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When Prior Knowledge and Law Collide

Helping Jurors Use the Law*

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Jurors are supposed to rely on the judge's instructions for verdict selection. However, recent research indicates that people have constructed naive representations of crimes that conflict with the judge's instructions and that influence decision making. The present research explored potential solutions to this conflict. Two experiments revealed that the problem cannot be circumvented by avoiding people's prior knowledge; subjects activated and used their prior knowledge of crimes even when the crime name was withheld. Experiment 3 demonstrated that a supplementary instruction to disregard prior knowledge was also ineffective. Experiment 4 revealed that a supplementary instruction designed to revise subjects' existing representations did improve decision accuracy. These experiments indicate that the conflict between people's prior knowledge and the law cannot easily be avoided or disregarded, but its impact can be reduced by revising people's existing concepts.

A juror's duty is to make sense of the evidence presented at trial, to listen to the judge's instructions on the law, and then to integrate facts and law into a legally appropriate verdict. There are two sources of information jurors may use for fact-finding: (1) the evidence and testimony presented at trial and (2) their prior knowledge of the physical and social world. The latter may be used for determining the credibility of the witnesses, filling gaps in the testimony, and resolving disputed factual issues. This use of jurors' prior knowledge is encouraged in the judge's instructions to the jury: "In determining the credibility of a witness you may consider any matter that has a tendency in reason to prove or disprove the truthfulness of his (sic) testimony." (California Jury Instructions—Criminal, § 2.20, 1970); "You should consider all the evidence in the light of your own ob-

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servations and experience in life." (Illinois Pattern Jury Instructions, Criminal, § 1.01, 1981). In contrast to the evaluative freedom jurors are permitted as fact-finders, their use of the law is highly constrained. Jurors are told that they must follow the law presented in the judge's instructions: "It is my duty to instruct you in the law that applies to this case and you must follow the law as I state it to you." (California Jury Instructions—Criminal, § 1.00, 1970). Jurors are assumed either to have no prior knowledge of the law or to disregard that prior knowledge and rely on the judge's instructions when making their verdict decisions.[1]

Although most jurors have had no formal training in law or legal reasoning (American Bar Association, 1968; Loh, 1984), it is likely that they have had some exposure to the law through informal sources, such as movies, television, newspapers, and word of mouth. From these sources, jurors may have abstracted representations of many legal concepts that they can access for decision making, concepts such as the presumption of innocence, the reasonable doubt standard, or what constitutes crimes like burglary, assault, and murder. Rather than a blank slate, then, jurors may bring to trial naive representations of legal concepts, and this prior knowledge may serve as a source of information about the law. Recent research has revealed that people have indeed constructed naive representations of crime categories and, as described shortly, this information influences people's perceptions of fact situations and their verdict decisions (Smith, 1991b). Furthermore, this prior knowledge continues to be influential even when people hear the judge's instructions on the law. The goal of the present research was to explore ways of reducing or eliminating the influence of jurors' prior knowledge of the law so that they rely on the judge's instructions for verdict selection.

The Nature of Jurors' Prior Knowledge

To determine whether people have constructed naive representations of crime categories, Smith (1991b) asked subjects to list the features they believed characterize crimes like assault, kidnapping, and robbery. Subjects were readily able to do this, listing the attributes of the victim and the perpetrator, and the actions, intentions, and motives of the criminal. The features listed most frequently by subjects tended to be legally incorrect, irrelevant, or incomplete. For example, subjects typically described robbery as (a) the taking of money or other valuables, (b) from a home, (c) by an armed perpetrator. In contrast, the law defines robbery as the taking of property from a victim by force or threat of force. So, subjects were correct that robbery involves "taking," but, under the law, the item taken need not be valuable, the location need not be a home, and the perpetrator need not be armed. In addition, the law requires that the victim be present when the object is taken and that the perpetrator use force or threat of force. In short,

[1] Some states (e.g., Maryland and Indiana) instruct jurors that they have the right to nullify the law and vote not guilty if they believe a guilty verdict would be unjust under the circumstances (Hans & Vidmar, 1986). This instruction is a rare exception to the expectation that jurors will base their verdicts on the law as presented by the judge.

subjects' feature lists indicated that they had constructed representations of robbery and other crime categories that they could access when needed: however, much of the content of those representations was legally incorrect and is thus a potential source of conflict with the judge's instructions.

