ABSTRACT—The primary goal of the current study was to develop a novel experimental paradigm with which to study the influence of psychologically based interrogation techniques on the likelihood of true and false confessions. The paradigm involves guilty and innocent participants being accused of intentionally breaking an experimental rule, or “cheating.” In the first demonstration of this paradigm, we explored the influence of two common police interrogation tactics: minimization and an explicit offer of leniency, or a “deal.” Results indicated that guilty persons were more likely to confess than innocent persons, and that the use of minimization and the offer of a deal increased the rate of both true and false confessions. Police investigators are encouraged to avoid interrogation techniques that imply or directly promise leniency, as they appear to reduce the diagnostic value of any confession that is elicited.

When law-enforcement officers question a suspect they believe to be guilty, the primary goal of the interrogation is to elicit a confession (Joseph, 1995; Kassin, 1997). Many legal scholars and researchers consider confession evidence to be the most potent form of evidence that exists, and research indicates that a confession is a very damning piece of evidence (Kassin & Neumann, 1997). Furthermore, obtaining confessions from guilty persons is both a desirable and oftentimes a necessary step in the apprehension and conviction of lawbreakers, as true confessions alleviate the pressures on an overburdened criminal justice system by encouraging guilty pleas and speeding the process of justice (Costanzo, 2004).

Unfortunately, numerous instances of false confessions have been documented. A striking example involves the 1989 case of the “Central Park Jogger,” in which five teenage boys provided false confessions to the rape and assault of a 28-year-old woman. Despite the fact that all of the teenagers later retracted their confessions and no other physical evidence conclusively linked them to the crime, they were convicted and served up to 12 years in prison. Years later, Matias Reyes, a convicted serial rapist and murderer, confessed to being the sole perpetrator of the attack. DNA tests of semen and pubic hair found at the scene of the crime confirmed that Reyes was guilty, and the boys were officially exonerated in December of 2002 (Younge, 2003).

Although the actual rate of false confessions is difficult to determine, the Innocence Project’s analysis of cases in which DNA evidence has exonerated the wrongfully convicted suggests that approximately 20% involved false admissions or confessions (Scheck, Neufeld, & Dwyer, 2001). In a prior assessment of 350 wrongful convictions, Bedau and Radelet (1987) found evidence of false confessions in 14% of their sample. Considering the fundamental importance of confession evidence and the need to ensure its reliability, researchers have begun to investigate the psychological processes involved in police interviews, interrogations, and elicitation of confessions (Gudjonsson, 2003; Kassin, 1997; Lassiter, 2004; Meissner & Russano, 2003; Wrightsman & Kassin, 1993).

INTERROGATION TECHNIQUES

With regard to the collection of confession evidence, the goal of the criminal justice system should be to implement procedures that are diagnostic, meaning those that increase the rate of true confessions while minimizing the rate of false confessions. In order to achieve diagnosticity, it is important to understand the factors that influence the likelihood that a suspect will provide a confession, including the psychological techniques that police commonly use in the interrogation room. It is widely assumed that the techniques used by police are effective in yielding confessions, and research indicates that between 40% and 76%
of all suspects confess in response to interrogation (see Gudjonsson, 2003). Inbau, Reid, Buckley, and Jayne (2001), authors of *Criminal Interrogation and Confessions* (a handbook describing the most widely used interrogation procedure in North America), have argued that although their proposed techniques will persuade guilty suspects to confess, they do not compel innocent suspects to do the same. However, Inbau et al. have provided no scientific data to support this claim, and a number of researchers have expressed concern that some of the techniques advocated by modern-day interrogation manuals (including but not limited to the Inbau et al. manual) may lead to false confessions (e.g., Gudjonsson, 2003; Kassin, 1997; Kassin & McNall, 1991).

Researchers have categorized the interrogation methods promoted by interrogation manuals into two general types, namely, **maximization** and **minimization** (Kassin & McNall, 1991). Maximization involves so-called scare tactics designed to intimidate suspects: confronting them with accusations of guilt, refusing to accept their denials and claims of innocence, and exaggerating the seriousness of the situation. This approach may also include presenting fabricated evidence to support the accusation of guilt (e.g., leading suspects to think that their fingerprints were lifted from the murder weapon). In contrast, minimization encompasses strategies such as minimizing the seriousness of the offense and the perceived consequences of confession, and gaining the suspect's trust by offering sympathy, understanding, and face-saving excuses. Kassin and McNall found that individuals most often interpreted minimizing statements as implying leniency in sentencing.

