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Facilitating Accuracy in Showup Identification Procedures: The Effects of the Presence of Stolen Property

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Summary: Law enforcement personnel regularly present suspects to eyewitnesses using showups. In this study, we examined the impact of the presence of stolen property on live showup identification performance. Two hundred seventy university students were exposed to a simulated theft. During the subsequent showup, we manipulated the presence of the target and stolen property. Binary logistic regression analyses indicated that both factors independently predicted the accuracy of identification decisions. Participants were more accurate when the target was in the showup and when the stolen property was present during the identification. Consistent with the item, context, and ensemble theory of recognition, the presence of stolen property led to an increase in sensitivity, suggesting ensemble formation. Future research on showups should continue to examine contextual variables that may lead to changes in sensitivity or criterion shift. Copyright © 2012 John Wiley & Sons, Ltd.

A showup identification involves law enforcement personnel presenting a single suspect to an eyewitness. Showups are regularly used in the field (Behrman & Davey, 2001; Gonzalez, Ellsworth, & Pembroke, 1993) and serve several useful purposes. Showups are generally conducted shortly after crimes occur and, therefore, limit the effects of memory decay on identification performance (see Shapiro & Penrod, 1986; see also Clark & Godfrey, 2009). In addition, suspects identified as innocent are immediately released from custody (Gonzalez et al., 1993). Finally, showups create reasonable and probable grounds for detaining potentially guilty suspects. For these reasons, showups are appealing to law enforcement personnel.

Steblay, Dysart, Fulero, and Lindsay (2003) compared the identification performance of eyewitnesses in showups and lineups. Their meta-analysis included 8 studies, 12 hypothesis tests, and 3013 participants. Results indicated that participant-eyewitnesses who were shown showups were significantly more likely to make correct identification decisions than were participants who were shown lineups. Showups led to a slight, but nonsignificant, increase in correct identification decisions in target-present conditions and significantly more correct identification decisions in target-absent conditions. In the latter case, the percentage of incorrect identifications was 15% (false suspect identifications) from showups, but 43% (false suspect plus filler identifications) from lineups. After parsing out filler identifications, however, Steblay et al. (2003) reported that false suspect identifications occurred 15% of the time in showups and 10% of the time in lineups. Clark and Godfrey (2009) further examined these data and concluded that innocence risk—the probability that a suspect is innocent given that he was identified—was higher in showups than in lineups. We revisit the concept of innocence risk in the discussion section.

Although meta-analyses (e.g., Clark & Godfrey, 2009; Steblay et al., 2003) suggest that showups might put innocent suspects at greater risk of mistaken identification than lineups, researchers have explored the effects of only a few variables on showup identifications. One such variable is target similarity, or the degree to which an innocent suspect resembles the perpetrator. Results from these studies suggest that when an innocent suspect bears little resemblance to the perpetrator, it is unlikely that the suspect will be mistakenly identified in a showup; however, when an innocent suspect bears a close resemblance to the perpetrator, showups put the suspect at greater risk of mistaken identification than do lineups (Steblay et al., 2003). In addition, presenting the suspect in the same or highly similar clothing to that worn by the perpetrator (i.e., clothing bias) decreases the accuracy of identifications from showups (e.g., Yarmey, Yarmey, & Yarmey, 1996), but only when the clothing is uncommon (Dysart, Lindsay, & Dupuis, 2006). Surprisingly, biased clothing increases innocent suspect identifications but not perpetrator identifications (Dysart et al., 2006; Yarmey et al., 1996).

The effect of target clothing can be thought of as a context effect. A context effect refers to the presence of a cognitive or environmental stimulus during, or prior to, retrieval that facilitates or impairs memory performance (Davies & Thomson, 1988). Context may affect retrieval in two ways: (1) a different context at test can lead to changes in sensitivity or (2) a different context can lead to criterion shift (Green & Swets, 1966; Murnane, Phelps, & Malmberg, 1999). These two effects are not mutually exclusive, and a context effect may lead to both a change in sensitivity and criterion shift.

