several sentences and instructed to respond with a word that best completed each sentence and 2) were shown several words and asked to provide either an antonym or a synonym of the word. Participants scores on these subsections served as a control variable in all the main analyses, $\alpha = .74$.

Procedure

Upon arrival to the lab, participants completed a consent form and were introduced to a confederate posing as their partner for the study. Next, the dyad was given general information about the study after which they were escorted into separate rooms each equipped with a personal computer. Participants responded to questions that assessed their demographic information, familiarity with the legal system, and ACT scores while the confederate appeared to do the same. Upon completion of these measures, the dyad was escorted to another room by the first experimenter where they were given a few minutes to get acquainted with each other. This exercise enabled the confederate to build rapport with the participant, thereby increasing the likelihood that the participant would provide an answer when asked for help by the confederate. Once acquainted, the dyad was given the logic problem packets. The first experimenter told the dyad that the individual packets were identical and they needed to work on those problems alone. For the team packet, by contrast, the dyad was told that they needed to discuss their answers and strategies and that doing this was important. While the dyad was completing the logic problems, the confederate asked the

participant for help on one of the individual logic problems that the dyad was instructed to work on alone, thereby setting the stage for the accusation of cheating that took place in the accusation condition. Once the dyad completed all the logic problems, they were given a filler survey to complete while the first experimenter ostensibly scored their answers to the logic problems.

After the dyad had finished the filler survey, the first experimenter reentered the room and collected them. At this point, participants in the no accusation condition were administered the *Miranda* comprehension instruments, described as a measure of individuals differences, in either an oral or written fashion by a second experimenter who was blind to the accusation manipulation – a procedure that reduced the likelihood that experimenter expectancy effects could bias the results. In contrast, participants in the accusation condition experienced the following sequence of events prior to completing the *Miranda* comprehension instruments. First, immediately upon finishing the filler surveys, the first experimenter told the dyad that something needed to be checked on. Second, the first experimenter reentered the room approximately one minute later and explained to the dyad there may be a problem and that he needs to talk to each of them separately. The first experimenter then proceeded to take the confederate out of the room and told the participant that he would be back in a moment. Third, the first experimenter waited five minutes and then went back into the participant's room and accused the participant of cheating. This was accomplished by having the first experimenter say that, while scoring the dyad's answers, he became suspicious that the two had shared answers on one of the individual problems because they had the same wrong answer on one of them. The first experimenter indicated that he contacted his professor and that he could already tell that the professor was annoyed

and upset that this was happening. The first experimenter then stated that he is not sure how the professor will handle the situation and that the professor may even consider this a case of cheating. The first experimenter also explained that the professor is in a meeting but wants to talk to the participant about the cheating incident himself in approximately 10 minutes and that in the meantime the experiment should be completed. Next, a second experimenter, blind to the accusation condition, entered the room and administered the *Miranda* comprehension instruments, which were described as a measure of individual differences.

Participants assigned to the oral condition were read the various statements of the *Miranda* comprehension instruments, but not shown the instruments. Participants assigned to the written condition were shown the various statements of the *Miranda* comprehension instruments in writing, but not read any of the assessment questions. Participants' scores on the *Miranda* comprehension instruments were the dependent measure of participants' level of *Miranda* comprehension. Following its completion, all participants were fully debriefed, and special care was taken to inform the participants in the accusation condition that they were not in trouble. Participants were asked if they had any questions, thanked for their participation, and dismissed.

CHAPTER 7. EXPERIMENT 1: RESULTS

Preliminary Analyses

Suspicion. Twenty-one participants were removed from the main analyses because of suspicion. Ten of these participants did not believe they had to meet with the professor in charge of the experiment. Of the ten participants removed because they did not believe they had to meet with the professor, two were not accused of cheating and administered the comprehension instruments in an oral fashion, six were not accused of cheating and administered the comprehension instruments in a written fashion, one was accused of cheating and administered the comprehension instruments in an oral fashion, and one was accused of cheating and administered the comprehension instruments in a written fashion. Eight participants were removed because they did not cheat during the logic problem phase. Of the eight participants who did not cheat during the logic problem phase, one was not accused of cheating and administered the comprehension instruments in an oral fashion, two were not accused of cheating and administered the comprehension instruments in a written fashion, two were accused of cheating and administered the comprehension instruments in an oral fashion, and three were accused of cheating and administered the comprehension instruments in a written fashion. Three participants were removed because of the presence of loud disrupting construction noises from an adjacent lab room, all of which were accused of cheating and administered the comprehension instruments in a written fashion. Although inclusion of these participants did not change the trend of the results, they did weaken the patterns by causing some of the results to fail to achieve significance.

Interrater agreement for *Miranda* comprehension instruments. Using standardized scoring procedures (Grisso, 1998), three coders, blind to condition,

independently coded participants' audio recorded responses to each of the *Miranda Rights Comprehension Instruments – II* except for the CMR-R-II which is scored in a purely objective manner.

Interrater agreement among the three coders with respect to the *Miranda* comprehension instruments was examined with an intraclass correlation (Suen & Ary, 1989). The results indicated that the three coders had a good level of agreement, ICC = .80 (Cicchetti, 1994). Therefore, the coded responses were averaged to yield one *Miranda* comprehension score for each of the instruments used in the main analyses.

Manipulation check. An independent samples *t*-test was conducted to examine if participants who were accused of cheating reported experiencing more stress compared to participants who were not accused of cheating. The independent variable was the accusation manipulation. The dependent variable was participants' average score across the seven items of the self-reported stress assessment. Results indicated that the accusation manipulation effectively induced a significant amount of stress in participants; participants who were accused of cheating reported experiencing significantly more stress ($M = 3.89$) compared to participants who were not accused of any cheating ($M = 1.80$), $t(102) = 8.35$, $p < .001$, $d = 1.65$.

Gender and legal familiarity. To test for gender differences and the influence that participants' familiarity with the legal system had on their *Miranda* comprehension scores, I performed two multivariate analysis of variance (MANOVA) tests, one to test for gender differences and another to test for the influence of participants' familiarity with the legal system. Gender and participants' legal familiarity were included as the subject variables. The dependent variables were participants' scores on the four instruments used to assess

Miranda comprehension. Results indicated that the differences between men's and women's responses did not approach significance, $F(4, 99) = .80, p = .53$. Because the differences between men's and women's responses on the *Miranda* comprehension instruments did not approach significance, gender was not included in the main analyses as a covariate.

However, consistent with previous *Miranda* comprehension research and theory, results indicated that participants who had been arrested performed significantly better compared to participants who had never been arrested, $F(4, 99) = 2.53, p = .046$. Specifically, results indicated that participants who had been arrested performed significantly better on the CMR-II and FRI instruments, but not on the CMR-R-II or CMV-II instruments. A total of seven participants indicated they had been arrested at least once. Because participants' legal familiarity did influence their performance on two of the *Miranda* comprehension instruments, participants' familiarity with the legal system was included as a covariate in the main analyses.

ACT scores. An analysis of variance (ANOVA) was used to examine if there were differences in participants' self-reported ACT scores across the conditions. The independent variables for this analysis were the accusation and method of administration manipulations. The dependent variable was participants' self-reported ACT scores. Results indicated that participants' self-reported ACT scores did not differ across the accusation condition, $F(1, 101) = .95, p = .33$ or the method of administration condition $F(1, 101) = 1.55, p = .22$. Furthermore, an independent samples *t*-test indicated that there were no significant differences between men's ($M = 25$) and women's ($M = 24.6$) self-reported ACT scores, $t(102) = -.65, p = .52$. Furthermore, there was not a significant relation between participants' legal familiarity and self-reported ACT scores ($r = -.11, p = .25$). I also conducted several

zero-order correlations between participants' self-reported ACT scores and their scores on each of the *Miranda* comprehension instruments. These correlations indicated that participants' self-reported ACT scores evidenced at least a marginally significant correlation of moderate magnitude with two of the four comprehension instruments - i.e., the CMR-R-II ($r = .13, p = .19$) and the CMV-II ($r = .38, p < .001$). Because results indicated that the relation between participants' self-reported ACT scores and their performance on two of the *Miranda* comprehension instruments approached significance, participants' self-reported ACT scores were included as a covariate in the main analyses.

Listening and reading comprehension. I conducted several zero-order correlations between participants' scores on the listening and reading comprehension assessment and their scores on each of the *Miranda* comprehension instruments. These correlations indicated that participants' listening and reading comprehension scores evidenced a significant correlation of moderate magnitude with one of the four comprehension instruments - i.e., the CMR-R-II ($r = .44, p < .001$). As such, I included participants' listening and reading comprehension scores as a covariate for the main analyses.

Descriptive information. Correlations, means, and standard deviations for the measures used in the analyses are presented in Table 1.

Table1. Zero Order Correlations, Means, and Standard Deviations for All Variables Used in Experiment 1 Analyses (N = 104)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
(1) Gender	---								
(2) Legal familiarity	.10	---							
(3) ACT scores	.07	-.11	---						
(4) Listening and reading comprehension	.02	-.06	.53**	---					
(5) Comprehension of <i>Miranda</i> rights-II	-.02	.19	.10	.09	---				
(6) Comprehension of <i>Miranda</i> rights-recognition-II	.02	.12	.13	.21*	.20*	---			
(7) Comprehension of <i>Miranda</i> vocabulary-II	-.10	.12	.38**	.44**	.17	.29**	---		
(8) Function of rights in interrogation	.12	.26**	.04	-.06	.20*	.12	.20*	---	
	<i>Mean</i>	61% ^a	1.07	24.74	38.68	7.51	12.94	25.75	24.58
	<i>SD</i>	---	.25	3.45	7.39	1.34	1.41	2.74	2.52

Note. ^aValue reflects percentage of participants who were females (1 = Female, 2 = Male).

* $p \leq .05$. ** $p \leq .01$.

Main Analyses

A 2 (no accusation vs. accusation) x 2 (written vs. oral) multivariate analysis of covariance (MANCOVA) test was used to examine the effect that the accusation and method of administration manipulations had on participants' performance on each of the four instruments used to assess *Miranda* comprehension. The independent variables for these analyses were the accusation and method of administration manipulations. The dependent variables for these analyses were the four *Miranda* comprehension instruments. The covariates used for these analyses were participants' self-reported ACT scores, self-reported

familiarity with the legal system, and listening and reading comprehension scores. Results indicated that both the accusation and method of administration manipulations had significant effects on participants' ability to comprehend *Miranda*, $F_s(4, 94) \geq 2.94, p_s \leq .02$. The interaction between the accusation and method of administration manipulations, however, did not significantly influence participants' ability to comprehend *Miranda*, $F(4, 94) = .49, p = .75$. To further examine the significant main effects, I performed a series of 2 (no accusation vs. accusation) x 2 (written vs. oral) analysis of covariance (ANCOVA) tests using participants' performance on each of the four specific instruments used to assess *Miranda* comprehension as separate dependent variables. The covariates used for these analyses were participants' self-reported ACT scores, self-reported familiarity with the legal system, and listening and reading comprehension scores.

The results of the ANCOVAs indicated that the accusation of cheating undermined participants' performance on all four of the *Miranda* comprehension instruments (Table 2; Figure 1). Specifically, in comparison to participants in the no accusation condition, participants in the accusation condition scored significantly lower on the CMR-II, $F(1, 97) = 5.19, p = .02, d = .46$ ($M_{Accused} = 7.19; M_{Not\ Accused} = 7.83$), the CMR-R-II, $F(1, 97) = 9.71, p = .002, d = .63$ ($M_{Accused} = 12.50; M_{Not\ Accused} = 13.38$), the CMV-II, $F(1, 97) = 11.43, p = .001, d = .69$ ($M_{Accused} = 24.87; M_{Not\ Accused} = 26.64$), and the FRI, $F(1, 97) = 10.44, p = .002, d = .66$ ($M_{Accused} = 23.83; M_{Not\ Accused} = 25.33$).

Table 2. Means, Standard Deviations in Parentheses, F-values, and Effect Sizes Associated with the *Miranda* Rights Comprehension Instruments - II as a Function of the Accusation Manipulation (N = 104)

Instrument	Accused (n = 52)	Not Accused (n = 52)	F	d
CMR-II	7.19 (1.32)	7.83 (1.29)	5.19*	.46
CMR-R-II	12.50 (1.42)	13.38 (1.26)	9.71**	.63
CMV-II	24.87 (2.82)	26.64 (2.36)	11.43***	.69
FRI	23.83 (2.49)	25.33 (2.33)	10.44**	.66

* $p < .05$ ** $p \leq .01$ *** $p \leq .001$

Note. Values under each condition reflect the average comprehension score for each instrument with higher scores indicating better comprehension. The following abbreviations are followed by their corresponding instrument or subscale: 1) CMR-II → Comprehension of *Miranda* Rights instrument, 2) CMR-R-II → Comprehension of *Miranda* Rights-Recognition instrument, 3) CMV-II → Comprehension of *Miranda* Vocabulary instrument, and 4) FRI → Function of Rights in Interrogation instrument.

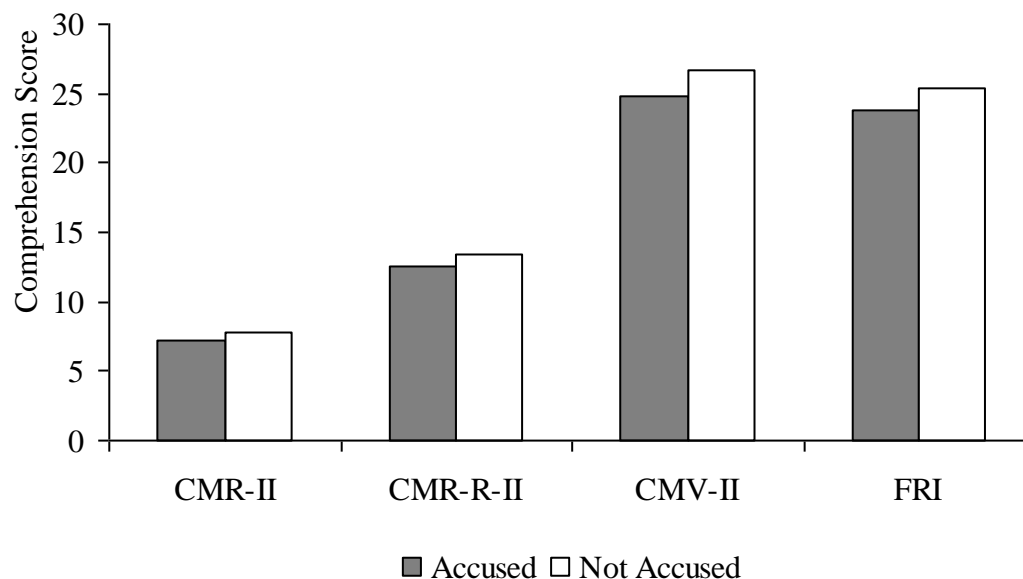


Figure 1. ($N = 104$). Average comprehension scores as a function of the accusation manipulation across the four instruments with higher values reflecting better comprehension of *Miranda*. The following abbreviations are followed by their corresponding instrument and range: 1) CMR-II → Comprehension of *Miranda* Rights instrument (0-12), 2) CMR-R-II → Comprehension of *Miranda* Rights-Recognition instrument (0-15), 3) CMV-II → Comprehension of *Miranda* Vocabulary instrument (0-32), and 4) FRI → Function of Rights in Interrogation instrument (0-30).

Results of the four ANCOVAs did not, however, support the prediction that administering the comprehension instruments in an oral fashion would worsen participants' performance on the *Miranda* comprehension instruments compared to administering the comprehension instruments in a written fashion. In fact, participants' performance on two of the four instruments was significantly better when the instruments were administered in an oral fashion compared to a written fashion (Table 3; Figure 2). Specifically, results indicated that participants who were administered the instruments in an oral fashion performed

significantly better than participants who were administered the comprehension instruments in a written fashion on the CMV-II, $F(1, 97) = 4.97, p = .03, d = .45$ ($M_{Oral} = 26.41; M_{Written} = 25.10$) and the FRI, $F(1, 97) = 5.86, p = .01, d = .49$ ($M_{Oral} = 25.15; M_{Written} = 24.01$). The method of administration manipulation did not significantly influence participants' *Miranda* comprehension as assessed by the CMR-II, $F(1, 97) = .73, p = .40, d = .17$ ($M_{Oral} = 7.43; M_{Written} = 7.58$) or the CMR-R-II, $F(1, 97) = .32, p = .57, d = .12$ ($M_{Oral} = 12.90; M_{Written} = 12.98$).

Table 3. Means, Standard Deviations in Parentheses, F-values, and Effect Sizes Associated with the *Miranda* Rights Comprehension Instruments - II as a Function of the Method of Administration Manipulation (N = 104)

Instrument	Oral (n = 52)	Written (n = 52)	F	d
CMR-II	7.43 (1.52)	7.58 (1.15)	0.73	.17
CMR-R-II	12.90 (1.42)	12.98 (1.41)	0.32	.12
CMV-II	26.41 (2.15)	25.10 (3.11)	4.97*	.45
FRI	25.15 (2.22)	24.01 (2.68)	5.86**	.49

* $p < .05$ ** $p \leq .01$

Note. Values under each condition reflect the average comprehension score for each instrument with higher scores indicating better comprehension. The following abbreviations are followed by their corresponding instrument or subscale: 1) CMR-II → Comprehension of *Miranda* Rights instrument, 2) CMR-R-II → Comprehension of *Miranda* Rights-Recognition instrument, 3) CMV-II → Comprehension of *Miranda* Vocabulary instrument, and 4) FRI → Function of Rights in Interrogation instrument.