**EMPIRICAL RESEARCH**

Kassin and Kiechel (1996) designed the first and only paradigm for eliciting false confessions in the laboratory. In this paradigm, the mock crime involved causing a computer to crash by accidentally hitting a forbidden key on a computer keyboard during a reaction time task. Innocent participants were falsely accused of hitting the key, and the primary dependent measure was whether they signed a confession. Kassin and Kiechel found that 69% of participants falsely confessed, and that this tendency was influenced by the suspects' vulnerability and the presentation of false evidence. Other researchers have used Kassin and Kiechel's paradigm to investigate various other possible influences, such as the suspect's age (Redlich & Goodman, 2003), gender (Abboud, Wadkins, Forrest, Lange, & Alavi, 2002), and preexisting stress (Forrest, Wadkins, & Miller, 2002), as well as the consequences of confession (Horselenberg, Merckelbach, & Josephs, 2003) and the use of minimization and maximization techniques (Klaver, Rose, & Lee, 2003).

Although this research represents an important first step, the paradigm is limited by its failure to capture certain key elements of real-world interrogations and confessions. First, all participants in Kassin and Kiechel's (1996) paradigm are factually innocent, which precludes the elicitation and study of true confessions and the ability to assess diagnosticity by comparing the rates of true and false confessions. Second, participants in this paradigm are accused of accidentally committing a highly plausible “crime,” leaving open the possibility that many participants are unsure whether they are innocent or guilty. In contrast, most real-world suspects are accused of intentionally committing a criminal act and are certain (whether innocent or guilty) of their own culpability. It appears that researchers have not moved beyond this now classic paradigm in part because of the difficulty in creating a paradigm that approximates real-world conditions while treating participants in accordance with ethical standards.

In an effort to achieve both ecological validity and the ethical treatment of research participants, the current study introduces a novel experimental paradigm that can be used to assess the effects of interrogation techniques on the likelihood of both true and false confessions. In the current paradigm, participants were accused of breaking an experimental rule, an act that was later characterized as “cheating.” Participants were paired with a confederate, and the two were instructed to solve some logic problems individually and others jointly. In the guilty condition, the confederate asked for help on a problem that was supposed to be solved individually, violating the rules of the experiment. Participants who provided an answer were guilty of cheating. In the innocent condition, the confederate did not make this request, and so participants did not violate the experimental rule. We were thus able to induce some participants, but not others, to commit a “crime” (helping another person) that could be considered prosocial and hence did not cast them in a negative light. All participants were later “interrogated” and asked to sign a confession.

We believe there are several strengths of the current paradigm. The crime we used may be considered by students as a fairly serious act, as it can be conceptualized as a form of cheating, without the accusation of cheating necessarily implying immorality. In addition, as in the real world, committing the crime required intention, and the participants clearly knew whether they committed the act. Finally, in our paradigm, as in the real world, some of the individuals being interrogated were innocent, and some were guilty, which enabled us to assess the effects of interrogation on the rates of true and false confessions.

In the current study, we assessed the effects of two conceptually related techniques, namely, the pragmatic implication of leniency via minimization tactics (Kassin & McNall, 1991) and an explicit offer of leniency via a “deal.” Confessions elicited via the offer of a deal (e.g., “I’ll make sure you get probation if you confess to this murder”) are generally ruled inadmissible because of concerns that the technique may produce unreliable confessions (White, 2003). Although the deal technique is not generally advocated by the major interrogation manuals, there are numerous case examples showing that the technique is sometimes used in the real world (see White). In contrast, the use of minimization tactics is widely advocated in interrogation
manuals (including that of Inbau et al., 2001), and such tactics generally yield confession evidence that is admissible at trial. Because previous research suggests that minimization pragmatically implies an offer of leniency (Kassin & McNall), we predicted that the two techniques would have the same effect in the interrogation room, namely, to increase the likelihood of both true and false confessions.

METHOD

Participants
Three hundred thirty undergraduates (70% female) from a large Southeastern university received credit in a psychology course in exchange for their participation. The mean age of participants was 19.4 years. Fourteen participants were excluded from the analyses because they expressed a high level of suspicion regarding the true purpose of the study. Two were excluded because during the interrogation they expressed a desire to leave the experiment, at which point the session was terminated and the participants were fully debriefed. Eighteen were excluded because they failed to conform to the guilt manipulation (see the next section).

Design and Procedure
Participants were randomly assigned to one of the eight cells produced by a 2 (innocent vs. guilty) × 2 (minimization vs. no minimization) × 2 (deal vs. no deal) between-subjects factorial design. They were recruited for a study on individual versus team decision making and asked to solve a series of logic problems.