Lay wisdom and the law also appeared to diverge with respect to decision strategy (Smith, 1991b). Under the law, crime categories (like assault and burglary) are classically defined by a set of singly necessary and jointly sufficient features: If all the necessary conditions are met beyond a reasonable doubt, the juror is supposed to vote guilty; if any necessary condition is not met beyond a reasonable doubt, the juror is supposed to vote not guilty. In contrast, it appears that the features contained in people's naive representations of crime categories do not operate as necessary conditions. Rather, these naive concepts appear to contain prototypes (or typical exemplars) of crime categories. Prototypes are summary representations of the characteristics of category members. These representations exhibit a graded structure; category members possessing many characteristic features of the prototype are perceived to be more typical of the category than members possessing few characteristic features (see Smith & Medin, 1981). The perceived typicality of a target can influence both the speed and accuracy of categorization (Rosch, 1975; Rosch & Mervis, 1975).

To determine whether people's representations of crime categories have a graded structure, Smith (1991b) had subjects read several short scenarios, each describing the facts of a criminal encounter, and rate how typical each scenario was of the crime in question. Some of the scenarios contained many of the characteristic features of the crime from subjects' feature lists, other scenarios contained few characteristic features. All of the scenarios met the legal requirements for the particular crime, so all were category members. For each crime (e.g., burglary, assault), subjects' judgments did indeed exhibit the graded structure of a prototype representation; scenarios containing many characteristic features were perceived to be more typical of the crime category than scenarios containing few such features. Furthermore, when asked to choose verdicts for these scenarios, subjects voted guilty significantly more often for the typical than the atypical crimes, indicating that this graded structure also influenced categorization decisions.

Together, these findings suggest that people are not blank slates with regard to the law. They have constructed naive representations of crime categories that influence their perceptions of fact situations and their verdict preferences. There appear to be two important ways in which people's prior knowledge of the law conflicts with proper legal decision making. First, the content of people's representations is largely erroneous; features people believe to be characteristic of a crime are often irrelevant under the law. Second, people's naive decision strategy is legally inappropriate; verdict decisions are influenced by people's prototypes of crime categories when they should be based on a set of specific necessary and sufficient conditions. To be effective, then, it appears that the judge's instructions must correct both the content of people's naive representations and their strategy for using that content.

The Judge's Instructions

Substantive jury instructions define the crime charged against the defendant; they specify the legally appropriate decision criteria and explain how to use those criteria for verdict selection. This means that jurors are given all the information they need to make legally correct verdict decisions. However, experiments testing the effectiveness of jury instructions for educating jurors about the law have revealed that mock jurors' comprehension of the instructions is quite poor. In many of these experiments, instructed jurors have performed (a) no better than uninstructed jurors (Elwork, Sales, & Alfini, 1977; Severance & Loftus, 1982; Smith 1991a, 1991b), and (b) at chance levels on tests of comprehension for the instructions (Elwork et al., 1977; Smith, 1991a). Smith (1991b) compared the verdicts of instructed and uninstructed mock jurors to determine whether the substantive jury instructions effectively educated jurors about proper legal decision making. If so, instructed subjects' verdict choices should no longer be influenced by the typicality of the fact situation; they should vote guilty at a high rate for both typical and atypical category members. In fact, however, the verdicts of instructed and uninstructed subjects did not differ; both groups voted guilty more often for typical than atypical crimes. Apparently, then, the instructions did not discourage subjects from using their prior knowledge for decision making.

Some research has demonstrated benefits of jury instruction. In some experiments, instructed subjects show better comprehension of the law than uninstructed subjects (Buchanan, Pryor, Taylor, & Strawn, 1978; Strawn & Buchanan, 1976). These differences are statistically significant, although they tend to be small. Other experiments have shown that subjects' decisions can be altered with certain variations in the requirements of proof instructions (Kagehiro & Stanton, 1985; Kerr et al., 1976). This research indicates that, at least in some cases, subjects are willing and able to use judge's instructions for decision making. Apparently, then, the problem is not that people are insensitive to instruction, but that they are unwilling or unable to use many of the instructions they hear.