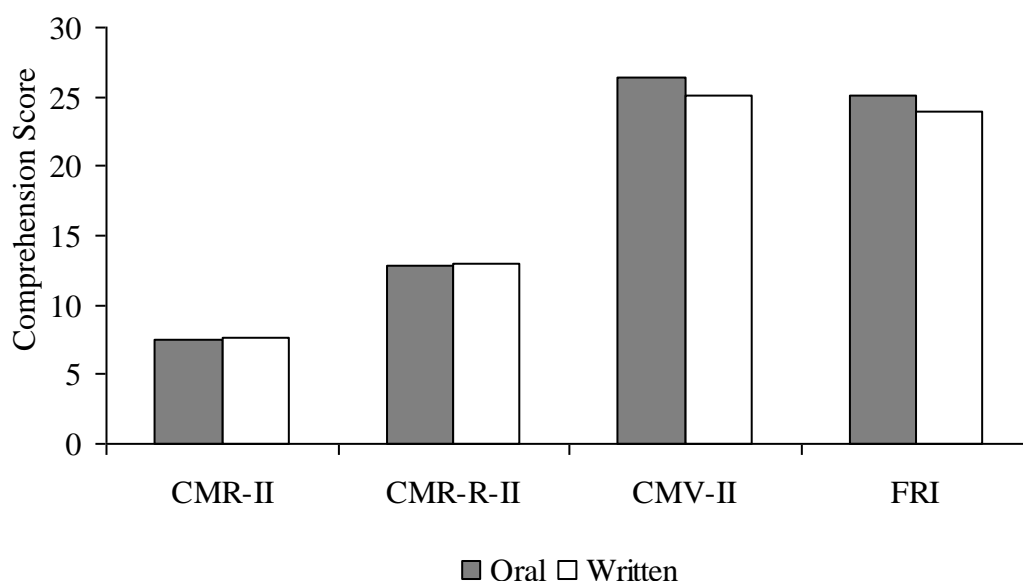


Figure 2. (N = 104). Average comprehension scores as a function of the method of administration manipulation across the four instruments with higher values reflecting better comprehension of *Miranda*. The following abbreviations are followed by their corresponding instrument and range: 1) CMR-II → Comprehension of *Miranda* Rights instrument (0-12), 2) CMR-R-II → Comprehension of *Miranda* Rights-Recognition instrument (0-15), 3) CMV-II → Comprehension of *Miranda* Vocabulary instrument (0-32), and 4) FRI → Function of Rights in Interrogation instrument (0-30).

Finally, results did not support the prediction that the accusation manipulation would influence *Miranda* comprehension more strongly when the comprehension instruments were administered in an oral fashion compared to a written fashion – that is, no support was found for a significant interaction between the accusation and method of administration manipulations (Table 4; Figures 3-6). Specifically, results indicated that the accusation and method of administration manipulations did not interact to significantly influence participants' *Miranda* comprehension across any of the four instruments, CMR-II, $F(1, 97) = .88, p = .35, d = .19$, the CMR-R-II, $F(1, 97) = .22, p = .64, d = .10$, the CMV-II, $F(1, 97) = .04, p = .84, d = .04$, or the FRI, $F(1, 97) = 1.03, p = .31, d = .21$.

Table 4. Means and Standard Deviations Associated with the *Miranda* Rights Comprehension Instruments - II as a Function of Accusation and Method of Administration Manipulations (N = 104)

Instrument	Accusation		No Accusation	
	Oral (n = 26)	Written (n = 26)	Oral (n = 26)	Written (n = 26)
CMR-II	7.03 (1.53)	7.35 (1.10)	7.83 (1.42)	7.82 (1.17)
CMR-R-II	12.46 (1.48)	12.54 (1.39)	13.35 (1.23)	13.42 (1.30)
CMV-II	25.80 (2.34)	23.94 (3.01)	27.03 (1.79)	26.26 (2.81)
FRI	24.15 (1.94)	23.50 (2.94)	26.14 (2.05)	24.51 (2.35)

Note. Values under each condition reflect the average comprehension score for each instrument with higher scores indicating better comprehension. The following abbreviations are followed by their corresponding instrument or subscale: 1) CMR-II → Comprehension of *Miranda* Rights instrument, 2) CMR-R-II → Comprehension of *Miranda* Rights-Recognition instrument, 3) CMV-II → Comprehension of *Miranda* Vocabulary instrument, and 4) FRI → Function of Rights in Interrogation instrument.

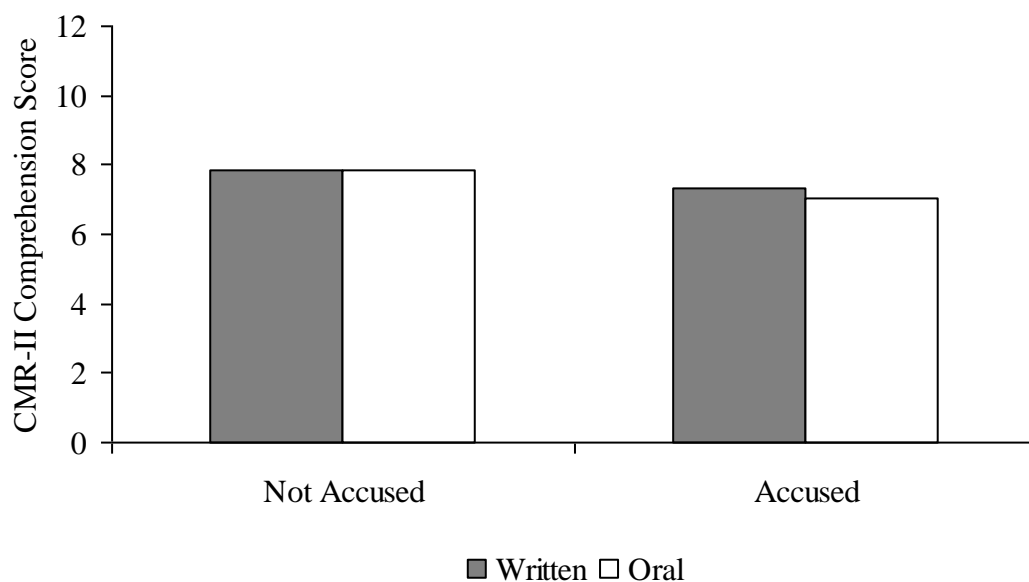


Figure 3. (N = 104). Average comprehension score on the CMR-II (Comprehension of *Miranda* Rights-II Instrument, 0-12) across the four conditions.

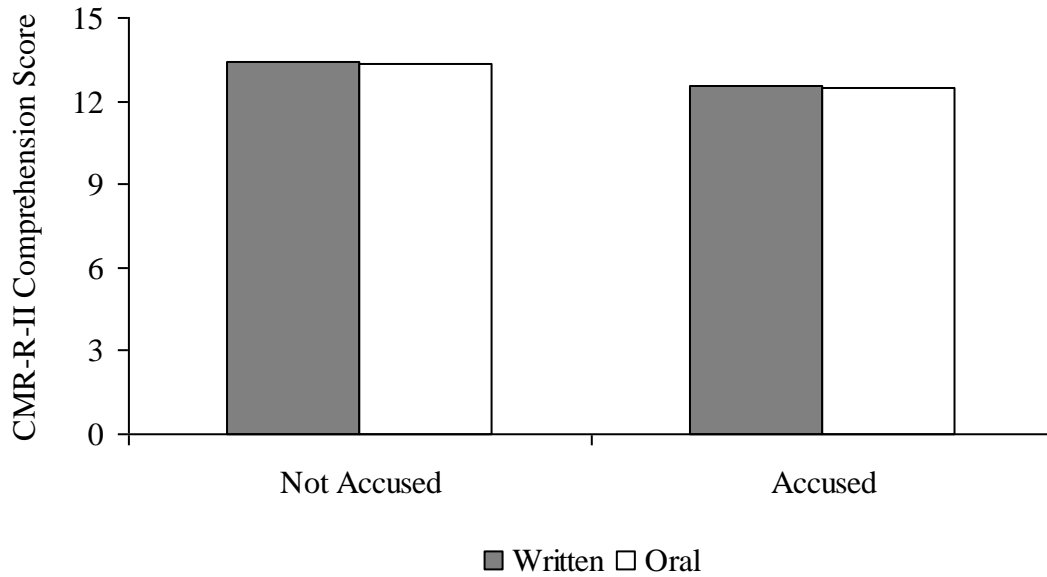


Figure 4. (N = 104). Average comprehension score on the CMR-R-II (Comprehension of Miranda Rights-Recognition-II Instrument, 0-15) across the four conditions.

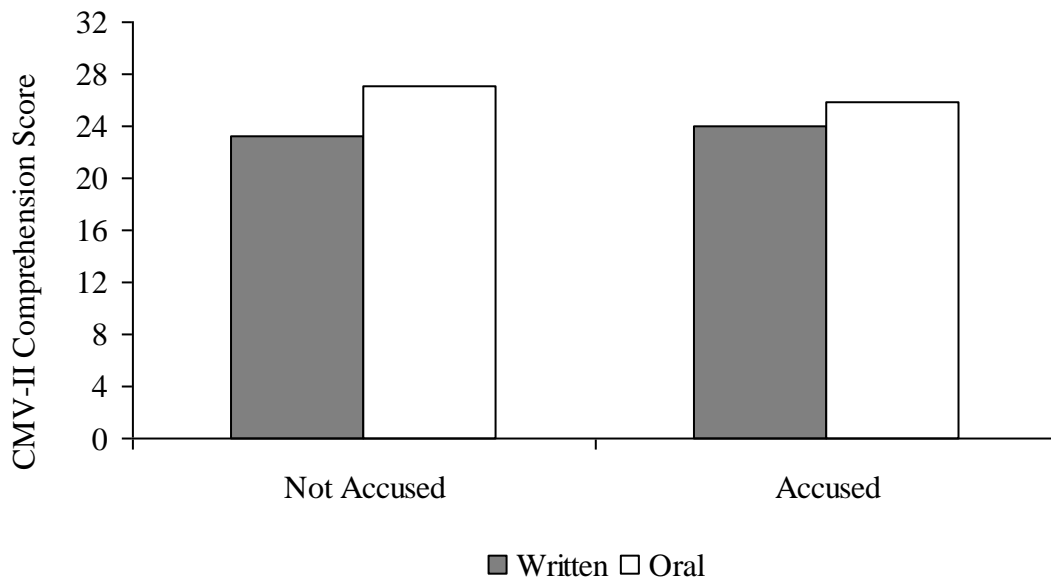


Figure 5. (N = 104). Average comprehension score on the CMV-II (Comprehension of Miranda Vocabulary-II Instrument, 0-32) across the four conditions.

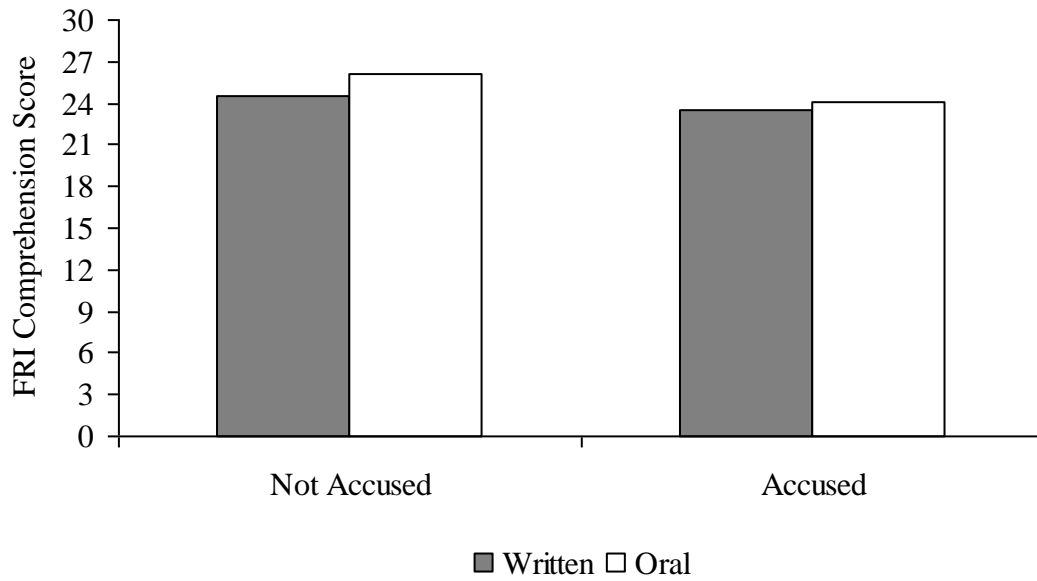


Figure 6. (N = 104). Average comprehension score on the FRI (Function of Rights in Interrogation Instrument, 0-30) across the four conditions.

CHAPTER 8. EXPERIMENT 1: DISCUSSION

The primary goals of Experiment 1 were to (1) examine whether the method in which *Miranda* is administered influences suspects' ability to comprehend their rights and (2) determine whether the way in which *Miranda* is administered exacerbates the deleterious effect of stress on suspects' ability to comprehend their rights. These goals were addressed by conducting an experiment that manipulated whether or not participants were accused of cheating during the experimental session and whether participants were administered the four *Miranda* comprehension instruments in an oral or a written fashion. Although not a primary goal of Experiment 1, results replicated previous research demonstrating that an accusation of cheating undermines participants' ability to comprehend *Miranda*. Aside from the main effect of the accusation of cheating on participants' ability to comprehend *Miranda*, results indicated that participants who were administered the *Miranda* comprehension instruments in an oral fashion performed significantly better on two of the four comprehension instruments – namely, the CMV-II and the FRI. However, no significant effect of the method of administration manipulation was observed for the CMR-II or the CMR-R-II instruments. Furthermore, results did not provide any support for the idea that administering *Miranda* in an oral fashion could exacerbate the deleterious effect of stress on suspects' ability to comprehend their rights. Next, I elaborate on the results observed in Experiment 1.

Stress Effects on *Miranda* Comprehension

The results of Experiment 1 replicated previous research indicating that stress undermines individuals' ability to comprehend *Miranda* (e.g., Rogers, et al., 2010; Scherr & Madon, in press). Replicating previous research is especially important in this regard because of the paucity of research investigating this relationship. Indeed, only two studies

have empirically examined the relationship between stress and *Miranda* comprehension (e.g., Rogers, et al., 2010; Scherr & Madon, in press). Thus, replicating this effect helps to establish the reliability of the relationship. Once consistent findings regarding a relationship are observed, causes underlying the relationship can then be investigated – an idea that is discussed next.

One reason that stress may undermine suspects' comprehension of *Miranda* is because of a compromised working memory system. According to processing efficiency theory (Eysenck, 1982, 1983, 1997), individuals under stress make more errors, require more processing time, and rely on cognitive shortcuts when engaged in problem solving and decision making tasks. Cognitive efficiency is especially likely to be compromised when individuals are engaged in difficult tasks (Eysenck, 1997), such as when suspects attempt to comprehend the legal vernacular of *Miranda* warnings. Thus, the reduced comprehension exhibited by participants may have occurred because they relied on less effortful, well-rehearsed cognitive processing. For example, because lawyers are often characterized in our society as being too expensive for most citizens (American Bar Association, 2002), suspects may rely on this heuristic and not realize that *Miranda* states that suspects have access to free counsel. Indeed, previous research has found that the right to free counsel is one of the least well understood components of *Miranda* (Rogers, 2008) – a pattern that was also observed in Experiment 1 by examining the frequency of correct answers on the CMR-R-II instrument.

Method of Administration Effects on *Miranda* Comprehension

One goal of the current research was to examine whether suspects' *Miranda* comprehension is affected by the way in which *Miranda* is administered. It was hypothesized that participants who were administered the comprehension instruments in an

oral fashion would exhibit worse comprehension than participants who were administered the comprehension instruments in a written fashion. This hypothesis was not supported by the results. On the CMR-II and CMR-R-II instruments, there was no significant effect of method of administration on participants' comprehension scores. However, in contrast to the hypothesized effect, participants' comprehension on the CMV-II and FRI instruments was significantly better when the instruments were administered in an oral fashion than a written fashion. There are several possible explanations that could explain this pattern.

First, the results could be a consequence of the way in which individuals are typically exposed to the vernacular of *Miranda*, especially the generation of individuals who comprised the majority of the sample. Because it is likely that the majority of college students' exposure to legal vernacular comes from the media (e.g., TV crime dramas, movies, etc.) instead of exposure that is read (e.g., textbooks, articles, etc.), participants may simply have been better able to comprehend *Miranda* after an oral administration because this is the fashion of administration they are most accustomed to. Comprehending *Miranda* in a written fashion might have been experienced as a more novel task.

However, the data did not provide strong support for this idea. Though a supplemental analysis that focused exclusively on criminal justice majors and minors (participants who presumably should have had more exposure to *Miranda* via texts and readings) indicated that they exhibited better comprehension on the CMV-II when it was administered in a written versus oral fashion, a parallel pattern did not emerge on the FRI. For the FRI, criminal justice majors and minors exhibited worse comprehension when the instrument was administered in a written versus oral fashion.

Second, it could be the case that participants were performing better when the instruments were administered in an oral fashion because of communication norms. Because individuals tend to be more attentive to the all of the information that is being communicated while engaging in face-to-face interactions due to basic norms of communication (Kiesler, Siegel, & McGuire, 1984), participants would not have experienced this normative pressure to attend to all the information when they were exposed to the comprehension measures in a written fashion. Thus, participants may have been paying closer attention to the *Miranda* comprehension instruments when these instruments were being administered from another person (i.e., the oral administration condition) compared to when the instruments were administered on paper.

Third, although in this research there was some indication that an oral administration led to better *Miranda* comprehension than a written administration, that finding might have arisen as a result of a standardized administration procedure. For instance, in the oral administration condition, all experimenters followed a standardized script and were trained to emphasize key points (e.g., you have the right to a lawyer even after you have waived that right), enunciate clearly, and speak at a relatively slow pace. However, it could be the case that in the context of an actual *Miranda* administration that police vary considerably in the way in which they administer the warnings. Whereas some police might administer the warnings in a manner consistent with that used by the experimenters in this research, others might deemphasize key points, mumble, and speak at a quick pace. Because variations of this nature could significantly influence suspects' *Miranda* comprehension, it is possible that the effects observed herein may not necessarily generalize to actual *Miranda* administrations.

Fourth, it could have been the case that the reason that significant differences were observed on only two of the four instruments (i.e., the CMV-II and FRI) could have been because these two instruments are more sensitive. Indeed, the total range of these instruments is larger than the total range for the CMR-II and CMR-R-II. Therefore, more research needs to be done in order to fully understand the relation between method of administration and *Miranda* comprehension.

Interaction Between Stress and Method of Administration on *Miranda* Comprehension

Another primary goal of Experiment 1 was to examine whether the way in which *Miranda* is administered moderates the deleterious effect that stress has on suspects' *Miranda* comprehension. It was predicted that the accusation manipulation would more strongly influence *Miranda* comprehension when the instruments were administered in an oral fashion compared to a written fashion. Results, however, did not support this hypothesis. There was no evidence of a significant interaction between stress and the way in which *Miranda* was administered across any of the four comprehension instruments.

One possible explanation for the lack of an observed interaction is that comprehending *Miranda* via an oral method of administration was not a sufficiently difficult task. Indeed, participants actually demonstrated better comprehension abilities on two of the four instruments when *Miranda* was administered in an oral fashion compared to a written fashion. Therefore, because previous research examining the relationship between stress and cognitive functioning has demonstrated that stress undermines cognitive functioning especially on difficult tasks (Eysenck, 1997), the ability of the method of administration to exacerbate the effect of stress may have been reduced because the task of comprehending *Miranda* via an oral administration was not sufficiently difficult in this experiment.