A female confederate posing as another participant arrived at the lab at the same time as the actual participant, and the pair was greeted by one of six male experimenters who ranged in age from 19 to 30 years old, with a mean age of 22. The pair was escorted into a testing room that mirrored a police interrogation room—it was small, bare, and windowless, containing only a table and two straight-backed chairs (Inbau et al., 2001).

After the experimenter obtained informed consent and conducted a brief rapport-building session, the participant and confederate began the problem-solving phase of the experiment. Before leaving them alone, the experimenter informed the pair that they should work together on designated “team problems,” but that they should work individually and not discuss their solutions on designated “individual problems” (this served as the critical rule of the experiment). In the guilty condition, the confederate asked for help on a problem that was supposed to be solved individually, leading most participants to provide her with an answer (those who did not help were excluded from the analyses). In the innocent condition, the confederate did not seek assistance. After the pair completed the logic problems and a filler task, the experimenter informed them that there appeared to be a problem and that he needed to speak to each of them individually. The confederate was then escorted out of the room.

Approximately 5 min later, the experimenter, blind to the participant’s guilt or innocence, reentered the testing room for interrogation. The experimenter stated that the participant and the confederate had the same wrong answer on the target problem, and he accused the participant of sharing answers on that problem (a tactic known as direct positive confrontation; Inbau et al., 2001). He said that the professor in charge of the study had been contacted and was annoyed and upset by the situation. The experimenter said that he was not sure how the professor would handle the situation or who else he would have to notify, and that the professor might consider what happened a case of cheating. The experimenter then said that the professor wanted to document what happened by having the participant sign a statement admitting to sharing answers on problems that were supposed to be solved individually.

The types of interrogation techniques used were varied. In the minimization condition, the interrogator was instructed to lessen the seriousness of the offense by making statements that expressed sympathy and concern, offered face-saving excuses (e.g., “I’m sure you didn’t realize what a big deal it was”), and suggested to participants that it was in their interest to cooperate by signing the statement. In the no-minimization condition, no such statements were made. The offer of a deal was also manipulated. In the deal condition, participants were told that if they agreed to sign the confession, then “things could probably be settled pretty quickly.” Participants were assured that they would receive their research credit for the day, but they would have to return for another session without receiving additional credit. They were also told that if they did not agree to sign the statement, the experimenter would have to call the professor into the laboratory, and the professor would handle the situation as he saw fit, with the strong implication being that the consequences would likely be worse if the professor became further involved. Participants were faced with the choice of accepting the deal, which included the known consequence of having to return for another session, or rejecting the deal and facing an angry professor and unknown, but potentially severe, consequences. In the no-deal condition, participants were told that regardless of whether they signed the statement, the experimenter would have to call the professor back and find out what to do next.

If the participant agreed to sign a statement, the experimenter handwrote a confession for the participant to sign. If the participant denied the allegation or hesitated to sign, the experimenter repeated the interrogation script up to three more times. If the participant still refused to sign, the interrogation was terminated. The decision to sign or not sign a confession served as our primary dependent measure.

The participant’s decision was followed by debriefing. After probing for suspicion, the experimenter asked participants to rate the amount of pressure they felt to sign the confession on a scale ranging from 0, indicating no pressure at all, to 10,

1 Inclusion of these participants did not change the pattern of results.
indicating the most pressure they could imagine. The experimenter then explained the true purpose of the experiment and the manipulations. He further explained that there was no angry professor and no pending negative consequence. Participants in the guilty condition were told that although their conduct was portrayed as wrong during the experiment, helping another student in need was an admirable, benevolent, and prosocial act. Careful pains were taken to ensure that participants understood the necessity for the deception used and that all their questions were answered.

**RESULTS**

Given that we used six experimenters, we first sought to determine if there was a systematic variation in the confession rate across experimenters. Results indicated no significant experimenter effects on the true-confession rate; $\chi^2(5, N = 148) = 2.59, p = .76$, or the false-confession rate; $\chi^2(5, N = 148) = 0.63, p = .98$. Across experimenters, the true-confession rate ranged from 63.6% to 82.4%, and the false-confession rate ranged from 16.7% to 25.0%.