Although common in tasks of recall, in the 1980s, context effects appeared somewhat sporadically in tasks of recognition. Smith (1988, 1994) hypothesized that some researchers had not found context effects in recognition tasks because the target itself was such a powerful cue; this expectation was labeled the outshining hypothesis. Indeed, when encoding conditions are favorable (e.g., long exposure time, good lighting, high visibility of facial features, near proximity), there is little that increasing the match between contexts can do to affect identification decisions because performance is approaching ceiling. When encoding conditions are poor (e.g., short exposure time, poor lighting, low visibility of

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facial features, lack of proximity), however, increasing the match between contexts can affect identification decisions substantially because performance should be closer to chance levels. Therefore, when encoding conditions are impoverished, increased contextual overlap between encoding and recognition may affect decision making by affecting sensitivity or producing criterion shift. Research on eyewitness memory supports the outshining hypothesis and has demonstrated sensitivity-based context effects (e.g., Cutler, Penrod, & Martens, 1987).

Recognition tasks can also produce criterion-based context effects (e.g., Murnane & Phelps, 1993, 1994, 1995). Criterion-based context effects in recognition are likely to occur when the same context at encoding and recognition is not meaningfully associated with the to-be-recognized item (Murnane et al., 1999). For example, during a memory task, the background or foreground colors on a computer screen may be manipulated to increase context (e.g., Murnane & Phelps, 1993, 1994, 1995). Given that the context in such instances has little meaningful association with the target, the same context should increase both hits and false alarms (liberal criterion shift) but should have no effect on sensitivity. Indeed, this is precisely the pattern of results found by Murnane and Phelps (1993, 1994, 1995).

Sensitivity-based and criterion-based context effects produce different patterns of results; thus, it is important to differentiate between conditions that are likely to produce each effect. To this end, Murnane et al. (1999) proposed the item, associated context, and ensemble (ICE) theory of recognition memory. Item information refers to information that is central to the primary cognitive task, whereas contextual information refers to environmental information. Ensembles refer to constructed associations between the context and item. Ensembles, then, are super-additive representations in memory, resultant of the binding between item and contextual information in memory. In this sense, ensembles are greater than the sum of their parts (item and contextual information). In an identification task, item information is synonymous with the target—if the same target is presented at both encoding and recognition, then item information matches. Context information could be the place in which the crime or event took place or the presence of other items at test and recognition. If context is consistent at both encoding and retrieval, a match occurs. According to the ICE theory, matches between item information at encoding and recognition and matches between associated context at encoding and recognition are independent of one another. When both the item and context are the same at encoding and recognition, ensemble formation is possible (Murnane et al., 1999).

People can construct ensembles at encoding or recognition phases (Murnane et al., 1999). If participants create ensembles, they should be more sensitive when the item is presented in the same context at recognition. Consistent with this theory, when items were presented in the same meaningful context, there was an increase in both hits and false alarms (criterion shift), but the increase in hits was proportionally larger, resulting in an increase in sensitivity (Murnane et al., 1999; see also Dougal & Rotello, 1999, Experiment 3). Item, associated context, and ensemble are three distinct types of information. Imagine that a participant is shown a videotape of woman in a professional office and is later asked to recall details about the woman in the videotape. The woman can be considered the item information. The furniture, which consisted of an office chair and two small sofas separated by a small table, can be considered to be associated context. The item and context are independent of one another. The participant, however, constructs an association between the woman and the furniture and says, 'aha, this must be a psychotherapist's office, and she must be a psychotherapist'. The connections drawn between the woman in the office and the furniture (i.e., that she is a psychotherapist and this is her office) is the ensemble information—the information that binds together the item (the woman professional) and the associated context (the casual and comfortable office furniture). In sum, in ICE theory, the item is the to-be-remembered item. The associated context is the additional information in the scene together with the item. The ensemble information is the conceptual links drawn by the participant between the item and the associated context.