Although this explanation is just speculative, comprehending *Miranda* administered in an oral fashion may not have been sufficiently difficult because college students are generally more intelligent than the average population (e.g., Ceci & Williams, 1997) and are likely well practiced in comprehending information administered in an oral fashion because of typical classroom instructional methods. Thus, the sample used in this research is likely to have a higher level of intelligence and have more exposure to oral administrations of information compared to the average person, both which could have increased the likelihood that the task of comprehending *Miranda* after the instruments were presented in an oral fashion would not have been sufficiently difficult.

Accordingly, it seems highly unlikely that stress and method of administration can interact to influence *Miranda* comprehension, at least for samples similar to those used in Experiment 1. However, the possibility still remains that stress and the way in which *Miranda* is administered could interact to influence *Miranda* comprehension among other populations; namely, juveniles, less intelligent individuals, and substance abusers. Accordingly, further research needs to be conducted in order to warrant more definitive conclusions about the relationships among stress, method of administration, and *Miranda* comprehension, especially for juveniles, less intelligent populations, and substance abusers.

CHAPTER 9. EXPERIMENT 2: HYPOTHESES AND OVERVIEW

Conceptual Overview and Hypotheses of Experiment 2

The second study of this proposal tested the idea that stress plays a critical role in attaining a waiver of *Miranda* by causing suspects to be more vulnerable to subsequent police manipulations, such as the way police describe *Miranda*. The rationale for testing this idea was based on speculation in the literature that stress increases individuals' susceptibility to social pressures (e.g., Cialdini & Griskevicius, 2010; Leo, 1996b). Participants' stress levels were manipulated by telling some participants that their sharing of answers was a serious violation and telling other participants that their sharing of answers was not a serious violation during the experimental session. Experiment 2 also manipulated the way that the waiver was described by telling participants the waiver was either a formality or important.

Two hypotheses relevant to these variables were tested in Experiment 2: First, it tested the effect of the way a waiver is described on suspects' willingness to sign a waiver. It was predicted that participants who were told the waiver was a formality would sign the waiver more often than participants who were told the waiver was important. Second, it tested whether stress could interact with the way a waiver is described to influence suspects' willingness to sign a *Miranda* waiver. It was predicted that the effect of stress on participants' willingness to sign waiver would be stronger when the waiver was described as a formality compared to important.

CHAPTER 10. EXPERIMENT 2: METHOD

Participants

Participants were 102 undergraduates recruited from the Psychology Department's research participant pool at Iowa State University. Minors and non-native English speakers were not allowed to participate. The sample included 48 males and 54 females. The mean age of participants was 19.5 and approximately 93% of the sample identified themselves as Caucasian. In exchange for their participation, students earned credit in their psychology courses.

Design

Participants were randomly assigned to a 2 (Seriousness of Sharing Answers: not a serious violation vs. serious violation) x 2 (Waiver Description: formality vs. important) between subjects experimental design. Whereas participants who were told their sharing of answers was not a serious violation were led to believe that the professor of the experiment was not going to consider their sharing of answers a case of cheating, participants who were told their sharing of answers was a serious violation were led to believe that the professor of the experiment was going to consider their sharing of answers a case of cheating. Furthermore, when the waiver was described as being a formality, participants were told the waiver was a part of normal protocol for handling these situations and not a big deal. However, when the waiver was described as being important, participants were told the waiver has important implications for how the sharing of answers violation will be handled.

Materials of Experiment 2

All materials were the same as those used in Experiment 1 with the following exceptions.

Waiver. Participants were asked to sign a waiver that had a formal and authentic appearance and included an Iowa State University emblem stamp and various legal jargon (Appendix I). The waiver detailed how Iowa State values academic honesty and that violations of academic honesty are not taken lightly. For example, the waiver explained how some cases of academic dishonesty result in the student being put on academic probation or expelled. Furthermore, the waiver explained the procedures associated with a charge of academic dishonesty – from the initial report to a hearing by judicial affairs. The waiver was single spaced and approximately two-thirds of a page long. At the end of the main text of the waiver a line appeared that was preceded by a statement ensuring that participants understood that, by signing the waiver, they were waiving their right to have a student advocate (i.e., someone who typically handles cases of cheating) accompany them when they meet with the professor in charge of the experiment immediately after the session.

Perceptions of stress questionnaire. Participants' retrospective perceptions of their stress levels served as a manipulation check to determine the effectiveness of the seriousness of sharing answers manipulation (Appendix J). Participants were asked three questions in a casual manner. Specifically, participants were asked how anxious they felt after the experimenter explained the incident, how their anxiety level changed after the experimenter explained the incident, and how their anxiety level changed after hearing about meeting with the professor ($\alpha = .72$).

Waiver comprehension measures. Participants' comprehension of the waiver document was assessed with three measures that were tailored after the *MRCI-II*, created to fit the wording of the waiver that participants were administered (Appendix K). One instrument mirrored the *CMR-II* instrument (i.e., waiver comprehension instrument 1). This

instrument assessed participants' comprehension of the basic meaning of five statements. Participants were asked to explain the meaning of each of the statements. Responses were considered inadequate, questionable, or adequate, and scored 0, 1, or 2, respectively. Participants scores on this instrument could range from 0 (i.e., five inadequate answers) to 10 (i.e., five adequate answers).

The second instrument (i.e., waiver comprehension instrument 2) assessed participants' comprehension of the waiver statements. Instead of relying on individuals' verbal expressive skills, however, this instrument assessed waiver comprehension through recognition. The instrument presented three pre-constructed sentences for each of the five original statements presented during the first instrument. Participants were instructed to report whether each sentence is or is not identical in meaning to the original statement. Scoring for the second instrument is dichotomous, with incorrect responses receiving 0 points and correct responses receiving 1 point. Total scores can range from 0 (i.e., incorrect recognition of each of the 15 pre-constructed sentences) to 15 (i.e., correct recognition of each of the 15 pre-constructed sentences).

The third instrument (i.e., waiver comprehension instrument 3) assessed participants' comprehension of 16 words used in the waiver (e.g., advocate, right, appoint, etc.). Participants were asked to define the 16 words. Responses were considered inadequate, questionable, or adequate, and scored 0, 1, or 2, respectively. Total scores can range from 0 (i.e., inadequate responses to all 16 words) to 32 (i.e., adequate responses to all 16 words).

Procedures

The procedures of Experiment 2 were the same as the procedures used in Experiment 1 with the following exceptions. First, all participants in Experiment 2 were innocent of

cheating. Second, participants were led to believe that another experimenter (hereafter referred to as the *third-party*) would be handling the incident in accordance with departmental policy which requires that a third party be present. Participants who were told their sharing of answers was not a serious violation were informed that the professor of the experiment was notified that the pair had shared answers on one of the individual logic problems, that he was not going to consider the incident a case of cheating, but that the participant would still need to meet with him after the session because of departmental policy. In contrast, participants who were told their sharing of answers was a serious violation were informed that that the professor of the experiment was notified that the pair had shared answers on one of the individual logic problems, that he was going to consider the incident a case of cheating, and that the participant would need to meet with the him after the session because of departmental policy. Third, all participants were asked to sign a document waiving their right to have a student advocate (i.e., someone who typically handles cases of cheating) accompany them when they meet with the professor in charge of the experiment immediately after the session. After the experimenter introduced the third-party to the participant and the participant and the third-party were waiting for the experimenter to return with the waiver, the third-party talked to the participant for five minutes in order to build some rapport with the participant. To some of the participants, the third-party said that the waiver is merely a formality, simply a part of the protocol. For other participants, the third-party said that the waiver is something that the participant should pay close attention to because it is an especially important aspect of the protocol. After the third-party told participants whether the waiver was a formality or important, the third-party casually assessed participants' experiences of the experiment thus far. These questions served as the

assessment of participants' stress levels. After the five minutes passed, the experimenter re-entered the room with the waiver and handed it to the third-party and left.

The third-party then gave participants the waiver to read. After participants either signed or did not sign the waiver, the third-party informed participants that the experimenter would be back soon. The experimenter then came into the room and asked participants to complete a final survey. This final survey consisted of the three created instruments designed to assess participants' comprehension of the waiver. After participants completed the waiver comprehension assessment, the experimenter debriefed the participants, thanked them for their participation, and dismissed them.

CHAPTER 11. EXPERIMENT 2: RESULTS

Preliminary Analyses

Suspicion. Thirteen participants who indicated a high level of suspicion of actually being in trouble and having to meet with the professor of the experiment were removed from the main analyses. Five of these participants were told their sharing of answers was a serious violation and told the waiver was important (all five signed the waiver), three participants were told their sharing of answers was a serious violation and told the waiver was a formality (two of which signed), two participants were told their sharing of answers was not a serious violation and were told the waiver was important (neither of which signed), and three were told their sharing of answers was not a serious violation and told the waiver was a formality (all three of which signed). Although including these suspicious participants did not change any of the results of the analyses in terms of trends or significance, some of the effects became weaker.

Interrater agreement for waiver comprehension instruments. Two coders, blind to condition, independently coded participants' responses to two of the three created comprehension instruments used to assess participants' comprehension of the waiver. The third instrument, similar to the CMR-R-II, was not coded because it was scored in a purely objective manner.

Interrater agreement among the two coders with respect to the waiver comprehension instruments was examined using a correlation analysis. The results indicated that the two coders' ratings were highly correlated, $r = .61, p < .001$. The coded responses were averaged to yield one waiver comprehension score for each of the instruments used in the supplemental analyses.

Manipulation check. An independent samples *t*-test was conducted to examine if participants who were told their sharing of answers was a serious violation reported experiencing more stress compared to participants who were told their sharing of answers was not a serious violation. The independent variable was the seriousness of sharing answers manipulation. The dependent variable was participants' average score across the three items of the manipulation check assessment. Results indicated that the seriousness of sharing answers manipulation effectively induced a significant amount of stress in participants; participants who were told their sharing of answers was a serious violation ($M = 3.48$) reported experiencing significantly more stress compared to participants who were told their sharing of answers was not a serious violation ($M = 2.66$), $t(87) = 2.48$, $p = .02$, $d = .53$.

Gender. To test for gender differences in participants' willingness to sign the waiver, I performed a chi-square analysis. The results indicated that there were no significant differences between men's and women's willingness to sign the waiver, $\chi^2(1, N = 89) = .44$, $p = .51$.

ACT scores. An ANOVA was used to examine if there were differences in participants' self-reported ACT scores across the conditions. The independent variables for this analysis were the seriousness of sharing answers and waiver description manipulations. The dependent variable was participants' self-reported ACT scores. Results indicated that participants' self-reported ACT scores did not differ between the seriousness of sharing answers condition, $F(1, 86) = 1.69$, $p = .20$ or the waiver description condition $F(1, 86) = .64$, $p = .43$. Furthermore, there was not a significant relation between participants' legal familiarity and self-reported ACT scores ($r = -.14$, $p = .22$).

Descriptive information. Correlations, means, and standard deviations for the measures used in the analyses are presented in Table 5.

Table 5. Zero Order Correlations, Means, and Standard Deviations for Variables Used in Experiment 2 Analyses (N = 89)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
(1) Gender	---								
(2) Legal familiarity	.24*	---							
(3) ACT scores	.25*	-.14	---						
(4) Signing of waiver	.07	.01	.01	---					
(5) Reading time of waiver document	.18	-.06	.03	.11	---				
(6) Waiver comprehension 1	-.18	-.01	-.23*	-.18	.07	---			
(7) Waiver comprehension 2	.12	-.11	.06	.17	.15	-.01	---		
(8) Waiver comprehension 3	.14	-.08	.33**	.07	.04	-.24*	.20	---	
	<i>Mean</i>	51% ^a	1.18	24.74	74% ^b	141.58	7.80	12.09	25.54
	<i>SD</i>	---	.58	3.45	---	45.66	1.35	1.52	2.78

Note. ^aValue reflects percentage of participants who were females (1 = Female, 2 = Male). ^bValue reflects percentage of participants who signed a waiver (0 = did not sign waiver, 1 = signed waiver). Values associated with comprehension measures indicate average comprehension score with higher scores indicating better comprehension. Waiver comprehension 1 refers to the created instrument that assessed participants' ability to paraphrase five statements from the waiver. Waiver comprehension 2 refers to the created instrument that assessed participants' ability to determine whether a statement meant the same thing or something different than one of the original statements from the waiver. Waiver comprehension 3 refers to the created instrument that assessed participants' ability to define 16 words that were in the waiver.

* $p \leq .05$. ** $p \leq .01$.

Main Analyses

I performed a three step logistical regression analysis to examine the effect of the seriousness of sharing answers and waiver description manipulations on participants' willingness to sign the waiver. In the first step of the logistic regression analysis, I accounted

for the influence of participants' self-reported ACT scores and self-reported legal familiarity on their willingness to sign the waiver. A total of ten participants reported that they had been arrested at least once. Neither participants' self-reported ACT scores or self-reported familiarity with the legal system significantly predicted their willingness to sign the waiver, $\beta_s \leq .002$, $SEs \leq .51$, $Exp(\beta)s \leq 1.00$, $ps \geq .52$ (Table 6).

To examine the main effects of the seriousness of sharing answers and waiver description manipulations on participants' willingness to sign the waiver, the seriousness of sharing answers and waiver description terms were added to the variables included in Step 1. Results indicated that the seriousness of sharing answers manipulation did not significantly influence participants' willingness to sign the waiver, $\beta = -.29$, $SE = .53$, $Exp(\beta) = .75$, $p = .75$ (Table 6; Figure 7). It was hypothesized that participants who were told the waiver was a formality would be more willing to sign the waiver than participants who were told the waiver was important. This hypothesis was supported - participants who were told the waiver was a formality were significantly more willing to sign the waiver compared to participants who were told the waiver was important, $\beta = -1.33$, $SE = .55$, $Exp(\beta) = .26$, $p = .02$ (Table 6; Figure 8).

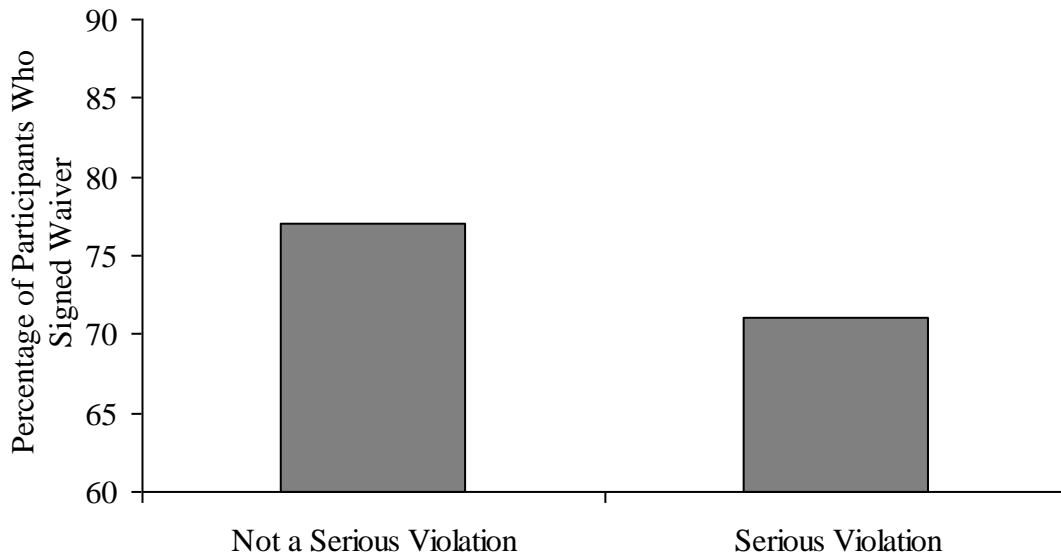


Figure 7. (N = 89). Percentage of participants who signed the waiver collapsed across the waiver description condition.

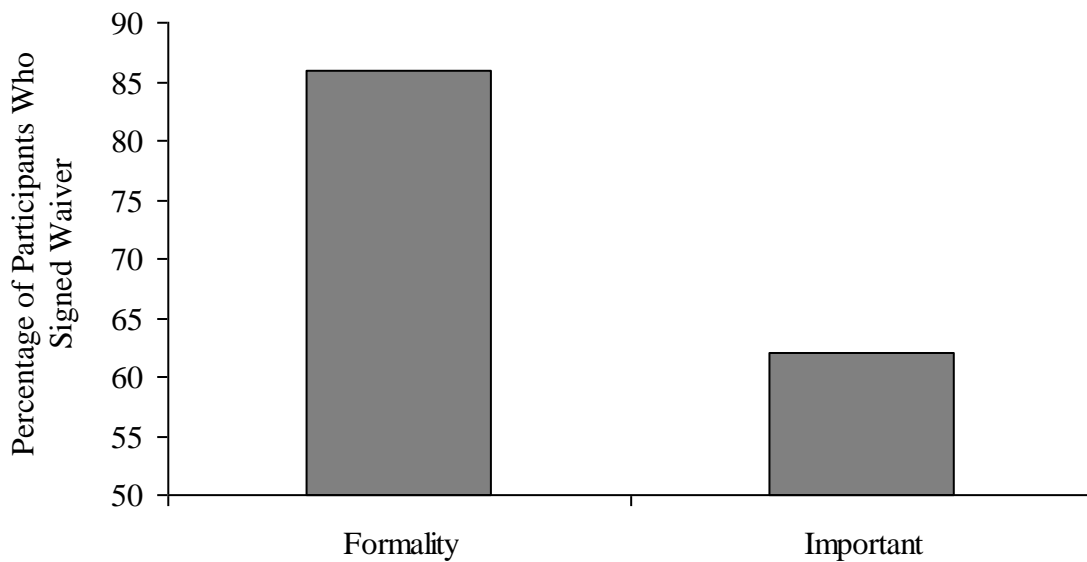


Figure 8. (N = 89). Percentage of participants who signed the waiver collapsed across the seriousness of sharing answers condition.

To examine whether the seriousness of sharing answers and waiver description manipulations interacted to influence participants' willingness to sign the waiver, an interaction term was added to the variables included in Step 2. It was hypothesized that the effect of the seriousness of sharing answers manipulation on participants' willingness to sign the waiver would be stronger when the waiver was described as a formality compared to important. However, there was no support for this hypothesis. The interaction between the seriousness of sharing answers and the waiver description was not significant, $\beta = -.07$, $SE = 1.13$, $\text{Exp}(\beta) = .93$, $p = .95$ (Table 6; Figure 9).