Collapsing across experimenters, we conducted a 2 (guilt vs. innocence) × 2 (minimization vs. no minimization) × 2 (deal vs. no deal) hierarchical loglinear analysis on participants’ decision to confess. No interactions reached statistical significance, $\chi^2(1, N = 296) \leq 0.51, ps \geq .48$. A significant main effect was found for guilt versus innocence, $\chi^2(1, N = 296) = 88.84, p < .001$, $d = 1.31$, such that guilty persons were 3.53 times more likely to confess (71.6%) than innocent persons (20.3%). There was also a main effect of minimization, $\chi^2(1, N = 296) = 22.10, p < .001$, $d = 0.57$, such that participants were 1.66 times more likely to confess when minimization was used (57.4%) than when it was not used (34.5%). Finally, there was also a significant main effect of the deal condition, $\chi^2(1, N = 296) = 7.87, p < .01$, $d = 0.33$, indicating that participants offered the deal were 1.43 times more likely to confess (54.1%) than those not offered the deal (37.3%).

As predicted, both the minimization tactics and the offer of a deal led to increases in the rates of true and false confessions. Although there were no significant interactions between interrogation techniques and guilt/innocence, the combination of the two interrogation techniques may have had a cumulative effect on the likelihood of confession. As displayed in Table 1, both the true- and the false-confession rates increased when either minimization or the deal tactic was used. There was also a dramatic increase in the confession rates when both techniques were used in combination, compared with the use of neither tactic. Given the goal of identifying techniques that might yield a high rate of true confessions and a low rate of false confessions, we felt it was also important to examine diagnosticity (i.e., the ratio of true confessions to false confessions) in each of the four interrogation conditions. As displayed in Table 1, diagnosticity was highest when neither of the techniques was used and lowest when both were used. More specifically, diagnosticity was reduced by nearly 40% with the use of a single interrogation technique (when compared with the control condition), and by 74% when both techniques were used in combination.

A 2 (guilt vs. innocence) × 2 (minimization vs. no minimization) × 2 (deal vs. no deal) analysis of variance was conducted on participants’ ratings of pressure to confess. Results indicated a significant interaction between guilt/innocence and minimization, $F(1, 234) = 8.97, p = .003$, $d = 0.36$. Simple effects tests revealed that innocent participants reported higher pressure ratings when minimization was used ($M = 5.24, SD = 3.14$) than when it was not used ($M = 3.45, SD = 3.14$), $F(1, 284) = 11.84, p = .001$, $d = 0.41$; however, pressure ratings of guilty participants who experienced minimization ($M = 4.42, SD = 3.14$) and those who did not experience minimization ($M = 4.83, SD = 3.14$) did not differ, $F(1, 284) = 0.63, p = .43$. No other main effects or interactions reached statistical significance, $F_s(1, 284) \leq 3.52, ps \geq .06$. Additionally, there was no significant effect of experimenter on pressure ratings, $F(5, 291) = 1.92, p = .09$.

Because of the ethically sensitive nature of the paradigm, we administered a follow-up questionnaire approximately 3 to 10 weeks after participation to a subset of participants ($n = 83$) to assess their reactions to the study. As displayed in Table 2, participants reported that they had a somewhat positive and educational experience, that they thought the use of deception was justified, and that they felt moderately stressed during the interrogation. Statistical tests of these ratings indicated that they were not significantly influenced by the participant’s guilt/innocence, $ts(81) \leq 1.71, ps \geq .09$; the use of minimization, $ts(81) \leq 1.27, ps \geq .20$; the offer of a deal, $ts(81) \leq 1.36, ps \geq .18$; or the participant’s decision to confess, $ts(81) \leq 1.49, ps \geq .14$. The only exception to this pattern was that participants who confessed found the study to be more educational ($M = 4.89, SD = 1.65$) than those who did not ($M = 4.08, SD = 1.60$), $t(81) = 2.27, p = .03$, $d = 0.51$.

**DISCUSSION**

The primary goal of the current study was to develop an ethical laboratory paradigm with which to study the effects of psychologically based interrogation techniques on the likelihood of

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**TABLE 1**

Rates of True and False Confessions and Diagnosticity by Interrogation Condition

<table>
<thead>
<tr>
<th>Condition</th>
<th>True confessions</th>
<th>False confessions</th>
<th>Diagnosticity</th>
</tr>
</thead>
<tbody>
<tr>
<td>No tactic</td>
<td>46%</td>
<td>6%</td>
<td>7.67</td>
</tr>
<tr>
<td>Deal</td>
<td>72%</td>
<td>14%</td>
<td>5.14</td>
</tr>
<tr>
<td>Minimization</td>
<td>81%</td>
<td>18%</td>
<td>4.50</td>
</tr>
<tr>
<td>Minimization + deal</td>
<td>87%</td>
<td>43%</td>
<td>2.02</td>
</tr>
</tbody>
</table>

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true and false confessions. This approach involved inducing some participants to commit an intentional act of cheating, and then interrogating participants in an attempt to yield confessions from those who were factually guilty or innocent. In the context of a university setting, this act of cheating carried serious implications with it and appeared to be considered in such a way by the participants. To our knowledge, the current study provides the first experimental evidence that individuals can be induced to give true and false confessions to an intentional act.