In the absence of a meaningful association between context and item, ensembles were not formed; thus, increased context produced criterion shift (Murnane et al., 1999). Specifically, in a series of nine studies, Murnane and Phelps (1993, 1994, 1995) manipulated background color, foreground color, and item location on a computer screen (i.e., three contextual manipulations that lack meaningful associations with the to-be-recognized item) and found that the same context (same background color, foreground color, or location on the computer screen) produced increases in both hits and false alarms (criterion shift), but no change in sensitivity. That is, as the match between cues in the environment and cues in memory increased, choosing increased. In sum, only contexts that are meaningfully associated with the to-be-recognized item should lead to changes in sensitivity, but both can lead to criterion shift regardless of whether it is meaningfully related to the to-be-recognized item.

The present study

We examined the effect of the presence of stolen property on showup identifications and draw on ICE theory for hypotheses. The Technical Working Group for Eyewitness Evidence (1999) recommended bringing the eyewitness to the location where the suspect was detained so as to limit the legal impact of the suspect's detention. Given that the identification procedure is conducted in-field, the procedure is likely to be host to variables that are not present during identification procedures conducted at the police station. In the instance of property offenses, a suspect might be found in possession of the stolen property. We used a simulated theft paradigm and subsequent live showups to examine the effect of presence of stolen property on sensitivity and criterion shift. Both the target and innocent suspect wore hats (a form of disguise; see Cutler, 2006), and clothing was biased to mimic real world showups.

Stolen property is salient and meaningfully associated with the to-be-recognized target (perpetrator); thus, eyewitnesses should construct ensembles on the basis of the association between the stolen property and the target. We therefore hypothesized that the presence of stolen property would increase participant sensitivity by increasing hits without significantly increasing false identifications. An increase in hits with little or no change in false identifications will result in an increase in choosing generally; therefore, we also expect the presence of stolen property to lead to a liberal criterion shift.

METHOD

Participants

Two hundred seventy participants were recruited via the undergraduate psychology participant pool in exchange for extra credit. We dropped data from one participant because the door to the room in which the recognition test took place malfunctioned and the target could not gain access. Of the 269 participants, 134 were male, 132 were female, and 3 declined to record their genders. The mean age of participants was 21.06 years ($SD = 11.02$), with 92.2% (245) of participants ranging in age from 18 to 22. Of the 264 participants who provided their ethnicities, 0.4% (1) self-identified as Aboriginal, 6.7% (18) identified as Arab/West Indian, 5.6% (15) identified as Black, 8.2% (22) identified as Chinese, 3.4% (9) identified as Filipino, 0.7% (2) identified as Latin American, 21.3% (57) identified as South Asian, 6.4% (17) identified as Southeast Asian, 35.29% (94) identified as White, and 10.9% (29) identified as Other.

Materials

Demographic questionnaire
Participants were asked to provide their gender, age, and ethnicity.

Filler task
In the filler task, participants were asked to write an essay about one of two statements pertaining to interpersonal situations. One statement claimed that individuals work more productively in teams than as individuals. The other statement claimed that high-speed electronics media, such as television and electronic mail, prevent meaningful and thoughtful communication between people.

Targets

Both suspects were 24-year-old men of average height and robust physiques. They were fair skinned with light features. In addition, suspects wore hats, black t-shirts, and jeans to increase similarity. Both suspects fulfilled the role of target and acted as innocent suspects for one another.