Table 6. Summary of Logistic Regression Analysis for Participants' Willingness to Sign the Waiver (N = 89)

Variable	β	SE	Wald	exp(B)	p
Step 1: Covariates, $\chi^2(2) = .32$, $p = .85$					
Constant	1.15	1.93	0.36	3.17	0.55
Legal familiarity	-0.29	0.51	0.32	0.75	0.57
ACT scores	0.002	0.07	0.001	1.00	0.97
Step 2: Main Effects, $\chi^2(2) = 6.66$, $p = .03$					
Seriousness of sharing answers	-0.23	0.53	0.18	0.80	0.67
Document description	-1.33	0.56	5.71	0.26	0.02
Step 3: Interaction, $\chi^2(1) = .004$, $p = .95$					
Seriousness of sharing answers X Waiver description	-0.07	1.13	0.004	0.93	0.93

Note. The following reflect the coding schemes used in the logistic regression analysis: Seriousness of sharing answers manipulation (0 = not a serious violation, 1 = serious violation), document description manipulation (0 = formality, 1 = important), and Signing of waiver (0 = did not sign waiver, 1 = signed waiver).

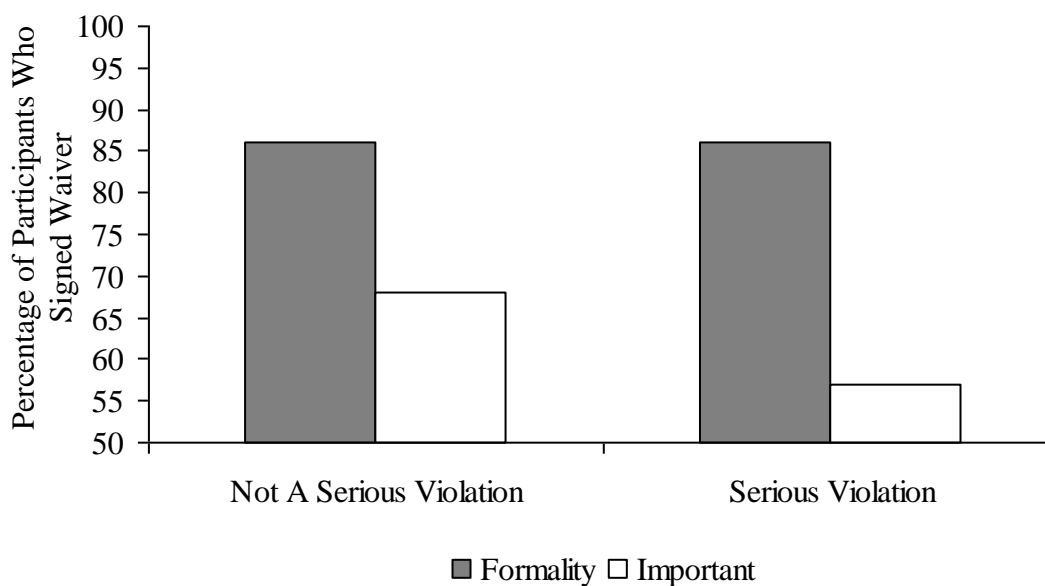


Figure 9. ($N = 89$). Percentage of participants who signed the waiver across all conditions.

Supplemental Analyses

A series of 2 (not a serious violation vs. serious violation) x 2 (formality vs. important) supplemental ANOVA and ANCOVA analyses were conducted to examine the relations between the seriousness of sharing answers and waiver description manipulations and (1) the time participants spent reading the waiver and (2) participants' comprehension of the waiver. The rationale for conducting these analyses was based on findings from previous research demonstrating that stress significantly influenced both the amount of time individuals spent reading a waiver (Scherr, 2011) and individuals' ability to comprehend *Miranda* (Experiment 1; Scherr & Madon, in press).

The dependent variable for the ANOVA analysis was the amount of time, in seconds, participants spent reading the waiver. Consistent with previous research (Scherr, 2011), results indicated that participants who were told their sharing of answers was a serious violation spent less time reading the waiver document compared to participants who were told their sharing of answers was not a serious violation, $F(1, 85) = 6.13, p = .02, d = .54$ ($M_{\text{Serious violation}} = 130.27; M_{\text{Not a serious violation}} = 153.16$; Table 7; Figure 10). Results also indicated that participants who were told the waiver was a formality spent significantly less time reading the waiver compared to participants who were told the waiver was important, $F(1, 85) = 3.93, p = .05, d = .43$ ($M_{\text{Important}} = 150.58; M_{\text{Formality}} = 132.39$; Table 8; Figure 11). However, there was no evidence of a significant interaction between the seriousness of sharing answers and waiver description manipulations on the amount of time participants spent reading the waiver, $F(1, 85) = 0.09, p = .77, d = .07$ (Table 9; Figure 12). These findings provide evidence that when the waiver was described as a formality – a technique that police have been observed to use in actual *Miranda* administration situations – participants spent less time reading the waiver.

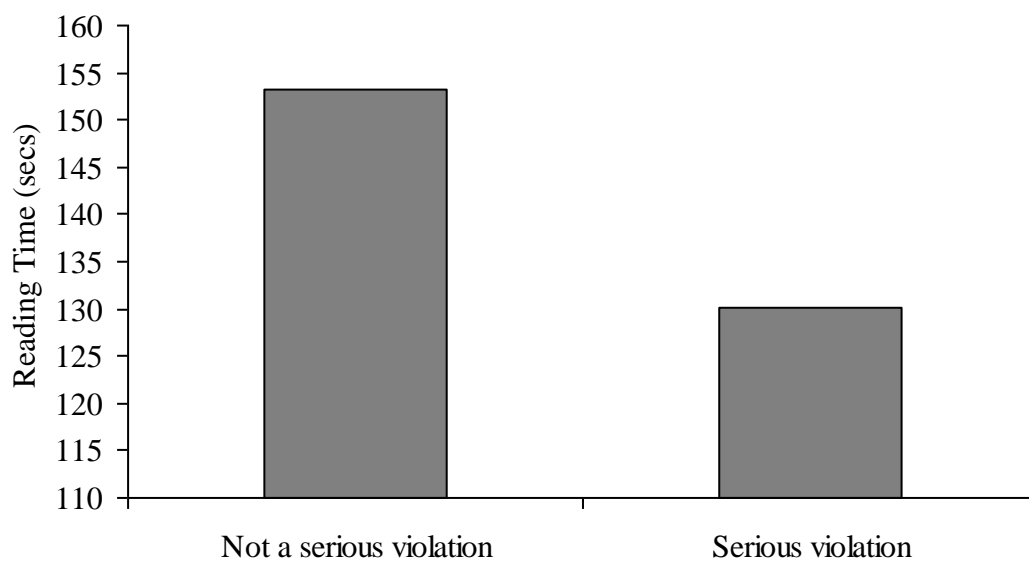


Figure 10. ($N = 89$). Amount of time participants spent reading waiver collapsed across the waiver description condition.

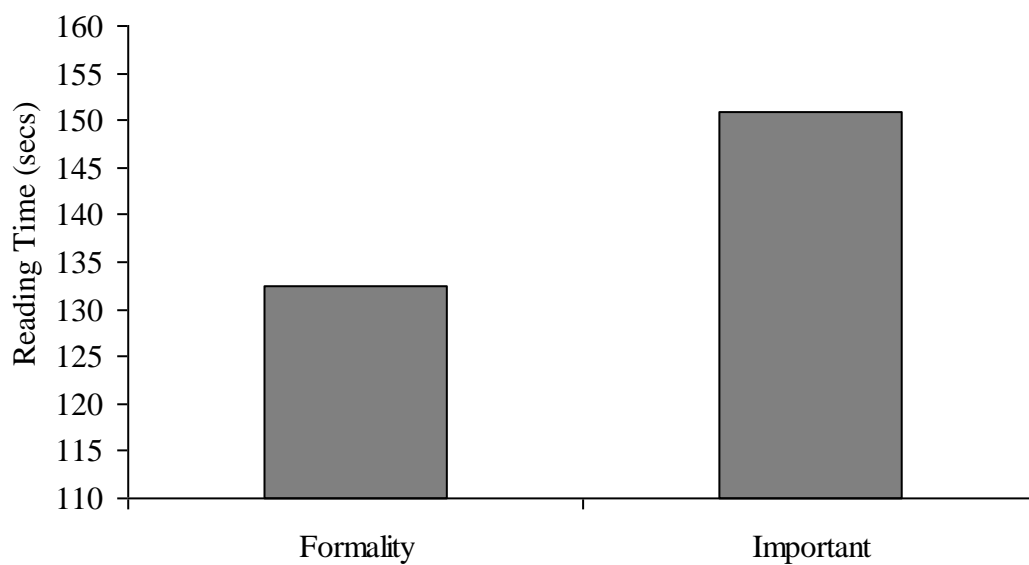


Figure 11. ($N = 89$). Amount of time participants spent reading waiver collapsed across the seriousness of sharing answers condition.

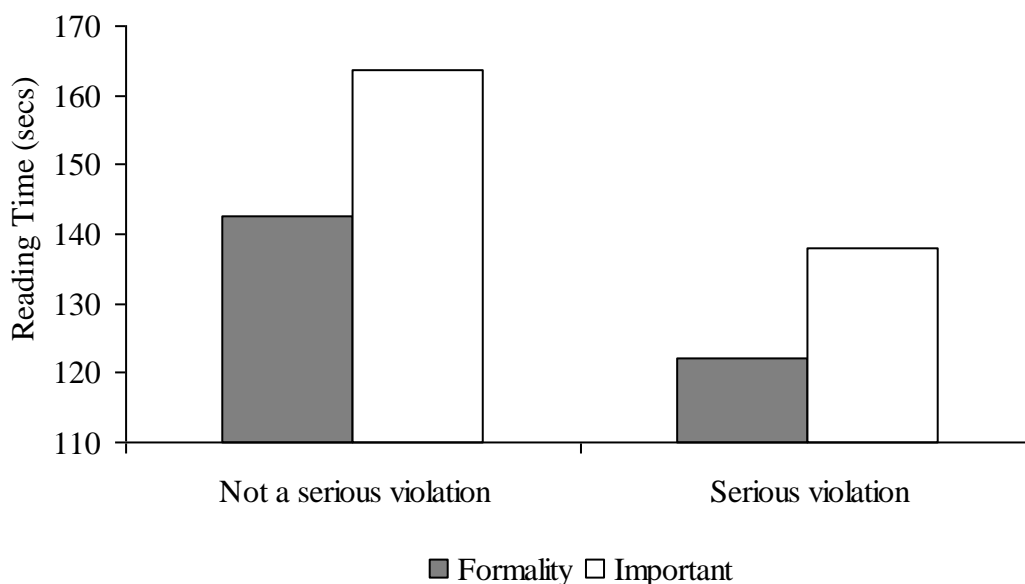


Figure 12. ($N = 89$). Amount of time participants spent reading the waiver across all conditions.

The dependent variables for the ANCOVA analyses were participants' scores on the three waiver comprehension instruments created for Experiment 2. The covariates used for these analyses were participants' self-reported ACT scores and self-reported familiarity with the legal system.

Results indicated that participants who were told their sharing of answers was a serious violation demonstrated a significantly worse comprehension on all three of the waiver comprehension measures compared to participants who were told their sharing of answers was not a serious violation, $F_s(1, 83) \geq 5.46$, $ps \leq .02$, $ds \geq .51$ (Table 7; Figure 13). Furthermore, the waiver description manipulation had a significant effect on participants' comprehension of all three waiver comprehension measures – participants who were told the waiver was a formality demonstrated a worse comprehension compared to participants who

were told the waiver was important, $F_s(1, 83) \geq 4.72$, $ps \leq .04$, $ds \geq .48$ (Table 8; Figure 14). However, there was no evidence of a significant interaction between the seriousness of sharing answers and waiver description manipulations on participants' ability to comprehend any of the three waiver comprehension measures, $F_s(1, 83) \leq 0.47$, $ps \geq .50$, $ds \leq .15$ (Table 9; Figures 15-17).

Table 7. Means, Standard Deviations in Parentheses, F-values, and Effect Sizes Associated with Reading Time and Waiver Comprehension Outcomes as a Function of the Seriousness of Sharing Answers Manipulation (N = 89)

Instrument	Serious violation ($n = 45$)	Not a serious violation ($n = 44$)	F	d
Reading time	130.27 (40.20)	153.16 (47.54)	6.13*	.54
Waiver comprehension 1	7.46 (1.12)	8.16 (1.21)	6.43**	.56
Waiver comprehension 2	11.73 (1.43)	12.35 (1.49)	5.46*	.51
Waiver comprehension 3	23.07 (2.33)	24.18 (2.85)	7.09**	.58

* $p < .05$ ** $p \leq .01$

Note. Values under each condition reflect the average reading time and comprehension score across the variables with higher scores indicating longer reading times and better comprehension. Waiver comprehension 1 refers to the created instrument that assessed participants' ability to paraphrase five statements from the waiver. Waiver comprehension 2 refers to the created instrument that assessed participants' ability to determine whether a statement meant the same thing or something different than one of the original statements from waiver comprehension 1. Waiver comprehension 3 refers to the created instrument that assessed participants' ability to define 16 words that were in the waiver.

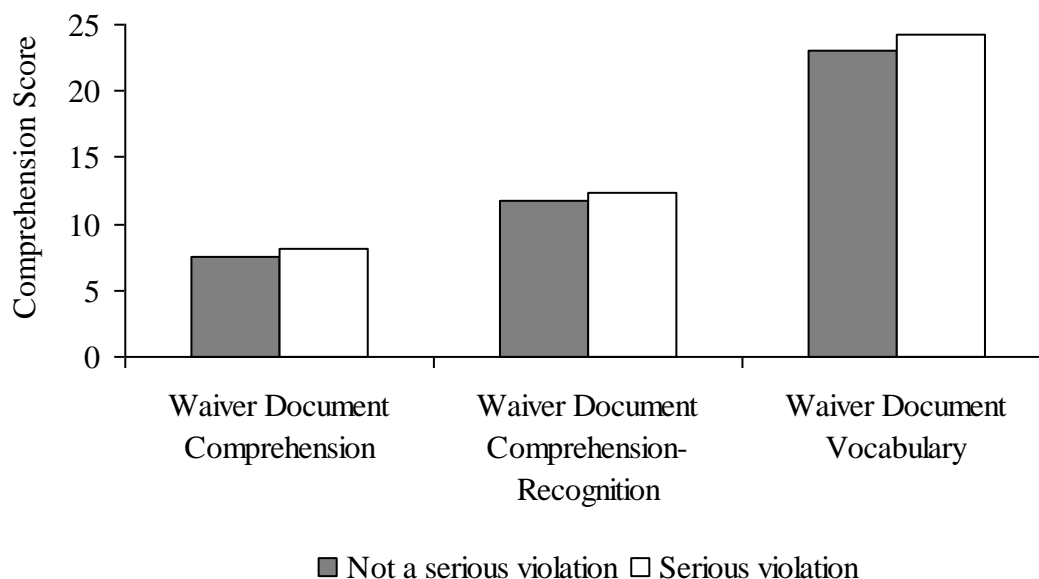


Figure 13. (N = 89). Average comprehension score for the three waiver comprehension instruments, with higher scores indicating better comprehension, collapsed across the waiver description condition.

Table 8. Means, Standard Deviations in Parentheses, F-values, and Effect Sizes Associated with Reading Time and Waiver Comprehension Outcomes as a Function of the Waiver Description Manipulation (N = 89)

Instrument	Formality (n = 44)	Important (n = 45)	F	d
Reading Time	132.39 (45.41)	150.58 (44.58)	3.93*	.43
Waiver comprehension 1	7.55 (1.13)	8.02 (1.25)	4.72*	.48
Waiver comprehension 2	11.74 (1.62)	12.30 (1.30)	5.46*	.51
Waiver comprehension 3	22.97 (2.54)	24.20 (2.61)	7.09**	.58

* $p < .05$ ** $p \leq .01$

Note. Values under each condition reflect the average reading time and comprehension score across the variables with higher scores indicating longer reading times and better comprehension. Waiver comprehension 1 refers to the created instrument that assessed participants' ability to paraphrase five statements from waiver comprehension 1. Waiver comprehension 2 refers to the created instrument that assessed participants' ability to determine whether a statement meant the same thing or something different than one of the original statements from the waiver. Waiver comprehension 3 refers to the created instrument that assessed participants' ability to define 16 words that were in the waiver.

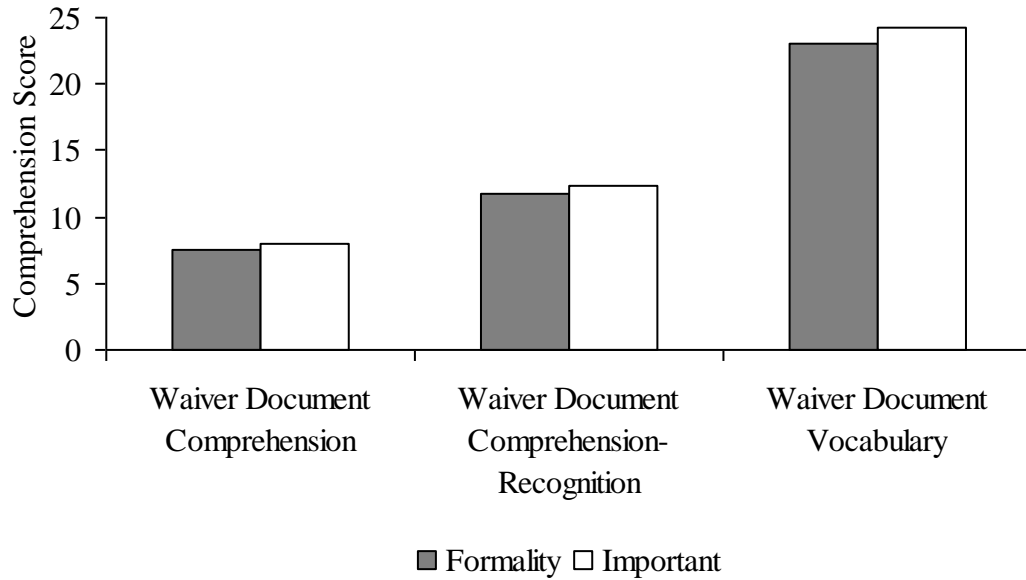


Figure 14. (N = 89). Average comprehension score for the three waiver document comprehension instruments, with higher scores indicating better comprehension, collapsed across the seriousness of sharing answers condition.