We sought to assess the effects of two conceptually related interrogation techniques, namely, the pragmatic implication of leniency via minimization tactics and an explicit offer of leniency via a deal. Our results indicated that minimization, a common and legal interrogation technique, provided an effective means of obtaining true confessions; however, this technique also put innocent participants at risk for false confessions. One of the primary reasons for the increased rate of confessions may have been that the participants inferred leniency upon confession on the basis of the experimenter’s communication and amiable tone (Kassin & McNall, 1991). As predicted, an explicit offer of leniency in the deal condition showed effects quite similar to those of minimization, leading to an increase in the likelihood of both true and false confessions. One of the primary reasons for the increased rate of confessions may have been that the participants inferred leniency upon confession on the basis of the experimenter’s communication and amiable tone (Kassin & McNall, 1991). As predicted, an explicit offer of leniency in the deal condition showed effects quite similar to those of minimization, leading to an increase in the likelihood of both true and false confessions.

Although the deal technique is generally considered an illegal tactic (and it is not one advocated by interrogation manuals), courts have both allowed and suppressed confessions elicited via its use (see White, 2003, for a review), and it is therefore important to understand its effect. Our results indicate that offering deals to suspects in the real world may lead innocent persons to confess simply because they believe that they are better off accepting the known consequences of the deal than taking their chances of winning at trial. Although such explicit offers of leniency are generally prohibited in the interrogation room, it appears (rather unfortunately) that the use of pragmatic implication, as suggested by popular interrogation manuals (Inbau et al., 2001), will yield the same results.

It is interesting to note that although the use of the minimization and deal techniques clearly influenced the behavior of both guilty and innocent participants, they may have been unaware of this influence. With the exception of innocents who experienced minimization, participants did not report feeling more pressure to confess when the techniques were used than when they were not used.

The novel experimental paradigm introduced in the present study appears to have successfully transposed into the laboratory several real-world interrogation elements, including use of an intentional “crime” that could involve rather serious consequences (i.e., when cheating is considered in the context of a university setting). In addition, this paradigm provided the first opportunity to assess the effects of various interrogation techniques in eliciting both true and false confessions. Ultimately, the goal of interrogation should be to maximize the likelihood of a true confession, while simultaneously minimizing the likelihood of a false confession. In the current study, diagnosticity was reduced by nearly 40%, relative to the no-tactic condition, when either minimization or the deal technique was used. Furthermore, the use of the two techniques in combination reduced diagnosticity by 74%. Given that field research indicates police rarely use only one technique during an interrogation (Leo, 1996), and that interrogation manuals frequently advocate the use of multiple techniques (e.g., Inbau et al., 2001), it would seem that such a dramatic reduction in diagnosticity is worth further consideration. Moreover, we encourage police investigators to carefully consider the use of interrogation techniques that imply or directly promise leniency, as they appear to reduce the diagnostic value of an elicited confession.
The current study represents a necessary first step toward developing a more generalizable interrogation paradigm and understanding the influence of certain interrogation tactics on both true and false confessions. We believe that the current paradigm can be used to examine the influence of a variety of other interrogation techniques (e.g., maximization) and individual difference factors (e.g., IQ, psychological state). It is important, however, to have an appreciation for the limitations of the paradigm. Because suspects in the real world are accused of criminal acts that are more severe both in nature and in consequence than the act featured in this paradigm, one could imagine that the confession rates overall would be lower in the real world than in the laboratory. Nevertheless, although the absolute confession rates may differ and further research may be warranted, we believe that the underlying interrogative and psychological processes that occur in the laboratory similarly occur in the real world. It is the understanding of these underlying processes, and the effects of various interrogation factors, that we aim to generalize.

Acknowledgments—The current study reflects the first author’s dissertation research conducted at Florida International University. We would like to thank Marc Bargetze, Freddy Campana, Victor Capo, David Fuentes, Alex Garcia, and Orlando Martinez for their assistance with data collection.

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(Received 6/2/04; Revision accepted 8/5/04)