Procedure

Participants were tested individually in a small room. Each participant was given the demographic questionnaire and the filler task. While the experimenter was out of the room, she went to an adjacent lab where she slid a piece of paper under the door into a hallway so that it would be in view of the awaiting target. Thus, the experimenter was blind to the identity of the target. The target waited two minutes before entering the room where the participant was in. Upon entering the room, the target acted surprised and said to the participant, ‘Oh, sorry. I didn’t think anyone was in here’. Then, the target walked to a filing cabinet in full view of the participant and retrieved a backpack before exiting through the same door that he entered. The total exposure time was approximately 10 seconds. After four minutes, the suspect (either the target or the innocent suspect, depending on the condition) called the experimenter. The phone was near the participant, so he or she easily overheard the experimenter’s end of the conversation. Although the experimenter was speaking to the suspect, the phone conversation was scripted to lead participants to believe that the experimenter was speaking to a friend. During the phone conversation, the experimenter was told that she left her backpack upstairs. The experimenter denied this claim before looking to the cabinet to realize that her backpack was, in fact, missing. She exclaimed that her laptop was in the backpack and ended the phone conversation. Then, she asked the participant if he or she saw what happened. After the participant’s response, the experimenter explained to the participant that her friend saw her backpack in an upstairs study room and that the participant had to come with her to retrieve it, as she could not leave participants unattended in the lab.

Next, the experimenter ushered the participant to the room where the backpack had been seen. In the target-present condition, the confederate who the participant viewed stealing the backpack was seated at a table in the room. In the target-absent condition, the seated person was a different man. In both target-present and target-absent conditions, the suspect had a book open when the experimenter and participant arrived at the room. The suspect either had the backpack beside him (backpack-present condition) or hidden from the participant’s sight (backpack-hidden condition). In the backpack-present condition the experimenter said, ‘Hey, that’s my bag! Did you take it?’ In the backpack-hidden condition, the experimenter said, ‘Hey, where’s my bag? Did you take it?’ Then, the experimenter asked the participant ‘Is this the guy who took my bag?’ After the participant responded, the experimenter asked, ‘On a scale of one to ten, how confident are you in your decision?’ Once the participant responded, the experimenter explained that this was part of the experiment and that a theft had not actually occurred. The suspect left the room, and the experimenter verbally debriefed the participant. During debriefing, the experimenter asked the participant what he or she thought the study was about, to recall what the suspect said (if he said anything at all), and whether the stolen property was present during the showup identification.[1]

[1] We manipulated another variable: the verbal behavior of the suspect prior to the identification. The suspect either denied his involvement, denied his involvement and implicated another person, or remained silent. Analyses of manipulation checks revealed that the manipulation was not very successful, and this factor did not produce any effects on identification performance or confidence. All analyses reflect that the data collapsed across the verbal behavior manipulation. Details of the manipulation and findings may be obtained from the authors.

RESULTS

Suspicion and manipulation checks

Of the 269 participants in this study, 89.26% (241) provided responses as to whether or not they were suspicious that the theft was part of the study. Responses were recorded on a hidden video camera. The 29 missing responses were due to missing video or inaudible responses. Of those 241 participants, only 11.60% (28) were suspicious that the simulated theft was part of the study before the showup identification took place. We conducted logistic regression analyses on choosing rates, identification accuracy, and eyewitness confidence both excluding and including these participants. Given that we found no difference in terms of the findings, all participants were included in subsequent analyses, regardless of suspicion.

In total, 44% (120) of the participants were asked if they noticed the presence of the backpack during the showup identification. The 150 missing manipulation checks were due to the following: in 65.10% (97) of cases, the experimenter led the participant to the correct decision (e.g., during the debriefing, the experimenter mentioned that the stolen property was or was not present); in 32.90% (50) of cases, there was no video or the video was inaudible; and in 2% (3) of cases, the experimenter did not ask the question. Of those participants who provided valid responses, 90.83% correctly recalled the presence or absence of the backpack during the showup identification—96.61% were correct when the stolen property was absent and 85.25% were correct when the stolen property was present. There were no differences between individuals who failed the manipulation check or for whom there was no manipulation check data and those individuals who passed the manipulation check in terms of choosing rates, Pearson's $\chi^2(1, N=260)=1.18$, $p=.278$, $\Phi=-.07$; identification accuracy, Pearson's $\chi^2(1, N=260)=.01$, $p=.913$, $\Phi=.01$; or confidence, $t(251)=1.37$, $p=.171$, $d=0.18$.,[2,3] Therefore, we did not differentiate between participants who failed the manipulation check or for whom there was no manipulation check data and those participants who passed the manipulation check.