To improve jurors' understanding of the law, several researchers have proposed rewriting jury instructions in simpler language, and they have demonstrated improved comprehension of rewritten instructions (Charrow & Charrow, 1979; Elwork et al., 1977; Severance & Loftus, 1982). Other researchers and legal scholars have advocated procedural changes in the presentation of instructions to improve jurors' comprehension of the law. Jury instructions are usually delivered orally by the judge after the evidence has been presented and just before deliberation. Reformers have proposed that presenting the instructions before trial, allowing jurors to take notes on the instructions, or giving them written copies of the instructions might help them learn the law (Goldberg, 1981; Prettyman, 1960; Sand & Reiss, 1985). There is some evidence that presenting the instructions both before and after trial improves jurors' comprehension (Smith, 1991a), but note-taking and providing written copies of the instructions have been disappointingly ineffective (Hastie, 1982; Heuer & Penrod, 1988, 1989).

Although rewriting and pretrial instruction have produced some improvements, they have not solved the comprehension problem; there are still important

gaps in jurors' understanding even when these procedures are implemented. This suggests that other obstacles to comprehension are operating. People's prior knowledge of the law may be one such obstacle. Effective jury instruction may require greater attention to people's naive representations of legal concepts; jurors' prior knowledge of the law may interfere with their understanding and use of the judge's instructions. Thus, accurate decision making may depend on resolving the conflict between lay wisdom and law. The goal of the present research was to explore potential solutions to this conflict.

One possibility, tested in Experiments 1 and 2, is to circumvent the conflict by not activating jurors' prior knowledge of the law. If jurors do not access their naive concepts, then the judge's instructions are the only source of information about the law available for decision making. Jurors would have to rely on the instructions for choosing a verdict because there is no competing information. Another possible solution, tested in Experiment 3, is to inform jurors directly that whatever knowledge of the law they brought with them to trial is irrelevant and must be disregarded for decision making. Such an instruction has two potential advantages. First, it alerts jurors to the possibility that their prior knowledge may be inconsistent with the law, something that is not explicit in current jury instructions, and second, it highlights the importance of the instructions as the basis for decision making. This kind of supplementary instruction may discourage jurors from making assumptions about the law and encourage them to focus greater attention on the decision criteria contained in the substantive definition of the crime charged. A more comprehensive, but more intrusive, potential solution to the conflict is to confront jurors' misconceptions on a feature-by-feature basis. It may be necessary to give jurors detailed information about which features of their naive representations should be revised, and how. The substantive jury instructions could then fill the gaps in jurors' existing representations. Experiment 4 tested the effectiveness of a supplementary instruction that provided a feature-by-feature attack on jurors' mistaken prior beliefs.

EXPERIMENT 1

Experiment 1 investigated the possibility that the conflict between jurors' prior knowledge and the law can be avoided. If jurors' prior knowledge is not activated, they would have to rely on the judge's instructions for verdict selection because there is no other information available. Current trial procedures make accessing prior knowledge relatively simple; jurors are informed at the start of the trial what crime is charged against the defendant, and this category label can then serve as a retrieval cue for the characteristic features in people's naive representations of that crime. If this retrieval cue were not provided, jurors might not be able to activate their prior knowledge of the relevant category and there would be no conflict with the law.

In this experiment, the name of the crime category was withheld in an attempt to prevent jurors from accessing their prior knowledge of burglary. Subjects were

simply told that the defendants were charged with a serious crime. If this intervention is successful, subjects' verdict choices should be unaffected by the perceived typicality of the fact situations. If they do not access the prior knowledge on which typicality judgments are based, there should be no greater tendency to vote guilty for typical than atypical category members. Furthermore, if they understand and use the judge's instructions, the conviction rate for all category members should be near 100%.

Method

Subjects and Procedure

Eighty-five introductory psychology students participated in partial fulfillment of a course requirement. Subjects were randomly assigned to one of four instruction conditions. They listened to an audiotape of the judge's instructions, then chose verdicts for 12 crime scenarios. At the conclusion of the experimental session, subjects were fully debriefed.