Table 9. Means and Standard Deviations of Amount of Time Participants Spent Reading Waiver Document and Waiver Comprehension Assessments as a Function of Seriousness of Sharing Answers and Document Description Manipulations (N = 89)

Variable	Serious Violation		Not a Serious Violation	
	Formality (n = 22)	Important (n = 23)	Formality (n = 22)	Important (n = 22)
Reading Time	122.23 (37.62)	137.96 (43.79)	142.55 (50.91)	163.77 (42.42)
Waiver comprehension 1	7.06 (1.74)	7.78 (0.99)	8.00 (.89)	8.33 (1.49)
Waiver comprehension 2	11.39 (1.50)	12.00 (1.35)	12.05 (1.71)	12.71 (1.16)
Waiver comprehension 3	22.61 (2.17)	23.44 (2.43)	23.30 (2.86)	25.17 (2.58)

Note. Values under each condition reflect the average reading time and comprehension score across the variables with higher scores indicating longer reading times and better comprehension. Waiver comprehension 1 refers to the created instrument that assessed participants' ability to paraphrase five statements from the waiver. Waiver comprehension 2 refers to the created instrument that assessed participants' ability to determine whether a statement meant the same thing or something different than one of the original statements from waiver comprehension 1. Waiver comprehension 3 refers to the created instrument that assessed participants' ability to define 16 words that were in the waiver.

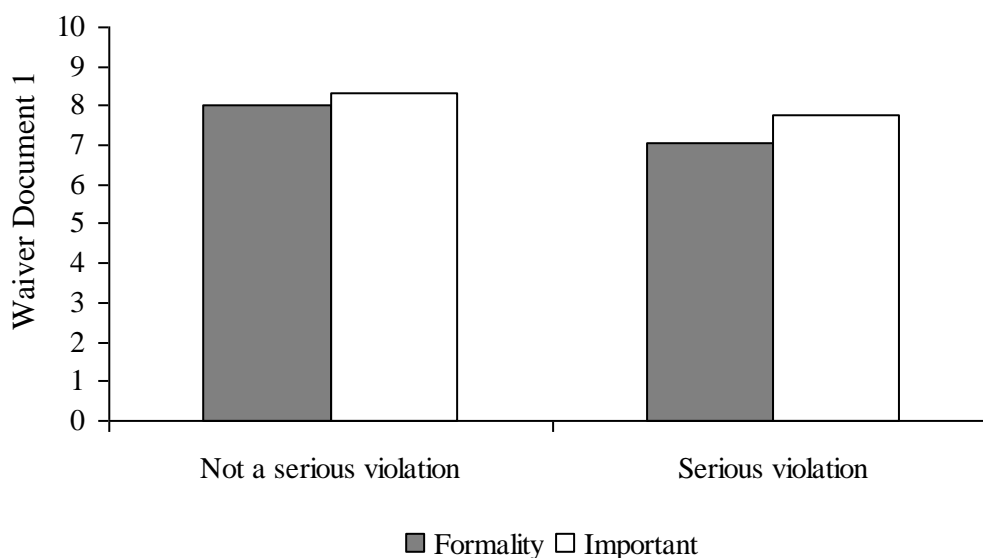


Figure 15. (N = 89). Average comprehension score on the Waiver Document 1 instrument (0-10) across the four conditions.

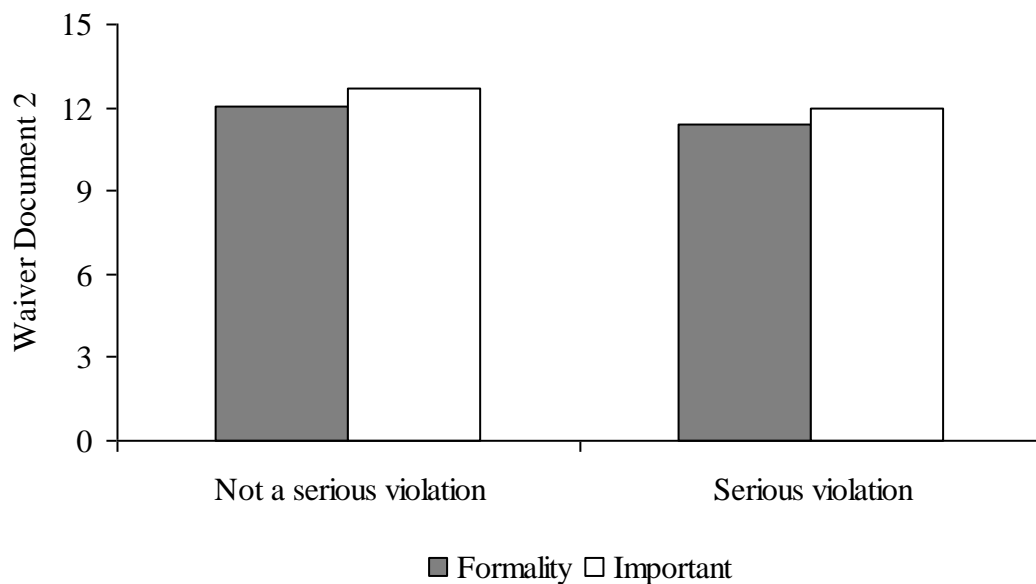


Figure 16. (N = 89). Average comprehension score on the Waiver Document 2 instrument (0-15) across the four conditions.

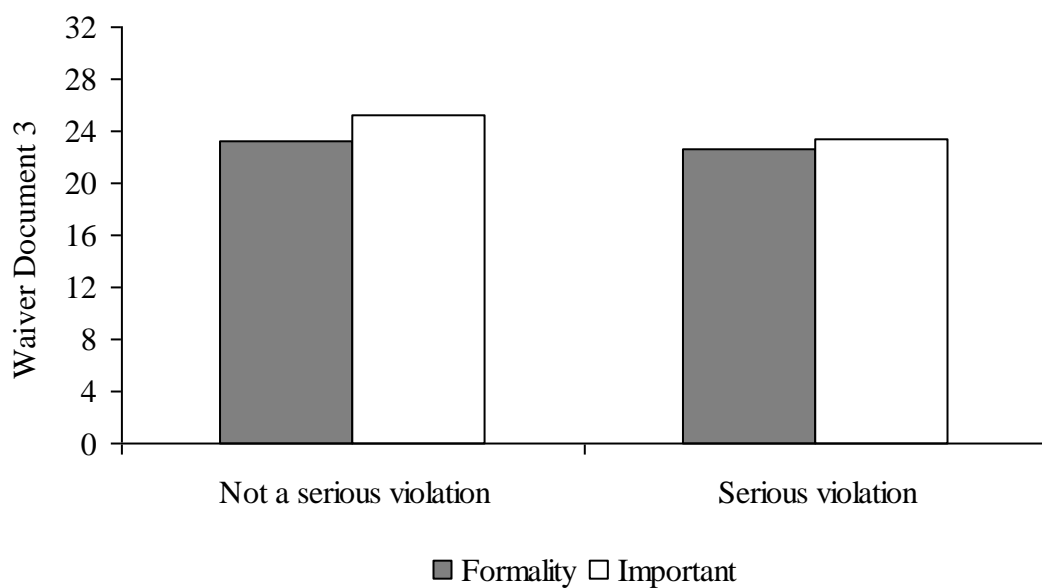


Figure 17. (N = 89). Average comprehension score on the Waiver Document 3 instrument (0-32) across the four conditions.

CHAPTER 12. EXPERIMENT 2: DISCUSSION

The primary goals of Experiment 2 were to (1) examine whether the way *Miranda* is described influences suspects' willingness to sign a waiver and (2) determine whether stress interacts with the way *Miranda* is described to influence suspects' willingness to sign a waiver. These goals were addressed by conducting an experiment that manipulated participants' stress levels by telling participants their sharing of answers was or was not a serious violation and manipulated the way the waiver was described by telling participants the waiver was either a formality or important. Results indicated that participants who were told the waiver was a formality were more willing to sign the waiver compared to participants who were told the waiver was important. However, there was no support for the idea that the seriousness of sharing answers and waiver description manipulations could interact to influence participants' willingness to sign the waiver. Next, I elaborate on the results observed in Experiment 2.

Effect of Waiver Description on Willingness to Sign Waiver

Experiment 2 examined the effect of the way a waiver is described on suspects' willingness to sign a waiver. It was hypothesized that participants who were told the waiver was a formality would be more willing to sign the waiver compared to participants who were told the waiver was important, an idea supported by the results. This is an important finding because, although speculation regarding the effect of how the waiver is described influences suspects' willingness to sign a waiver exists, no experimental evidence has ever demonstrated that the way a waiver is described can cause individuals to be more willing to sign a waiver.

The findings regarding the effect of the waiver description manipulation offer experimental support for Leo's (1996b) confidence game hypothesis. Specifically, observational investigations have posited that one technique police use to attain a *Miranda* waiver is to downplay and trivialize the implications of a waiver. The results of Experiment 2, indicating that participants were more willing to sign the waiver when they were told the waiver was a formality, add experimental evidence to existing observational research findings. Thus, the convergence of findings from both field and laboratory settings provide strong support for the hypothesis that the way in which police characterize *Miranda* is likely to be one contributing factor for why four out of five suspects offer a *Miranda* waiver (Leo, 1996b, Schulhofer, 1996).

Furthermore, this convergence of observational and experimental findings support the claim that the civil liberties *Miranda* was intended to afford suspects may not be fully realized. Existing observational research has claimed that a common police tactic used to attain a *Miranda* waiver is to downplay the importance of the waiver – a claim that is supported by the results of Experiment 2, which showed that highlighting the importance of the waiver reduced participants' willingness to sign it. Thus, if police were to highlight the importance of *Miranda* rather than to trivialize the warning, then suspects would be more likely to utilize the prophylactic safeguards *Miranda* was intended to afford suspects. Consequently, the civil liberties of suspects would be protected. However, during actual interrogations, some police may trivialize the importance of *Miranda* and this way of describing *Miranda* will cause suspects to not utilize the prophylactic safeguards against police intimidation *Miranda* was designed to offer suspects.

The findings from Experiment 2, along with those of existing research, suggest the need for different *Miranda* administration protocols in order to afford suspects the intended prophylactic safeguards. For example, the findings suggest one way to increase the likelihood that suspects are aware of the importance of *Miranda* would be to simply indicate to suspects, upon administration of the warnings, the implications they carry for the rest of the interrogation. Another practical and fair modification of the *Miranda* administration process would be to administer suspects their *Miranda* rights in a way that neither trivializes the warnings nor speaks to their importance. Police could, for example, administer *Miranda* to suspects and not have any contact with them until the suspect has made a decision to either invoke or waive their rights. Thus, suspects' decision to waive or invoke their rights would not be biased by verbal or non-verbal cues police may transmit.

Interaction Between Stress and Waiver Description on Willingness to Sign Waiver

Experiment 2 examined whether stress could interact with the way a waiver is described to influence suspects' willingness to sign a waiver. It was predicted that the effect of stress on participants' willingness to sign waiver would be stronger when the waiver was described as a formality compared to important. Results, however, did not support this hypothesis. The interaction between the seriousness of sharing answers and waiver description manipulations did not significantly influence participants' willingness to sign the waiver.

One explanation as to why a significant interaction was not observed could be due to the fact that all participants were accused of cheating. Regardless of whether participants were told their sharing of answers was or was not a serious violation, all participants were told they would have to meet with the professor of the experiment after the session.

Consequently, even participants who were told their sharing of answers was not a serious violation could have been experiencing a certain degree of stress above the level individuals typically experience. However, the issue of informing participants that they will have to meet with an authority is a problem that affects research examining the relation between stress and *Miranda* waiver issues. That is, it would not make sense to ask participants to offer a waiver of representation if they would not need any representation because they are not expecting to meet with an authority. Yet, by informing participants that they need to meet with an authority at a subsequent time, despite being told their sharing of answers was not a serious violation, likely will arouse a higher degree of stress than participants would typically experience. Thus, a trade-off exists between making the situation believable and employing a design void of any additional stress. Experiment 2 used a situation that was more believable, which may have resulted in a compromise of the strength of the difference of stress between participants who were told their sharing of answers was not a serious violation and participants who were told their sharing of answers was a serious violation.

Additional support for the idea that the operationalization of stress was problematic comes from the results of the manipulation check. Even though participants who were told their sharing of answers was a serious violation reported experiencing a higher amount of stress compared to participants who were told their sharing of answers was not a serious violation, the effect size observed for this operationalization of stress was smaller than was observed in previous research using a similar paradigm (cf. Experiment 1; Scherr & Madon, in press; Scherr, 2011). It could be the case that participants who were told their sharing of answers was a serious violation were experiencing the same amount of stress as participants who were accused in previous investigations, but participants who were told their sharing of

answers was not a serious violation were experiencing more stress than participants who were not accused of any cheating in previous investigations. If this were the case, then the way stress was operationalized in Experiment 2 was not as powerful as in previous studies employing this paradigm. Accordingly, had stress been operationalized in a way that resulted in larger differences among the four groups, the likelihood of observing a significant interaction would have been increased.

Supplemental Analyses

A series of supplemental analyses were conducted to examine the effect of the seriousness of sharing answers and waiver description manipulations on the amount of time participants spent reading the waiver and on participants' ability to comprehend the waiver. The results of these analyses are discussed next, starting with the analysis examining the amount of time participants spent reading the waiver.

Waiver reading time. The results of the first supplemental analysis indicated that when participants were told their sharing of answers was a serious violation they spent less time reading the waiver. Although this finding is a replication of previous research (Scherr, 2011), it is, nonetheless, important, because it provides evidence that the effect of stress on the amount of time individuals spend reading a waiver is reliable and generalizable across samples. There was also a significant effect of the waiver description manipulation such that when the waiver was described as being a formality, participants spent less time reading it. However, the seriousness of sharing answers and waiver description manipulations did not interact to influence the amount of time participants spent reading the waiver.

The findings regarding the effect of both stress and the waiver description on the time participants spent reading the waiver are important for several reasons. First, these results

provide support for the idea that factors present during police interrogations may hinder suspects from closely attending to *Miranda* waivers. That is, stress and trivializing the importance of a waiver could cause suspects to disregard the implications *Miranda* has on the interrogation sequence precisely because suspects are not spending enough time reading the waiver. This could arise because stress causes suspects to experience cognitive load, which has been shown to reduce attention (Gazzaley, 2011). Furthermore, because previous research has found that the amount of time individuals spend reading a waiver decreases their memory of the waiver's information (Scherr, 2011), these factors could be indirectly impairing individuals' memory of the waiver's information. Accordingly, the question of whether or not these suspects are offering the waiver intelligently, knowingly, and voluntarily is raised because stress and describing the waiver as a formality are causing them to spend less time reading the waiver, which in turn could impair their ability to attend to and process the waiver's information. If it is the case that the cognitive functioning of these suspects is impaired because of stress and the way the waiver is described, then the prophylactic safeguards *Miranda* was intended to offer may not be fully realized. This idea, that the intended safeguards of *Miranda* are not fully being realized, is further echoed in the findings of the other supplemental analyses.

Waiver comprehension. The remaining supplemental analyses indicated that stress impaired participants' waiver comprehension. Furthermore, the waiver description manipulation also influenced participants' waiver comprehension; when the waiver was characterized as a formality, participants demonstrated a worse ability to comprehend the waiver than when the waiver was characterized as important. However, the seriousness of

sharing answers and waiver description manipulations did not interact to influence participants' ability to comprehend the waiver.

The finding regarding the effect of stress on individuals' comprehension of the waiver are important because it provides additional support for the idea that stress undermines suspects' ability to comprehend *Miranda*. Moreover, because these results were found using a different sample, the ability to generalize the idea that stress undermines *Miranda* comprehension is increased.

The finding that the way the waiver is described affected participants' ability to comprehend the waiver is also noteworthy. This finding is noteworthy because it provides evidence that when suspects attempt to comprehend a waiver in a situation that closely resembles that of an actual interrogation, their comprehension is significantly compromised. Thus, it could be the case that when interrogators downplay the importance of *Miranda* and consequently obtain a waiver, part of the reason they are successful is because the way the waiver is described is causing suspects to not fully comprehend it. However, the results of three mediational analyses failed to provide strong support for the idea that the effect of the waiver description manipulation on participants' willingness to sign the waiver was mediated by their comprehension of the waiver. Specifically, a significant indirect effect was found for only one of the three waiver comprehension instruments (waiver comprehension instrument 3, point estimate of .02, 95% CI: .001; .05). For the other two instruments, the indirect effect was not significant (waiver comprehension instrument 1, point estimate of -.00005, 95% CI: -.001; .002; waiver comprehension instrument 2, point estimate of .0002, 95% CI: -.005; .005).

Another reason this finding is important centers on the issue of whether suspects perceive *Miranda* as relevant to the interrogation. A limitation of previous research (e.g., Experiment 1; Scherr & Madon, in press) examining the effect of stress on individuals' ability to comprehend *Miranda* is that it is unlikely that participants perceived the *Miranda* comprehension measures as relevant to their situation because the comprehension instruments were described as measures of individual differences. Thus, these studies did not address what effect would have been observed had participants perceived *Miranda* as relevant to their situation. However, the findings of Experiment 2 can offer some explanation as to what effect relevancy has on individuals' ability to comprehend *Miranda*. Specifically, the findings of Experiment 2 suggest that when the information of a waiver is made relevant, individuals will have a better comprehension of the information compared to when the waiver is not made relevant. Indeed, participants' comprehension was better when they were told the waiver was important and had implications regarding their situation, information that should have caused participants to perceive the waiver as relevant to their situation. However, because researchers have observed that some police minimize the relevancy of *Miranda* (Leo, 1996b; Simon, 1991), the paradigm used by previous investigations in which the *Miranda* comprehension instruments have been described as a measure of individual differences, might more closely resemble actual interrogations. As such, the findings obtained in Experiment 2 provide credibility to previous research examining the effect of stress on *Miranda* comprehension because they demonstrate that stress undermines individuals' comprehension of *Miranda* in a situation that mirrors actual police interrogations – situations in which it is likely that suspects do not perceive *Miranda* as relevant because of the way *Miranda* is characterized by the police.

CHAPTER 13. GENERAL OVERVIEW

This research sought to examine whether stress interacted with other factors present during the *Miranda* administration process to influence suspects' *Miranda* comprehension and willingness to sign a waiver. Experiment 1 tested whether the way in which *Miranda* is administered exacerbates the effect of stress on suspects' ability to comprehend *Miranda*. Experiment 2 tested whether stress interacted with the way a waiver is described to affect suspects' willingness to sign a waiver. Previous research had not addressed either of these issues.