There were no significant differences in choosing rates, Pearson's $\chi^2(1, N=260)=1.04$, $p=.31$, $\Phi=.06$; identification accuracy, Pearson's $\chi^2(1, N=260)=.01$, $p=.91$, $\Phi=.01$; or confidence, $t(251)=1.29$, $p=.200$, $d=0.16$, as a result of the target. Therefore, we did not differentiate between targets in subsequent analyses.

Identification performance

We used logistic regression analysis to test the effects of target presence, stolen property, and their interaction on identification accuracy. The cell means are displayed in Table 1. The interaction term had to be dropped from the model because the −2 log likelihood (−2LL) iterations never reached convergence and final solutions for the model could not be reached. This was the result of a ceiling effect ($M=1.00$) when both the target and the stolen property were present. After dropping the interaction term, the model fits these data well $-2LL(257)=210.29$, $p=.985$, and significantly better than the intercept-only model, $-2LL(259)=322.57$, $p=.004$, which fit these data poorly, $\chi^2(2)=112.28$, $p<.001$. The predictor model also correctly classified 80.40% of cases, an improvement over the intercept-only model, which correctly classified 68.80% of cases.

We examined the hypothesis that the presence of stolen property would increase identification accuracy. Target presence significantly predicted identification accuracy, $B=3.44$, $SE=.42$, Wald's $\chi^2(1)=66.98$, $p<.001$, $e^B=31.17$. The odds of making an accurate identification decision were 31.17 times greater when the target was present ($M=.94$, $SD=.24$) than when the target was absent ($M=.37$, $SD=.48$). Stolen property also significantly predicted identification accuracy, $B=.73$, $SE=.35$, Wald's $\chi^2(1)=4.34$, $p=.037$, $e^B=2.07$. The odds of making an accurate identification decision were 2.07 times greater when the stolen property was present ($M=.73$, $SD=.44$) than when the stolen property was absent ($M=.64$, $SD=.48$).

We also examined hit rates and false alarms separately as a function of the presence of stolen property. Consistent with our hypothesis, the hit rate was higher when stolen property was present ($M=1.00$, $SD=0.00$) than when stolen property was absent ($M=.89$, $SD=.31$), Pearson's $\chi^2(1, N=144)=8.71$, $p=.003$, $\Phi=.25$. Also consistent with our hypothesis, there were no more false alarms when the stolen property was present ($M=.59$, $SD=.49$) than when the stolen property was absent ($M=.66$, $SD=.47$), Pearson's $\chi^2(1, N=116)=.67$, $p=.410$, $\Phi=.08$.

Finally, we calculated d' to examine sensitivity as a function of target presence. Given that our study was completely between participants, we only had one d' value for each condition. Without variability in d', we could not use inferential tests to compare sensitivity among conditions. Accordingly, we used a Monte Carlo simulation to estimate the standard errors of d' and c. In keeping with past research (e.g., Murnane et al., 1999), this approach allowed us to adjust the hit rate down to .95 (from 1.00). We conducted 5000 iterations for each condition and took the average d'

Table 1. Identification accuracy and confidence level percentages

	Stolen property present (n)	Stolen property absent (n)	Total (n)
Identification accuracy			
Target present	100 (73)	89 (71)	94 (144)
Target absent	41 (59)	33 (57)	37 (116)
Total	73 (132)	64 (128)	69 (260)
Confidence level			
Target present	86 (73)	82 (68)	84 (141)
Target absent	71 (55)	72 (57)	71 (112)
Total	79 (128)	77 (125)	78 (253)

[2] We used a forced-choice decision task—participants could respond, ‘yes, that is the guy’ or ‘no, that is not the guy’, but ‘don’t know’ was not a valid response. We instructed experimenters to insist that those participants providing a ‘don’t know’ response answer ‘yes’ or ‘no’. Despite the insistence of the experimenters, nine participants did not provide a valid ‘yes’ or ‘no’ response.