Instructions

In the *preliminary only* instruction condition, subjects were told that the defendants were charged with burglary, then they heard preliminary jury instructions that warned against being influenced by sympathy or prejudice and explained that each defendant is presumed innocent unless the evidence establishes guilt beyond a reasonable doubt (Illinois Pattern Jury Instructions, Criminal, 1981). These instructions are delivered in all criminal trials and contain no information about the substantive legal definition of burglary. So, subjects in the preliminary only condition knew that the defendants were charged with burglary, but they were not told what constitutes burglary under the law. As a result, these subjects had only their prior knowledge of burglary to guide decision making and they were expected to vote guilty more often for typical than atypical burglary scenarios.

Subjects in the *preliminary plus burglary* condition were told that the defendants were charged with burglary, then they heard both the preliminary instructions and the legal definition of burglary:

> A person commits the offense of burglary when he, without authority, knowingly enters a building with intent to commit a felony therein. To sustain the charge of burglary, the State must prove the following propositions: first, that the defendant knowingly entered a building; and second, that the defendant did so without authority; and third, that the defendant did so with the intent to commit a felony. If you find from your consideration of all the evidence that each one of these propositions has been proved beyond a reasonable doubt, you should find the defendant guilty. If you find from your consideration of all the evidence that any one of these propositions has not been proved beyond a reasonable doubt, you should find the defendant not guilty. (Illinois Pattern Jury Instructions, Criminal, § 14.05 and 14.06, 1981)

The defining features specified by the Illinois instructions also appear in the Model Penal Code definition of burglary, which has been used as a guide by many states when drafting their criminal codes (American Law Institute, 1962; see also Black,

1983). These preliminary plus burglary subjects had access to both their prior knowledge of burglary and the judge's instructions. This condition replicated previous research on the effectiveness of jury instructions and was expected to produce a similar result, namely that subjects who hear the substantive instructions on burglary make the same decisions as those who hear no legal definition, voting guilty more often for typical than atypical category members (Smith, 1991b).

In the remaining two instruction conditions, subjects heard both the preliminary instructions and the substantive definition of burglary, but the category label *burglary* was omitted. Subjects were told that the defendants were charged with a serious crime and they were instructed on the definition of that crime without reference to the term *burglary*. The first sentences of the substantive definition were changed to "A person commits the crime charged when he, without authority, knowingly enters a building with the intent to commit a felony therein. To sustain the charge, the State must prove the following propositions. . .". The goal of this *preliminary plus crime* intervention was to prevent subjects from accessing their prior knowledge of burglary by withholding the crime name. To determine whether these subjects access their prior knowledge anyway, they were asked to specify the name of the crime they thought the judge had described. Half the subjects were asked to provide this category label before making any verdict decisions (*preliminary plus crime—label before* subjects) and half provided a label after making all their verdict decisions (*preliminary plus crime—label after* subjects). If subjects do not search for a category label until they are asked to do so, *preliminary plus crime—label after* subjects should be unaffected by the typicality of the scenarios. The information with which they determine the typicality of a fact situation has not been accessed, so they should show no greater tendency to convict on typical than atypical scenarios. Furthermore, if they understand and use the judge's instructions, the conviction rate should be high for all category members. In contrast, *preliminary plus crime—label before* subjects are forced to activate their own prior knowledge of a category, and their subsequent decisions will likely be influenced by their category choice. It is possible, of course, that subjects in both preliminary plus crime conditions will search for a category label after hearing the substantive definition of the crime. If so, then both groups will label the crime before making their decisions, and their labels and verdict choices should be similar.

Scenarios

This experiment assessed subjects' abilities to make two types of categorization decisions: identify true category members and reject non-category members. Six scenarios were presented to test people's abilities to identify true category members. Each scenario briefly described a fact situation in which the legal requirements for burglary were met. Four of the scenarios contained many of the characteristic features of burglary that subjects in previous research had identified. These scenarios were rated by 100 student judges as quite typical of the category *burglary*, averaging 6.0 on a 7-point scale where 7 = *very typical*. For

example, in the following scenario, Hal is guilty of burglary because he entered a building unlawfully with the intent to commit a felony. The characteristic features of the scenario are underlined:

> Hal got a tip from a friend that the Andersons were going on vacation for a week, starting December 19th. On the night of the 20th, Hal picked the lock on the Andersons' back door, and went inside. He dismantled the stereo equipment, the video recorder, and the tv, and carried them out to his car. He looked around to make sure no one had seen him, then went back inside. He went upstairs to the bedroom and filled his pockets with jewelry. He left the house the way he came in, got in his car and drove away.