The issues of *Miranda* comprehension and waivers are important because of the implications they have regarding the intended protections *Miranda* was designed to afford suspects. Indeed, very little experimental evidence exists addressing the issue of the effectiveness of *Miranda* as a prophylactic safeguard since the decision was handed down. As such, these two studies attempted to experimentally examine factors that may be preventing the intent of *Miranda* from being fully realized. Experiment 1 examined participants' ability to comprehend *Miranda* after either being accused or not being accused of cheating and then administering the *Miranda* comprehension instruments in either an oral or written fashion. It was predicted that these two factors would interact to influence participants' *Miranda* comprehension primarily because cognitive efficiency is especially likely to be compromised when individuals engage in difficult tasks (e.g., Eysenck, 1997). Experiment 2 examined participants' willingness to sign a waiver after either being told their sharing of answers was or was not a serious violation and then informing them that the subsequent waiver they were given was either a formality or important. It was predicted that these factors would interact to influence participants' willingness to sign a waiver based on

previous research speculating that individuals may be more susceptible to social pressures when they are experiencing stress (e.g., Cialdini & Griskevicius, 2010; Forrest, Wadkins, & Miller, 2002; Leo, 1996b).

Overview of Results

The results of these two experiments did not support either of the interaction hypotheses. Aside from the finding that stress undermined participants' ability to comprehend *Miranda* across all four comprehension instruments, there was no evidence that stress and the way in which *Miranda* was administered interacted to influence participants' *Miranda* comprehension. Moreover, the results of Experiment 1 demonstrated that the way in which the comprehension instruments were administered only influenced participants' comprehension on two of the four *Miranda* comprehension instruments. Specifically, participants demonstrated better comprehension when the assessments were administered in an oral fashion compared to a written fashion – a finding that is inconsistent with previous research (e.g., Rogers, 2008). This finding is especially problematic because, in addition to occurring in the opposite direction than was hypothesized, it only occurred on two of the four comprehension instruments. Nonetheless, as elaborated on earlier, there are some possible explanations for why this finding occurred and it remains a question that is important for future research to examine.

The results of Experiment 2 were more straightforward. Although results did not support the hypothesis that stress can interact with the way the waiver was described to influence participants' willingness to sign the waiver, results did indicate that the way the waiver was described affected participants' willingness to sign the waiver. Specifically, participants who were told the waiver was a formality were more willing to sign the waiver

compared to participants who were told the waiver was important. This is important because it is the first experimental evidence demonstrating that when a waiver is trivialized, individuals are more willing to sign it. A series of supplemental analyses revealed two other noteworthy findings. First, main effects were observed for both stress and the way the waiver was described on the amount of time participants spent reading the waiver. Specifically, participants who were told their sharing of answers was a serious violation spent less time reading the waiver – a finding that was replicated among participants who were told the waiver was a formality. Second, main effects were observed for both stress and the way the waiver was described on participants' comprehension of the waiver. Specifically, participants who were told their sharing of answers was a serious violation demonstrated a significantly worse comprehension of the waiver – a finding that was replicated among participants who were told the waiver was a formality.

Magnitude of Effects

By conducting this research in a laboratory setting using an experimental design, causal inferences can be made for the effect of stress on *Miranda* comprehension and the effect of the way a waiver is described on waivers of representation. However, the experimental nature of this research raises two issues regarding the observed effects. Because this research was conducted as a lab experiment, it suffers from a potential lack of generalizability. Indeed, it would have been neither ethical nor feasible to expose participants to the same degree of stress that accompanies police accusation. Furthermore, it could be the case that police trivialize the importance of *Miranda* during interrogations more intensely than was done during Experiment 2. For example, researchers have observed that it is common for police to offer cigarettes, food, beverages, etc. simultaneously while

indicating that *Miranda* is a formality in an attempt to attain a waiver (Simon, 1991).

Nonetheless, it is important to understand what this means with respect to these findings.

Because the degree of stress experienced by participants and the intensity of trivializing the waiver were likely less than what is experienced by suspects accused of crimes by police, the observed results are likely conservative. Although it is certainly possible that actual suspects may infer that the waivers are relevant and important and that, in these cases, the results of this research would not be conservative, it seems unlikely that suspects are making these inferences based on existing observational evidence (e.g., Leo, 1996b; Simon, 1991).

Therefore, it seems more likely that the effects that were observed in these data are conservative estimates of the effect that stress and the way the waiver is described have on *Miranda* comprehension and waivers during actual police accusations.

It is also important to note that, although the observed effects are likely conservative estimates, this does not necessarily mean that suspects' *Miranda* comprehension under these circumstances is unacceptably low from a legal perspective. Similarly, the likely conservative nature of the effects associated with the waiver findings does not necessarily mean that waivers offered under similar circumstances should not be considered valid. It is entirely possible that the degree to which stress undermines suspects' comprehension was not so large as to consider their comprehension of *Miranda* to be unacceptable during trial. It is also possible that suspects would still be willing to sign a waiver regardless of how *Miranda* is characterized by police. But, as stated earlier, the effects that were observed in these data are likely conservative estimates of the effects that would be observed during actual police accusations. Moreover, it is possible that stress and the way the waiver is described could interact with other factors (e.g., suspects' coping ability, beliefs of innocence, etc.) to further

undermine suspects' comprehension and increase their willingness to sign a waiver.

Accordingly, during actual police interrogations, the effect of stress could reduce suspects' *Miranda* comprehension and the way *Miranda* is described could increase suspects' willingness to sign a waiver to an unacceptable degree, even from a legal perspective.

Lastly, it is important to understand what was likely driving the large effect sizes observed in Experiment 1. One way to understand the differences between the accused and not accused groups in Experiment 1 is to examine the percentage of participants who scored at the lower and upper extremes of the scales that assessed *Miranda* comprehension. Indeed, the fact that there were only small differences in the average comprehension scores across the four instruments suggests that the observed effect of the accusation manipulation on comprehension scores was driven by differences at the extreme ends of the scales. For example, of participants who scored at or beneath the 10th percentile on the CMR-II (i.e., 5.67 or worse), 79% (n = 11) were in the accused condition. By contrast, of participants who scored at or above the 90th percentile on the CMR-II (i.e., 9 or better), 70% (n = 14) were in the not accused condition. The same pattern emerged with respect to the other scales: whereas 80% (n = 12) of participants who scored at or beneath the 15th percentile (i.e., 11 or worse) on the CMR-R-II were in the accused condition, 66% (n = 25) of participants who scored at or above the 85th percentile (i.e., 14 or better) on the CMR-R-II were in the not accused condition; whereas, 80% (n = 8) of participants who scored at or beneath the 10th percentile (i.e., 21.33 or worse) on the CMV-II were in the accused condition, 77% (n = 10) of participants who scored at or above the 90th percentile (i.e., 28.67 or better) on the CMV-II were in the not accused condition; and whereas 82% (n = 9) of participants who scored at or beneath the 10th percentile (i.e., 21.33 or worse) on the FRI were in the accused condition,

86% (n = 12) of participants who scored at or above the 90th percentile (i.e., 27.5 or better) on the FRI were in the not accused condition. These percentages provide evidence that it was participants who scored at the extremes of the instruments who might have been largely responsible for the large effect sizes that were observed for the accusation manipulation in Experiment 1.

Implications

The findings of these two experiments contribute to the understanding of factors that influence *Miranda* rights issues and have implications for the integrity of the criminal justice system as well as for the civil liberties of suspects. These findings suggest a need for standardization in the administration of *Miranda* warnings. The idea of standardization of the *Miranda* administration process is important to suspects' ability to comprehend *Miranda* and also for the valid offering of *Miranda* waivers. Specifically regarding *Miranda* comprehension, because *Miranda* is not administered in a standardized fashion (e.g., Greenfield, et al., 2001; Rogers, et al., 2007), it is possible that stress, caused by police accusation, could interact with various characteristics of *Miranda* warnings. For example, stress may undermine *Miranda* comprehension more strongly when the warnings are longer versus shorter or presented at a more difficult versus a less difficult reading level. Empirical evidence showing that stress undermines suspects' comprehension of the warnings under these conditions would support reforms to standardize *Miranda* warnings in terms of length and reading difficulty.

The results of this research also suggest that standardization of the *Miranda* administration process has implications regarding suspects' willingness to sign a *Miranda* waiver. If police interrogations were conducted using a standardized protocol consistent

across jurisdictions and void of psychologically manipulative tactics (e.g., trivializing the waiver), suspects would not be able to base their waiver decisions on information gleaned from police's verbal and non-verbal behavior. Instead, suspects' waiver decisions would be based on their own knowledge and void of any cues observed from police. As discussed earlier, a practical and fair protocol would be to administer suspects their *Miranda* rights in a way that does not trivializes the warnings, but rather speaks to their importance. When administering *Miranda*, for example, police could inform suspects that the warnings have implications for the remainder of the interrogation. Standardizing the protocol of the *Miranda* administration process could ameliorate some of the effects that factors present during police accusation are having on suspects' *Miranda* comprehension and willingness to sign a waiver, and, therefore, increase the likelihood that the intent of *Miranda* is being fully realized.

Whether or not the intent of *Miranda* is being realized and suspects are being afforded protections against police intimidation has important consequences regarding the ability of police to elicit confessions from suspects. Because *Miranda* is the choice point of the interrogation sequence, suspects' decision to either invoke or waive their rights at this choice point will largely determine the rest of the interrogation. When suspects invoke their rights, they are advantaging themselves because they will be aided by knowledgeable counsel throughout the interrogation process. Because they have the aid of knowledgeable counsel they will, presumably, be less susceptible to police intimidation. However, a completely different interrogation environment exists when suspects waive their rights. Instead of having knowledgeable legal counsel to aid them throughout the interrogation process, suspects will be subjected to police intimidation. Additionally, when suspects waive their

rights and chose to navigate the interrogation process alone, they face an increased likelihood of offering incriminating information and, in the case of innocent suspects, an increased likelihood of offering a false confession. Thus, getting suspects to offer a waiver of *Miranda* is a crucial component in the sequence of events that must transpire in order for police to elicit a confession from suspects. As evidenced by the findings of this research, factors present during police interrogations may be hindering suspects from utilizing the prophylactic safeguards *Miranda* was intended to offer by undermining their comprehension of *Miranda* and increasing their willingness to sign a waiver. This is especially problematic in the case of innocent suspects, because, if the intent of *Miranda* is not fully being realized, innocent suspects may make decisions that will put them on trajectories that increase the likelihood they will be exposed to police intimidation and offer false confessions.

Limitations

There are two limitations of this research that need to be addressed. First, stress was manipulated via an accusation of cheating in Experiment 1 and via a manipulation of the seriousness of sharing answers in Experiment 2. Although the manipulation checks of both experiments demonstrated that the manipulations significantly influenced participants' stress, this does not rule out the possibility that the manipulations had additional effects on the outcomes for reasons that were unrelated to stress. Specifically, regarding the findings of Experiment 1, it is possible that some characteristic of the accusation that was not associated with stress was partly responsible for the differences that were observed in participants' *Miranda* comprehension scores (e.g., anger, frustration, etc.). Although no data were collected that can directly address this question, current theoretical perspectives specifically hypothesize that stress, caused by police accusation, undermines suspects' comprehension of

their *Miranda* rights (Grisso, 1998; Kassin et al., 2007; Oberlander & Goldstein, 2001), thereby supporting the interpretation that the accusation manipulation at least partly affected participants' *Miranda* comprehension scores because of its effect on their stress levels.

Furthermore, because the operationalization of stress in Experiment 2 was not very strong, it could have been a contributing factor as to why stress did not interact with how the waiver was described to significantly influence participants' willingness to sign the waiver. Part of the reason the operationalized of stress was not very strong in Experiment 2 was because a believable situation had to be created in which participants had the ability to waive representation during a potential meeting with the professor in charge of the research. As such, all participants in Experiment 2 were told they had to meet with the professor after the experimental session. Even though some participants were told their sharing of answers was not a serious violation, the fact that these participants would still have to meet with the professor of the study could have aroused a high degree of stress – more than they would typically experience. Thus, although participants who were told their sharing of answers was a serious violation reported experiencing more stress compared to participants who were told their sharing of answers was not a serious violation, it is possible that participants who were told their sharing of answers was not a serious violation were still experiencing a high degree of stress and this stress influenced their willingness to sign the waiver. Therefore, a cleaner and more powerful operationalization of stress would be one in which participants who are told their sharing of answers is not a serious violation are also not informed they need to meet with the professor of the experimenter. However, the issue of believability, as discussed earlier, then becomes problematic. Nonetheless, the operationalization of stress in Experiment 2 would have ideally been cleaner and more powerful in that participants who

were told their sharing of answers was not a serious violation would not be experiencing any additional stress.

A second potential limitation of this dissertation pertains to the perceived relevancy of the *Miranda* measures used in Experiment 1. In Experiment 1, participants were led to believe that the *Miranda* comprehension instruments were a measure of individual differences. Thus, it is not likely that participants who were accused of cheating perceived the *Miranda* comprehension instruments as relevant to the accusation. This is an important issue because, as the supplemental analyses of Experiment 2 indicated, when participants perceived *Miranda* as relevant (i.e., when they were told the waiver document was important), they demonstrated better comprehension of the waiver. However, it is worthwhile to point out that police often attempt to reduce suspects' perceptions of the relevancy of *Miranda* warnings. For example, legal scholars have observed that some police will employ various tactics that make it appear as though the warnings are not particularly relevant to suspects' long-term outcomes by minimizing and trivializing the importance of the warnings and by administering the warnings in a nonchalant fashion (Leo, 1996b; Simon, 1991). Accordingly, the scenario used in Experiment 1 closely resembles the situation that would be observed outside the lab. Nonetheless, further research needs to be done in order to draw more definitive conclusions regarding relationships among accusations, perceived relevancy, and *Miranda* comprehension.

Conclusion

The two experiments of this dissertation contribute to the understanding of the effectiveness of the safeguards the *Miranda* ruling was intended to offer suspects against police intimidation. The results of Experiment 1 provided support that stress undermines

suspects' ability to comprehend their *Miranda* rights and that this effect is present regardless of whether *Miranda* is administered in an oral or a written fashion. Although the results did not indicate that stress has a more detrimental effect on *Miranda* comprehension when the warnings are presented in an oral versus a written fashion, this remains an important question to examine among other populations such as juveniles, substance abusers, and mentally retarded individuals. The results of Experiment 2 provided the first experimental evidence for the idea that when police describe *Miranda* as being a formality, suspects are more willing to offer a *Miranda* waiver.

Taken together, the results of these two experiments shed light on the issue of the effectiveness of the prophylactic safeguards *Miranda* was designed to afford suspects against police intimidation. Two factors that are present during police interrogations, namely stress and the trivialization of *Miranda*, increase the likelihood that suspects will not appreciate and utilize the prophylactic safeguards that *Miranda* was designed to afford them and, thus, increase the likelihood they will be subjected to police intimidation during police interrogations.

APPENDIX A. CMR-II

Participant ID#: _____

All participants will be instructed to respond to these statements by paraphrasing the statement.

1. You have the right to remain silent.
2. Anything you say can and will be used against you in court.
3. You have the right to talk to a lawyer (for advice) before we ask you any questions and to have him or her with you during questioning.
4. If you cannot afford a lawyer, one will be appointed (to represent you) for you before questioning if you wish.
5. If you decide to answer questions now (with or) without a lawyer present, you still have the right to stop questioning at any time until you talk to (for the purpose of consulting) a lawyer.

APPENDIX B. CMR-R-II

Participant ID#: _____

All participants will be instructed to respond to these statements by indicating whether the three subsequent sentences mean the same as the original sentence.

1. You have the right to remain silent.
 - a. It is not right to tell lies.
 - b. You should not say anything until the police ask you questions.
 - c. You do not have to say anything about what you did.
2. Anything you say can be used against you in court.
 - a. What you say might be used to prove you are guilty.
 - b. If you won't talk to the police, then that will be used against you in court.
 - c. If you tell the police anything it can be repeated in court.
3. You have the right to talk to a lawyer before we ask you any questions and to have him or her with you during questioning.
 - a. You can talk to your social worker before anything happens.
 - b. A lawyer is coming to see you after the police are done with you.
 - c. You can have a lawyer now if you ask for one.
4. If you cannot afford a lawyer, one will be appointed for you before questioning if you wish.
 - a. If you don't have the money for a lawyer the court will appoint a social worker to help you.
 - b. You can get legal help if you are poor.
 - c. The court will give you a lawyer free if you don't have the money to pay for one.
5. If you decide to answer questions now without a lawyer present, you still have the right to stop questioning at any time until you talk to a lawyer.
 - a. Even though you answered some of the police officer's questions, you still can ask for a lawyer at any time.
 - b. No matter when you ask for a lawyer, you will not get one until after the police question you about the crime.
 - c. Even if you ask for a lawyer during questioning, you cannot speak with lawyer until the day you go to court.

APPENDIX C. FRI

Participant ID#: _____

All participants will be shown a picture of a particular situation. The participant will then be asked to respond to questions regarding what is going on in the picture.

Picture #1. **Joe's Interrogation:** a suspect sitting at a table across from two police officers.

1. What is it that the policeman will want Joe to do?
2. Finish this sentence. The police think that Joe_____.
3. What is the most important thing the police might want Joe to tell them?
4. How are the policeman probably feeling?
5. How is Joe probably feeling?

Picture #2. **Tim and His Lawyer:** a suspect and a lawyer in consultation in a room.

1. What is the main job of the lawyer
2. While he is with his lawyer, what is Tim supposed to do?
3. What is the main thing Tim's lawyer will be talking to Tim about?
4. Imagine that Tim's lawyer is saying, "I want you to tell me exactly what you did and tell me the truth about what happened." Then Tim tells him that he did the crime. Why would Tim's lawyer want to know that?

Picture #3. **Greg's Interrogation:** a suspect in a room with two police officers.

1. Finish this sentence. If Greg decides to tell the police about what he did, then the things Greg says _____.
2. If Greg decides not to talk, what is the most important thing the police are supposed to do?
3. If Greg says he doesn't want to talk but the police tell him he *has* to talk, what should happen then?

Picture #4. **Greg's Court Hearing:** a courtroom hearing with a judge, police officers, parents, the defendant's lawyer, and the defendant.

1. If Greg's lawyer did just what he is supposed to do here in court, how would Greg be feeling?
2. If the judge finds out that Greg wouldn't talk to the police, then what should happen?
3. Greg did not tell the police anything about what he did. Here in court, if he were told to talk about what he did that was wrong, will he have to talk about it?

APPENDIX D. CMV-II

Participant ID#: _____

All participants will be read a word and then the word will be used in a sentence. Participants will be instructed to say in their own way what the word means.

1. Consult
2. Attorney
3. Questioning
4. Used against
5. Right
6. Lawyer
7. Statement
8. Entitled
9. Afford
10. Advice
11. Interrogation
12. Remain
13. Appoint
14. Present
15. Confession
16. Represent

APPENDIX E. EXPERIMENT 1 MANIPULATION CHECK QUESTIONS

PID _____

1) How nervous were you right before the second experimenter talked to you?