[3] In addition to the nine participants who did not provide a valid ‘yes’ or ‘no’ response—and therefore were not asked how confident they were—the experimenters forgot to ask seven participants how confident they were.

and c values. Although we adjusted the average hit rate down to .95 when both the target and stolen property were present, we allowed the hit rate for given iterations to vary to a maximum of .99 so as to avoid creating a one-tailed distribution. When the stolen property was present, the adjusted hit rate was .95 ($SD = .22$) and the false alarm rate was .59 ($SD = .49$). When the stolen property was absent, the hit rate was .89 ($SD = .31$) and the false alarm rate was .67 ($SD = .46$). Thus, as hypothesized, participants were more sensitive when the stolen property was present ($d' = 1.46$, $SD = 3.67$) than when the stolen property was absent ($d' = 0.80$, $SD = 2.97$), $t(9998) = 9.95$, $p < .001$, $d = 0.20$. Response criterion was more liberal than chance (i.e., participants were likely to choose) regardless of whether the stolen property was present ($c = -.97$, $SD = 1.84$), $t(4999) = 37.21$, $p < .001$, $d = -0.53$, or absent ($c = -0.84$, $SD = 1.49$), $t(4999) = 39.80$, $p < .001$, $d = -0.56$. Consistent with our hypothesis, response criterion was more liberal when the stolen property was present ($c = -.97$, $SD = 1.84$) than when the stolen property was absent ($c = -.84$, $SD = 1.49$), $t(9998) = -3.88$, $p < .001$, $d = 0.08$.

Eyewitness confidence

We conducted a 2 (target presence) × 2 (stolen property) ANOVA on eyewitness confidence. Participants were more confident when the target was present ($M = 8.39$, $SD = 1.92$) than when the target was absent ($M = 7.11$, $SD = 2.57$), $F(1, 249) = 20.42$, $p < .001$, $\eta^2 = .08$. There was no significant main effect of stolen property on confidence, $F(1, 249) = 0.16$, $p = .692$, $\eta^2 = .001$. There was no significant interaction, $F(1, 249) = 0.58$, $p = .447$, $\eta^2 = .002$.

There was a moderate correlation between choosing and confidence, $r(251) = .35$, $p < .001$. There was no significant correlation between identification accuracy and confidence, however, $r(251) = -.06$, $p = .320$.

DISCUSSION

We used a simulated theft paradigm and subsequent showups to examine the effect of the presence of stolen property on identification performance. Both the presence of stolen property and the presence of the target increased eyewitness identification accuracy. Participants were significantly more likely to identify the perpetrator in the presence of the stolen property; however, participants were no more likely to identify innocent suspects in the presence of stolen property. In fact, there was a nonsignificant decrease in false alarms when the stolen property was present. Participants were more confident when the target was present than when the target was absent. Finally, we found a moderate correlation between choosing and confidence.

Results supported our hypothesis that eyewitnesses would be more accurate when stolen property was present than absent. The presence of stolen property increased sensitivity and produced a liberal criterion shift (an increase in choosing generally). Although we did not directly measure ensemble formation, we speculate that participant-eyewitnesses formed ensembles on the basis of the relationship between the target and the stolen property.

The results of our study are consistent with the ICE theory, which predicts that if a person constructs an ensemble between the context and target, there will be an increase in both hits and false identifications (liberal criterion shift), but the increase in hits will be greater than the increase in false identifications (increased sensitivity; Murnane et al., 1999). Our findings differ slightly from this prediction: The presence of stolen property led to a nonsignificant decrease in false identifications. It is notable that others have also failed to find a context-dependent increase in false alarms (e.g., Dougal & Rotello, 1999, Experiment 3; Rutherford, 2004; Experiment 1). Yet, neither of these studies found a trend toward a decrease in false alarms.