1	2	3	4	5	6	7
Not at all nervous						Extremely nervous

2) How anxious were you right before the second experimenter talked to you?

1	2	3	4	5	6	7
Not at all anxious						Extremely anxious

3) How worried were you right before the second experimenter talked to you?

1	2	3	4	5	6	7
Not at all worried						Extremely worried

4) How concerned were you right before the second experimenter talked to you?

1	2	3	4	5	6	7
Not at all concerned						Extremely concerned

5) How stressed were you right before the second experimenter talked to you?

1	2	3	4	5	6	7
Not at all stressed						Extremely stressed

6) How tense were you right before the second experimenter talked to you?

1	2	3	4	5	6	7
Not at all tense						Extremely tense

7) How scared were you right before the second experimenter talked to you?

1	2	3	4	5	6	7
Not at all scared						Extremely scared

APPENDIX F. FAMILIARITY WITH LEGAL SYSTEM QUESTIONNAIRE

For the following items, please answer using the following scale:

- A. Every day
 - B. Almost every day
 - C. About 2-3 times a week
 - D. About once a week
 - E. A couple of times a month
 - F. About once a month
 - G. I almost never watch this type
 - H. I never watch this type
1. Overall, how often do you watch any type of sitcom?
 2. Overall, how often do you watch any type of drama series?
 3. Overall, how often do you watch any type of crime, courtroom, police, or legal show (reality or fiction)?
 4. Overall, how often do you watch any type of reality TV series?
 5. Overall, how often do you watch any type of news (local or national, morning or evening)?
 6. How often do you watch General News Magazines (e.g., 60 Minutes, Dateline NBC)?
 7. Overall, how often do you watch General Documentaries?
 8. Overall, how often do you read a newspaper?
 9. Overall, how often do you read books (fiction or non-fiction)?
 10. Overall, how often do you read magazines?

General College Student Experiences Survey

- | | | | |
|-----|---|------------------------------|-----------------------------|
| 1. | Is this your first semester at Iowa State? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 2. | Are you a full-time student? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 3. | Have you ever served on a jury? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 4. | Do you consider yourself a person who recycles? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 5. | Are you getting any scholarships from Iowa State? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 6. | Have you ever had any direct contact with the
criminal justice system? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 7. | Do you live on campus? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 8. | Do you participate in any intramural activities? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 9. | Are you a part of any clubs on campus? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 10. | Are you a part of the Greek community at Iowa State? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 11. | Do you consider yourself a regular exerciser? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 12. | Have you ever been arrested? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

13. What is your major? _____

14. What is your minor? _____

APPENDIX G. LOGIC PROBLEMS

Participant ID#: _____

Individual Problem Solving Questionnaire

Participant ID#: _____

Individual Problem # 1

Suppose you are a bus driver. On the first stop you pick up 6 men and 2 women. At the second stop 2 men leave and 1 woman boards the bus. At the third stop 1 man leaves and 2 women enter the bus. At the fourth stop 3 men get on and 3 women get off. At the fifth stop, 2 men get off, 3 men get on, 1 woman gets off, and 2 women get on. How many men are left on the bus, how many women are left on the bus, and what is the bus driver's name?

How many men are left on the bus? _____

How many women are left on the bus? _____

What is the bus driver's name? _____

When you have completed this problem, move on to Team Problem #1.

Participant ID#: _____

Individual Problem #2

Janet, Barbara, and Elaine are a housewife, lawyer, and physicist, although not necessarily in that order. Janet lives next door to the housewife. Barbara is the physicist's best friend. Elaine once wanted to be a lawyer but decided against it. Janet has seen Barbara within the last two days, but has not seen the physicist.

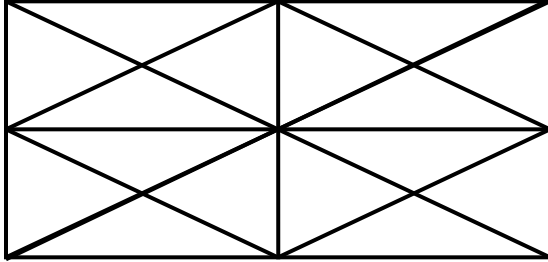
Janet, Barbara and Elaine are, in that order, the

- a. Housewife, physicist, lawyer
- b. Physicist, lawyer, housewife
- c. Physicist, housewife, lawyer
- d. Lawyer, housewife, physicist

Answer: _____

When you have completed this problem, move on to Team Problem #2.

Participant ID#: _____

Individual Problem # 3

How many triangles can you find in the figure above? Look carefully – there are more than 16!

Answer: _____

When you have completed this problem, move on to Team Problem #3.

Participant ID#: _____

Team Problem Solving Questionnaire

Participant ID#: _____

Team Problem #1

Starting with the word "COOL", change one letter at a time until you have the word "HEAT". Each change **must result in a proper word**, and you can use any letters in the alphabet. Keeping in mind that you can only change one letter per step, what is the minimum number of steps required to achieve this change? What are the steps?

Answer (Give Steps, i.e., the words):

When you have completed this problem, move on to Individual Problem #2.

Participant ID#: _____

Team Problem # 2

Right now Bethany is 12. You can find her older brother's age by switching the digits in Bethany's age. They'll be able to switch the digits in their ages again sometime in the future. How old will Bethany and her brother be when this happens?

How old will Bethany be? _____

How old will Bethany's brother be? _____

When you have completed this problem, move on to Individual Problem #3.

Participant ID#: _____

Team Problem # 3

A man is looking at a portrait and says "Brothers and sisters I have none, but that man's father is my father's son."

Who is the man looking at a portrait of?

Answer: _____

You are done!

APPENDIX H. LISTENING AND READING COMPREHENSION

Participants will be instructed to finish the sentence after the experimenter reads the whole sentence except the final word.

1. Few projects yield so much satisfaction in return for such a small investment in money and labor as beekeeping. Once the bees are established, a single hive can easily produce 30 pounds or more of delicious _____.
2. When he wants to, a turtle can pull into his _____.
3. My car is not as large as yours. For our family, it is the right _____.
4. Plenty of strength is needed to be a lumberjack. The axes these men use sometimes have blades that weigh as much as seven pounds – and these axes have to be swung again and again against the tough _____.
5. If a mother skunk thinks that there is danger to her young, she protects them. She can produce a very unpleasant _____.
6. She might have been the first teenager to win had she not tripped. She was heartbroken, but she would have another _____.
7. Days are not always sunny in Hawaii. Some of the wettest places on earth are these _____.
8. In the unlikely event of an emergency, remember that the parachute is attached to you. It will go where you go. Do not pull the cord until you are clear of the _____.
9. In all of human history, less than a thousand individual comets have been recorded. Only a few hundred of these have made more than one passage by _____.
10. Federal regulations require all carry-on baggage to be stowed during takeoff and landing. These items must be placed under the seat in front of you, unless you are in an aircraft with enclosed overhead _____.
11. Rumania is a mountainous country in southeastern Europe. It is nearly as large as Oregon, but it has 19 times as many people as that _____.
12. If you can, you should listen to recordings of British and American speakers to become familiar with their pronunciations and speech rhythms and how they _____.
13. An argument between advocates, such as provided in debate, affords excellent training. The presentation of opposite views ensures that both sides are considered by both _____.

14. From the most impoverished hovels in the poorest hamlets of Scotland, dedicated teachers and ministers identify youth of promise. Then they find a way for them to get _____.
15. It rarely happens that a small particle lifted off Earth's surface is found floating about the stratosphere. Such particles tend to be rained out before they reach that _____.
16. The term "rebus" is a Latin word that means thing. When rebus symbols are used in text, the meaning of a word is indicated by a picture or geometric form rather than by the usual form of the _____.
17. Dictators and other tyrants view debaters as their enemies. Historically, the teachings and practice of debate have flourished concomitantly with the presence of _____.
18. Parents have a secret source of delight that is closed to nonparenting adults. When the report from school comes for one of their children, they realize with a relief that rises to delight – thank heaven – no one is reporting in this fashion about _____.
19. Once you're confident that you're getting the maximum out of your earnings and assets, take a look at how much tax is being taken out of your paycheck. If you've managed to significantly slice your overall tax liability, reduce the amount withheld to reflect the _____.
20. Observation of behavior when errors are made can lead to hypotheses regarding learning characteristics. Some people become so frustrated that their emotions cause them to quit. They rigidly persist with a strategy that has _____.

Participants are shown a word and asked to provide another word that has the **same** meaning.

1. quarrel
2. entire
3. allow
4. amusing
5. frightening
6. request
7. haul
8. too
9. restrain
10. genuine
11. require
12. residence
13. cogitate
14. heinous
15. capacious
16. upbraid
17. fallow
18. Gnostic
19. evanescent
20. aquiline
21. imprecation
22. quixotic

Participants are shown a word and asked to provide another word that has the **opposite** meaning.

1. arrive
2. remain
3. raise
4. cellar
5. generous
6. follow
7. seldom
8. dissuade
9. learn
10. facile
11. hinder
12. invent
13. adroit
14. banal
15. derision
16. miscreant
17. fortuitous
18. amatory
19. assiduous

Participants will be shown the following words and simply asked to pronounce the words.

1. investigate
2. thermostat
3. fierce
4. curious
5. authority
6. courageous
7. megaphone
8. illiteracy
9. acrylic
10. irregularities
11. silhouette
12. precipitate
13. reminiscent
14. chorused
15. debris
16. municipality
17. subsidiary
18. melodious
19. semiarid
20. facetious
21. satiate
22. puisne

Participants will be shown the following sentences and asked to respond with an appropriate word to complete the sentence.

1. What is a flood? It's a condition that exists when a river overflows its banks and the _____ spreads out elsewhere.
2. Fred's father was a poor man who couldn't afford to feed his three boys. So he called his _____ together and asked them to find jobs.
3. Bob got his first roller skates on Saturday. He couldn't wait to learn how to _____ with them.
4. Even before men could write, the laws of each community were passed down from one generation to the next by the older members of the group. Later, some of the _____ were written down for clarity.
5. The people couldn't see things very clearly on their television. The gigantic whale was only about the size of a pickle on their _____.
6. Who is the author? What else has he _____?
7. And what should be done with forests that once, perhaps a half a century ago, heard the ring of axes and breathed the smoke of frontier cabins? The question has raged east of the Mississippi, where most of the national _____ were once logged.
8. What to someone exciting? When was the last time you met someone who ideas _____ you?
9. A lot has been written about dieting. Some interesting facts about _____ and foods have been discovered.
10. Family-type live musical entertainment will again be offered in the amphitheater. _____ presented nightly will focus on state, regional, and national themes.
11. Perhaps the most interesting menus ever conceived are those that appeared during the siege of Paris, when almost anything that walked or crawled was considered edible. The zoo is said to have been a prime source for _____.
12. Our teacher's announcement that we were going to have an assembly was always greeted with joyous excitement. Give us _____ except arithmetic.
13. Almost all publications have adopted rules and principles of capitalization appropriate to their special fields and audiences. As a result, the authorities differ widely on the correct usage of _____.

14. Here lies the valiant cavalier.
Who never had a sense of ____:
So high his matchless courage rose,
He reckoned death among his vanquished foes.
15. Learning occurs more efficiently if a person is ____ to learn. This readiness results from a combination of growth and experience.
16. I call upon her name, and from the gray ruins of memory a thousand tumultuous recollections are startled as the sound! Ah, vividly is ____ image before me now, as in the early days of our lightheartedness and joy!
17. We are building resource recovery plants that can covert 2,500 tons of trash every day into fuel to burn in existing plants. At these plants, we plan to sort our recyclable items, then process the combustible material into ____ derived fuel for generating electricity.
18. Early man must have been surprised to find bright-colored, glowing stones among the dull gray and brownish ones he used for tools. He thought they were____, and so have people throughout history.
19. Some swimmers get freaked out by the cold water and nasty currents and go away without trying. Other are invigorated by the ____, which is considered an ultimate test of human endurance.
20. Only when looking up at the sky did Pierre cease to feel how sordid and humiliating were all mundane things _____ with the wonders of the universe.
21. Every time we write we have opportunities to delight our reader with arresting phrases. Here one, from the pen of a critic, ____ a piece of current fiction: “The drama develops at about the speed of creeping crabgrass...”
22. Hikers who venture into the Grand Canyon complain that the park’s majestic tranquility is too often disturbed by the buzz of airplanes overhead. Last week the National Park Service announced equitable ____ that it hopes will satisfy both the backpackers and the flying sightseers.
23. Replacement is the sole obligation under this warranty. This warranty expressly excludes incidental and consequential damages caused by use of ____ to use this product.

APPENDIX I. WAIVER DOCUMENT

Please sign below if you have read and understand the following:

The value of an education at Iowa State University depends greatly upon the quality of academic work and research completed by students at our institution. Each member of the Iowa State community has an opportunity to play an important role in promoting and preserving integrity on campus. Students may make a personal decision to engage in a dishonest act, but there are ways in which faculty and instructors can design assignments to discourage academic misconduct.

Engaging in dishonest work may result in consequences from Iowa State such as a reduced or failing grade on the particular assignment or test, a reduced or failing grade in the course, and a range of sanctions from the Office of Judicial Affairs. Current and former students applying for graduate school or government jobs may be requested by that college, university, or government agency to disclose any instances of dishonest academic work for which they were found responsible for violating university policy.

Academic dishonesty can result in an Administrative Hearing or another appointment with a staff member in the Office of Judicial Affairs. Of particular importance is whether the alleged violations are determined to be Minor or Major. For cases of dishonest work occurring during research studies, students typically meet with the professor of the experiment prior to any further action regarding the case of dishonesty.

You can also expect to be informed of any pending charges, options for resolving your case, and any potential sanctions, or consequences, for your behavior. During the hearing, you will be asked whether you admit or deny responsibility for the charges and to provide your account of the incident(s) in question. You may also be asked additional questions to further clarify understanding of the incident. Following the hearing, you will be notified of the outcome and any related sanctions if you were found responsible for violating university policy.

By signing below you agree to waive the privilege of having a student advocate (i.e., someone who typically handles cases of cheating) accompany you when they meet with the professor in charge of the experiment immediately after the session.

Please sign here to indicate that you understand the above paragraphs. _____



APPENDIX J. PERCEPTIONS OF STRESS QUESTIONNAIRE

1. How anxious were you after being accused of cheating?

1	2	3	4	5	6	7
Strong relief	Moderate relief	Slight relief	No change	Slightly more anxious	Moderately more anxious	Strongly more anxious

2. When you found out about the potential consequences of your cheating, how did your anxiety level change?

1	2	3	4	5	6	7
Significant lessening	Moderate lessening	Slight lessening	No change	Slight increase	Moderate increase	Significant increase

3. When you found out about having to meet with the professor, how did your anxiety level change?

1	2	3	4	5	6	7
Significant lessening	Moderate lessening	Slight lessening	No change	Slight increase	Moderate increase	Significant increase

APPENDIX K. WAIVER COMPREHENSION

All participants will be instructed to respond to these statements by paraphrasing the statement.

6. You have the right not to talk about the incident.
7. Anything you say can and will be used against you while talking about the incident.
8. You have the right to talk to a student advocate before you are asked any questions and to have him or her with you during questioning.
9. This student advocate will not cost you any money.
5. If you decide to answer questions now (with or) without the student advocate present, you still have the right to stop questioning at any time until you talk to the student advocate.

All participants will be instructed to respond to these statements by indicating whether the three subsequent sentences mean the same as the original sentence.

6. You have the right not to talk about the incident.
 - a. It is not right to tell lies.
 - b. You should not say anything until an authority asks you questions.
 - c. You do not have to say anything about what you did.

7. Anything you say can and will be used against you while talking about the incident.
 - a. What you say might be used to prove you are guilty.
 - b. If you won't talk to the authority, then that will be used against you.
 - c. If you tell the authority anything it can be repeated later.

8. You have the right to talk to a student advocate before you are asked any questions and to have him or her with you during questioning.
 - a. You can talk to your advisor before anything happens.
 - b. A student advocate is coming to see you after the authority is done with you.
 - c. You can have a student advocate now if you ask for one.

9. This student advocate will not cost you any money.
 - a. If you don't have the money for a student advocate the school will appoint your advisor to help you.
 - b. You can get legal help even if you do not have money.
 - c. The school will give you an advocate free if you don't have the money to pay for one.

10. If you decide to answer questions now (with or) without the student advocate present, you still have the right to stop questioning at any time until you talk to the student advocate.
 - a. Even though you answered some of the authority's questions, you still can ask for an advocate at any time.
 - b. No matter when you ask for an advocate, you will not get one until after the authority has questioned you about the incident.
 - c. Even if you ask for an advocate during questioning, you cannot speak with the advocate until after you have meet with the authority.

All participants will be read a word and then the word will be used in a sentence. Participants will be instructed to say in their own way what the word means.

17. Consult
18. Advocate
19. Questioning
20. Used against
21. Right
22. Judicial Affairs
23. Statement
24. Entitled
25. Afford
26. Advice
27. Interrogation
28. Remain
29. Appoint
30. Present
31. Confession
32. Represent

Please check the box by each statement you believe accurately reflects information presented in the document you were given to sign.

1. Students have to meet with the Dean of Students when they have engaged in potential acts of academic misconduct.
2. All cases of academic misconduct carry the same consequences.
3. Students engaging in potential acts of academic misconduct in research can have an advocate represent them when talking to the faculty member in charge of the experiment.
4. Cases of academic misconduct are sometimes requested by potential future employers and/or graduate schools.
5. By signing the document, students waived their opportunity to meet with the judicial affairs board.
6. Aside from the line to sign, the document consisted of only text.

APPENDIX L. EXPERIMENT 1 CONSENT DOCUMENT

CONSENT FORM FOR: Cognitive Predictors of Team Decision Making

This form describes a research project. It has information to help you decide whether or not you wish to participate. Research studies include only people who choose to take part—your participation is completely voluntary. Please discuss any questions you have about the study or about this form with the project staff before deciding to participate.

Who is conducting this study?

This study is being conducted by Kyle Scherr, Stephanie Madon, and Max Guyll

Why am I invited to participate in this study?

You are being asked to take part in this study because you are a student in a designated psychology class.

What is the purpose of this study?

The purpose of this study is to examine various cognitive factors and how they affect individuals' ability to make decisions in a group compared to their ability to make decisions independently.

What will I be asked to do?