There is a reasonable explanation for this difference, however, and our results are still consistent with ensemble formation. In the Murnane et al. (1999) studies, context was either the same or different; thus, one would expect an increase in false alarms when context matched because the match between cues in memory and cues in the environment was greater. The present study was a bit more complex. Even when the stolen property was absent, there was a considerable degree of contextual overlap as the target and innocent suspect were always presented in biased clothing and with hats on. Given that there was already a high degree of contextual overlap, adding the presence of stolen property might have been akin to adding an ensemble without critically increasing contextual overlap. Indeed, Murnane et al. (1999) formally demonstrated that if an ensemble were present in the absence of context, there would be an increase in hits, no change in false alarms, and an increase in sensitivity. This is analogous to the present study in which adding stolen property (ensemble) to the showup increased the meaningfulness of the context without critically increasing the context.

Although the increased accuracy resulting from the presence of the stolen property may be evidence of an ensemble effect, alternative interpretations do exist. Indeed, this pattern of results could also suggest a more deliberative recognition process on behalf of the eyewitness in the presence of the stolen property. That is, when the stolen property was present, eyewitnesses may have engaged in a more analytical, conscious, and effortful processing of information. This is in direct contrast to automatic recognition, which is evidenced by a more holistic, unconscious, and effortless process (see Shiffrin & Schneider, 1977). Future research may tease these two explanations apart by examining response latencies. Accurate eyewitnesses generally respond faster than inaccurate eyewitnesses (Sporer, 1992, 1993; Weber & Brewer, 2003) and appear to engage in more automatic (as opposed to deliberative) recognition processes (Charman & Wells, 2007).

Given that ensemble formation produces better memories for targets (Murnane et al., 1999), eyewitnesses who form ensembles should engage in more automatic recognition processes than eyewitnesses who do not form ensembles. Rutherford (2004) found that the presence of the target in the same environmental context facilitated the accuracy and speed of positive recognition decisions. He also predicted that false alarm responses would be slower when contextual information was the same because stimulus and context information conflict but could not test this prediction because of a floor effect. We hypothesize that the presence of the target and stolen property should facilitate automatic recognition, as evidenced by shorter response latencies, because it affords ensemble formation. Likewise, the presence of the stolen property and an innocent suspect should result in more deliberative recognition. Future research ought to test this prediction.

On a more applied level, our findings support the contention that showups are risky to the innocent suspect. Regardless of whether the suspect was guilty or innocent, participants chose the suspect 80% of the time. The high rate of choosing has implications for innocence risk (Clark & Godfrey, 2009). To calculate innocence risk, we divided the percentage of incorrect identifications by the sum of the percentage of incorrect identifications and the percentage of correct identifications (i.e., .63/[.63 + .94] = .401). This finding tells us that there was a 40% chance that the suspect was innocent given that he was identified in the identification procedure. These results may be idiosyncratic to aspects of our methodology, such as the particular to-be-identified targets, exposure time, retention interval, and so on, so we cannot with confidence generalize this level of innocence risk to actual showups. Given the large innocence risk, it is recommended that researchers continue examining innocence risk in research using showups.

This study is unique in that it is among the first to use a simulated theft paradigm to examine the influence of context in *live* showups. Future research on showups should continue to examine variables that are unique to the procedure. Given that showups are regularly conducted in the field (Behrman & Davey, 2001), they are likely host to an array of variables that might produce changes in sensitivity or criterion shift. Sensitivity-based and criterion-based context effects produce different response patterns, so it is important to empirically examine how relevant contexts affect eyewitness decision-making and to determine whether such decision making is beneficial or detrimental to the reliability of the procedure.

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