If you agree to participate in this study, your participation will last between 60 and 90 minutes. During this time, you can expect the following to happen: 1) answer questions that will assess your demographic information (e.g., age, gender), personality traits, mood, behaviors, perceptions, and experiences during the study; 2) complete logic problems by yourself and with a partner; 3) respond to verbal statements to assess comprehension of these statements, and 4) be video recorded. You may decline to answer any question or to stop participating at any time without penalty.

What are the possible risks and benefits of my participation?

Risks – There are no serious physical risks associated with participation in this study, though participants who have any of the following conditions should not participate:

- are NOT a native English speaker
- are pregnant
- may be pregnant
- are hypertensive
- are taking anti-hypertension medication
- are younger than 18 years old
- have a history of heart problems, fainting, low blood pressure

Please initial here to indicate that you have read, understood and not have any of the stated criteria that would make you ineligible to participate _____.

Participants may also feel some psychological discomfort during the experiment. Benefits – By participating in this study you will benefit by having had the educational opportunity of involvement in research. Additionally, it is hoped that the information gained in this study will benefit society by providing valuable information about people's behaviors.

How will the information I provide be used?

The information you provide will be used for the following purposes: Publication in scientific journals, presentations at psychological conferences, and educational purposes (e.g., incorporated into classroom lectures). The information you provide will only be made available to members of the research team.

What measures will be taken to ensure the confidentiality of the data or to protect my privacy?

Records identifying participants will be kept confidential to the extent allowed by applicable laws and regulations. Records will not be made publicly available. However, federal government regulatory agencies, auditing departments of Iowa State University, and the ISU Institutional Review Board (a committee that reviews and approves research studies with human subjects) may inspect and/or copy your records for quality assurance and analysis. These records may contain private information.

To ensure confidentiality to the extent allowed 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 responses 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; (d) all of your data will be stored in a locked file cabinet in a room for which access is restricted and controlled by the principal investigator; (e) all computer files will be stored in a password protected computer that is located in a restricted and locked room; (f) the videotapes will be erased after their use in the current study (approximately in 3 years time); and (g) the videotapes will only be used for research purposes. If the results are presented publicly (e.g., journal article, conference presentation, educational purposes), your identity will remain anonymous.

Will I incur any costs from participating or will I be compensated?

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.

What are my rights as a human research participant?

Participating in this study is completely voluntary. You may choose not to take part in the study or to stop participating at any time, for any reason, without penalty or negative consequences. You can skip any questions that you do not wish to answer. Your choice of whether or not to participate in this particular study will have no impact on you as a student in any way.

Whom can I call if I have questions or problems?

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

- For further information about the study contact Kyle Scherr, M.S. (294-8794; kscherr@iastate.edu) or Stephanie Madon, Ph.D. (294-2932/8049; madon@iastate.edu)
- 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, 1138 Pearson Hall, Iowa State University, Ames, Iowa 50011.

Consent and Authorization Provisions

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.

Participant's Name (printed) _____

(Participant's Signature)

(Date)

Legally Authorized Representative)

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 Consent)

(Date)

APPENDIX M. EXPERIMENT 2 CONSENT DOCUMENT

CONSENT FORM FOR: Underlying Processes of Team Decision Making

This form describes a research project. It has information to help you decide whether or not you wish to participate. Research studies include only people who choose to take part—your participation is completely voluntary. Please discuss any questions you have about the study or about this form with the project staff before deciding to participate.

Who is conducting this study?

This study is being conducted by Kyle Scherr, Stephanie Madon, and Max Guyll

Why am I invited to participate in this study?

You are being asked to take part in this study because you are a student in a designated psychology class.

What is the purpose of this study?

The purpose of this study is to examine various mental processes influence how people make decisions in a group compared to their ability to make decisions independently.

What will I be asked to do?

If you agree to participate in this study, your participation will last between 60 and 90 minutes. During this time, you can expect the following to happen: 1) answer questions that will assess your demographic information (e.g., age, gender), personality traits, mood, behaviors, perceptions, and experiences during the study; 2) complete logic problems by yourself and with a partner; 3) respond to verbal statements to assess comprehension of these statements, and 4) be video recorded. You may decline to answer any question or to stop participating at any time without penalty.

What are the possible risks and benefits of my participation?

Risks – There are no serious physical risks associated with participation in this study, though participants who have any of the following conditions should not participate:

- are NOT a native English speaker
- are pregnant
- may be pregnant
- are hypertensive
- are taking anti-hypertension medication
- are younger than 18 years old
- have a history of heart problems, fainting, low blood pressure

Please initial here to indicate that you have read, understood and not have any of the stated criteria that would make you ineligible to participate _____.

Participants may also feel some psychological discomfort during the experiment. Benefits – By participating in this study you will benefit by having had the educational opportunity of involvement in research. Additionally, it is hoped that the information gained in this study will benefit society by providing valuable information about people's behaviors.

How will the information I provide be used?

The information you provide will be used for the following purposes: Publication in scientific journals, presentations at psychological conferences, and educational purposes (e.g., incorporated into classroom lectures). The information you provide will only be made available to members of the research team.

What measures will be taken to ensure the confidentiality of the data or to protect my privacy?

Records identifying participants will be kept confidential to the extent allowed by applicable laws and regulations. Records will not be made publicly available. However, federal government regulatory agencies, auditing departments of Iowa State University, and the ISU Institutional Review Board (a committee that reviews and approves research studies with human subjects) may inspect and/or copy your records for quality assurance and analysis. These records may contain private information.

To ensure confidentiality to the extent allowed 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 responses 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; (d) all of your data will be stored in a locked file cabinet in a room for which access is restricted and controlled by the principal investigator; (e) all computer files will be stored in a password protected computer that is located in a restricted and locked room; (f) the videotapes will be erased after their use in the current study (approximately in 3 years time); and (g) the videotapes will only be used for research purposes. If the results are presented publicly (e.g., journal article, conference presentation, educational purposes), your identity will remain anonymous.

Will I incur any costs from participating or will I be compensated?

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.

What are my rights as a human research participant?

Participating in this study is completely voluntary. You may choose not to take part in the study or to stop participating at any time, for any reason, without penalty or negative consequences. You can skip any questions that you do not wish to answer. Your choice of whether or not to participate in this particular study will have no impact on you as a student in any way.

Whom can I call if I have questions or problems?

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

- For further information about the study contact Kyle Scherr, M.S. (294-8794; kscherr@iastate.edu) or Stephanie Madon, Ph.D. (294-2932/8049; madon@iastate.edu)
- 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, 1138 Pearson Hall, Iowa State University, Ames, Iowa 50011.

Consent and Authorization Provisions

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.

Participant's Name (printed) _____

(Participant's Signature)

(Date)

Legally Authorized Representative)

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 Consent)

(Date)

APPENDIX N. DEMOGRAPHIC QUESTIONS

Participant ID#: _____

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
 - _____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

APPENDIX O. FILLER SURVEYS

Participant ID#: _____

Please indicate how much each attribute describes how you feel now.

1. How calm do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
2. How nervous do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
3. How relaxed do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
4. How anxious do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
5. How angry do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
6. How confident do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
7. How guilty do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
8. How secure do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
9. How wishy-washy do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
10. How annoyed do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
11. How emotional do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
12. How irritated do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
13. How embarrassed do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
14. How spineless do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
15. How stressed do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely

16. How agitated do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
17. How alert do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
18. How sorry do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
19. How determined do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
20. How tense do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
21. How relieved do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
22. How worried do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
23. How ashamed do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
24. How concerned do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely
25. How confused do you feel now?
(1) Not at all (2) A little bit (3) Moderately (4) Quite a bit (5) Extremely

Participant ID#: _____

Please indicate how much you agree with each statement.

1. If I think something unpleasant is going to happen I usually get pretty “worked up”.
- | | | | |
|----------------|-------|----------|-------------------|
| 1 | 2 | 3 | 4 |
| Strongly Agree | Agree | Disagree | Strongly Disagree |
2. I worry about making mistakes.
- | | | | |
|----------------|-------|----------|-------------------|
| 1 | 2 | 3 | 4 |
| Strongly Agree | Agree | Disagree | Strongly Disagree |
3. Criticism or scolding hurts me quite a bit.
- | | | | |
|----------------|-------|----------|-------------------|
| 1 | 2 | 3 | 4 |
| Strongly Agree | Agree | Disagree | Strongly Disagree |
4. I feel pretty worried or upset when I think or know somebody is angry at me.
- | | | | |
|----------------|-------|----------|-------------------|
| 1 | 2 | 3 | 4 |
| Strongly Agree | Agree | Disagree | Strongly Disagree |
5. Even if something bad is about to happen to me, I rarely experience fear or nervousness.
- | | | | |
|----------------|-------|----------|-------------------|
| 1 | 2 | 3 | 4 |
| Strongly Agree | Agree | Disagree | Strongly Disagree |
6. I feel worried when I think I have done poorly at something.
- | | | | |
|----------------|-------|----------|-------------------|
| 1 | 2 | 3 | 4 |
| Strongly Agree | Agree | Disagree | Strongly Disagree |
7. I have very few fears compared to my friends.
- | | | | |
|----------------|-------|----------|-------------------|
| 1 | 2 | 3 | 4 |
| Strongly Agree | Agree | Disagree | Strongly Disagree |
8. When I get something I want, I feel excited and energized.
- | | | | |
|----------------|-------|----------|-------------------|
| 1 | 2 | 3 | 4 |
| Strongly Agree | Agree | Disagree | Strongly Disagree |
9. When I’m doing well at something, I love to keep at it.
- | | | | |
|----------------|-------|----------|-------------------|
| 1 | 2 | 3 | 4 |
| Strongly Agree | Agree | Disagree | Strongly Disagree |
10. When good things happen to me, it affects me strongly.
- | | | | |
|----------------|-------|----------|-------------------|
| 1 | 2 | 3 | 4 |
| Strongly Agree | Agree | Disagree | Strongly Disagree |

Participant ID#: _____

11. It would excite me to win a contest.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

12. When I see an opportunity for something I like, I get excited right away.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

13. When I want something, I usually go all-out to get it.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

14. I go out of my way to get things I want.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

15. If I see a chance to get something I want, I move on it right away.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

16. When I go after something, I use a “no holds barred” approach.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

17. I will often do things for no other reason than they might be fun.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

18. I crave excitement and new sensations.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

19. I'm always willing to try something new if I think it will be fun.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

20. I often act on the spur of the moment.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

Participant ID#: _____

Please indicate the extent to which each statement describes you.

1. I am good at resisting temptation.

1	2	3	4	5
Not at all				Very much

2. I have a hard time breaking bad habits.

1	2	3	4	5
Not at all				Very much

3. I am lazy.

1	2	3	4	5
Not at all				Very much

4. I say inappropriate things.

1	2	3	4	5
Not at all				Very much

5. I do certain things that are bad for me, if they are fun.

1	2	3	4	5
Not at all				Very much

6. I refuse things that are bad for me.

1	2	3	4	5
Not at all				Very much

7. I wish I had more self-discipline.

1	2	3	4	5
Not at all				Very much

8. People would say that I have iron self-discipline.

1	2	3	4	5
Not at all				Very much

Participant ID#: _____

9. Pleasure and fun sometimes keep me from getting work done.

1	2	3	4	5
Not at all				Very much

10. I have trouble concentrating.

1	2	3	4	5
Not at all				Very much

11. I am able to work effectively toward long-term goals.

1	2	3	4	5
Not at all				Very much

12. Sometimes I can't stop myself from doing something, even if I know it is wrong.

1	2	3	4	5
Not at all				Very much

13. I often act out without working through all the alternatives.

1	2	3	4	5
Not at all				Very much

Participant ID#: _____

Please rate how characteristic each statement is of you.

1) I am sometimes eaten up with jealousy.

1	2	3	4	5	6	7
Extremely uncharacteristic of me						Extremely characteristic of me

2) At times I feel I have gotten a raw deal out of life.

1	2	3	4	5	6	7
Extremely uncharacteristic of me						Extremely characteristic of me

3) Other people always seem to get the breaks.

1	2	3	4	5	6	7
Extremely uncharacteristic of me						Extremely characteristic of me

4) I wonder why sometimes I feel so bitter about things.

1	2	3	4	5	6	7
Extremely uncharacteristic of me						Extremely characteristic of me

5) I know that "friends" talk about me behind my back.

1	2	3	4	5	6	7
Extremely uncharacteristic of me						Extremely characteristic of me

6) I am suspicious of overly friendly strangers.

1	2	3	4	5	6	7
Extremely uncharacteristic of me						Extremely characteristic of me

7) I sometimes feel that people are laughing at me behind me back.

1	2	3	4	5	6	7
Extremely uncharacteristic of me						Extremely characteristic of me

8) When people are especially nice, I wonder what they want.

1	2	3	4	5	6	7
Extremely uncharacteristic of me						Extremely characteristic of me

Participant ID#: _____

Please answer each item as True (T) or False (F):

1. ___ I find it hard to imitate the behavior of other people.
2. ___ My behavior is usually an expression of my true inner feelings, attitudes, and beliefs.
3. ___ At parties and social gatherings, I do not attempt to do or say things that others will like.
4. ___ I can only argue for ideas which I already believe.
5. ___ I can make impromptu speeches even on topics about which I have almost no information.
6. ___ I guess I put on a show to impress or entertain people.
7. ___ When I am uncertain how to act in a social situation, I look to the behavior of others for cues.
8. ___ I would probably make a good actor.
9. ___ I rarely need the advice of my friends to choose movies, books, or music.
10. ___ I sometimes appear to others to be experiencing deeper emotions than I actually am.
11. ___ I laugh more when I watch a comedy with others than when alone.
12. ___ In a group of people I am rarely the center of attention.
13. ___ In different situations and with different people, I often act like a very different person.
14. ___ I am not particularly good at making other people like me.
15. ___ Even if I am not enjoying myself, I often pretend to be having a good time.
16. ___ I'm not always the person I appear to be.
17. ___ I would not change my opinions (or the way I do things) in order to please someone else or win their favor.
18. ___ I have considered being an entertainer.
19. ___ In order to get along and be liked, I tend to be what people expect me to be rather than anything else.
20. ___ I have never been good at games like charades or improvisational acting.
21. ___ I have trouble changing my behavior to suit different people and different situations.
22. ___ At a party I let others keep the jokes and stories going.
23. ___ I feel a bit awkward in company and do not show up quite as well as I should.
24. ___ I can look anyone in the eye and tell a lie with a straight face (if for a right end).
25. ___ I may deceive people by being friendly when I really dislike them.

APPENDIX P. EXPERIMENT 1 DEBRIEFING

Participant ID#: _____

The experiment is almost done. I have just a couple of final things that I want to discuss with you before you leave.

Before you go, I'd like to tell you a little about the experiment. 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 the study's purpose before participating, their data would be invalid and our findings would be invalid as a result.

This study was designed to examine how stress may inhibit peoples' ability to comprehend their Miranda Rights. Furthermore, we wanted to see if stress had a different influence on people's ability to comprehend their Miranda Rights when those rights are administered in a verbal only or oral only fashion. Accordingly, we set up a situation in which participants were accused of cheating during the study. Your partner was a confederate working with the research team and her/his behavior was part of the experimental procedures. In particular, s/he was trained to ask participants for help on one of the problems that was designated as an individual problem. So all of that was staged. Past research that has used this procedure has shown that almost everybody who is asked for help gives it. So helping in this situation is the typical response. I also want to tell you that there is no professor who is angry or upset. That was also just part of the experiment. So, you are not in any trouble at all. (Participants who are told that the professor is on the way down to the lab to talk to them will be told at this point that no such meeting will take place).

I also want to explain why we did all of this. The underlying purpose of the research is to understand if average intelligence individuals are still able to comprehend their Miranda Rights under stressful circumstances – much like those of situations in which a person is actually read their Miranda Rights and to see if administering Miranda either in a verbal or oral fashion has any influence on people's understanding of their Miranda rights.

We didn't tell you these things up front because sometimes people will consciously or unconsciously change their behavior if they know what the true purpose of a study is about. Because of this, 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 how various cognitive factors influence how people make decisions together and that during the experiment you answer surveys and some logic problems.

The last thing that I want to tell you is the data that you provided today is anonymous, will be combined with the responses of other participants, and will be kept in a secured, locked office. In addition, the data files will be stored in a password protected computer that can only be accessed by members of the research team. The videotape data that was collected during this study will also be stored on password protected computers that are only accessible by members of the research team and will only be used for research purposes. Do you have any questions?

Here is blank consent form containing contact information. In addition, information about counseling services that are available to you are provided in a memo also available at the exit. If you are feeling uncomfortable for any reason because of your participation in this study or you have any unresolved discomfort stemming from your participation, you should contact the counseling center.

APPENDIX Q. EXPERIMENT 2 DEBRIEFING

Participant ID#: _____

The experiment is almost done. I have just a couple of final things that I want to discuss with you before you leave.

Before you go, I'd like to tell you a little about the experiment. 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 the study's purpose before participating, their data would be invalid and our findings would be invalid as a result.

This study was designed to examine how stress influences peoples' willingness to offer a waiver of their Miranda Rights. Furthermore, we wanted to see if different types of social influence styles interacted with stress to make it even more likely that people would offer a waiver of their Miranda Rights. Accordingly, we set up a situation in which participants were accused of cheating during the study. Your partner was a confederate working with the research team and her/his behavior was part of the experimental procedures. In particular, s/he was trained to ask participants for help on one of the problems that was designated as an individual problem. So all of that was staged. Past research that has used this procedure has shown that almost everybody who is asked for help gives it. So helping in this situation is the typical response. I also want to tell you that there is no professor who is angry or upset. That was also just part of the experiment. So, you are not in any trouble at all. (Participants who are told that the professor is on the way down to the lab to talk to them will be told at this point that no such meeting will take place).

I also want to explain why we did all of this. The underlying purpose of the research is to understand how being a part of a stressful situation and being exposed to social influence tactics influences peoples' willingness to offer a Miranda waiver – much like the situations in which are actually asked to give a waiver of Miranda.

We didn't tell you these things up front because sometimes people will consciously or unconsciously change their behavior if they know what the true purpose of a study is about. Because of this, 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 how mental processes influence how people make decisions together and that during the experiment you answer surveys and some logic problems.

The last thing that I want to tell you is the data that you provided today is anonymous, will be combined with the responses of other participants, and will be kept in a secured, locked office. In addition, the data files will be stored in a password protected computer that can only be accessed by members of the research team. The videotape data that was collected during this study will also be stored on password protected computers that are only accessible by members of the research team and will only be used for research purposes. Do you have any questions?

Here is blank consent form containing contact information. In addition, information about counseling services that are available to you are provided in a memo also available at the exit. If you are feeling uncomfortable for any reason because of your participation in this study or you have any unresolved discomfort stemming from your participation, you should contact the counseling center.

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