Two other burglary scenarios contained relatively few characteristic features of burglary and were perceived by 100 student judges to be relatively atypical of burglary, averaging 2.4 on a 7-point scale where 1 = *not at all typical.* For example, in the following scenario, Art is guilty of burglary because he entered a building unlawfully with the intent to commit a felony, in this case arson. The characteristic features of the scenario are underlined:

> Art was fired from his job as a deliveryman, and vowed to get even with his former employer. Early one Saturday morning, Art took a can of gasoline and a pile of rags to the warehouse where he had worked. The warehouse was closed, but Art knew of a window in the back that didn't lock. He pushed the window open and climbed inside. He spread the gasoline around the warehouse and lit the rags on fire. Then he went home and waited to hear about the fire on the news. However, the fire burned itself out without damaging any property.

In total, there were six scenarios that met the legal requirements for burglary. An experienced trial attorney reviewed these scenarios and confirmed that all six defendants are guilty of burglary under the law. The scenarios varied in how typical of burglary students perceived them to be, with four typical and two atypical crimes. If subjects' prior knowledge influences their verdict decisions, they should vote guilty more often for the typical than the atypical burglary scenarios. If subjects understand and use the law, they should vote guilty for all six scenarios because all are category members.

To test people's abilities to reject non-category members, several scenarios were presented that did not meet the legal requirements for burglary; these scenarios described thefts and robberies. For example, in the following scenario Roger is not guilty of burglary because there was no unlawful entry of a building:

> Roger was in a park one Saturday afternoon when he noticed a portable cassette recorder propped up against a tree. Roger looked around, but there was no one in sight. He sat down on a bench and waited for several minutes, but no one appeared. Finally, he walked over and picked up the cassette recorder. He looked around again to make sure no one was watching, then walked home with it as fast as he could.

In total, there were six scenarios that did not meet the legal requirements for burglary, two described robberies and four described thefts. An experienced trial attorney reviewed these scenarios and confirmed that none of the six defendants are guilty of burglary under the law. If subjects understand and use the law, these scenarios should produce not guilty votes. The nonburglary scenarios extend previous research on the role of jurors' prior knowledge in verdict selection; that research did not systematically evaluate subjects' abilities to reject non-category

members (Smith, 1991b). Thus, including non-category members in this and the following experiments provides a more complete picture of jurors' decision-making abilities.

The scenarios were presented to subjects in one of three random orders. After reading each scenario, subjects chose a verdict. For preliminary only and preliminary plus burglary subjects, the verdict question was: "Is (defendant) guilty of burglary?"' For subjects in the two preliminary plus crime conditions, the verdict question was: "Is (defendant) guilty of the crime the judge described?" The name of the particular defendant was inserted for each scenario, and subjects responded by checking yes or no. Preliminary plus crime subjects were also asked to provide a category label for the crime: "What do you think is the name of the crime the judge described?" The preliminary plus crime—label before subjects answered this question before they read any of the scenarios or made any decisions; the preliminary plus crime—label after subjects answered this question after reading and choosing verdicts for all 12 scenarios.

Results and Discussion

The goal of this experiment was to circumvent the conflict between subjects' prior knowledge of burglary and the judge's instructions by withholding the category label. If successful, preliminary plus crime—label after subjects should not access their prior knowledge of burglary and should rely on the judge's instructions for verdict selection. These subjects should then be quite accurate at identifying both the typical and atypical burglaries and at rejecting the nonburglaries.

Subjects' verdict choices on the true burglary scenarios (i.e., those that met the legal requirements for burglary) were submitted to an Instruction × Typicality (typical, atypical) ANOVA, with Typicality as a within-subject factor.[2] This analysis revealed significant main effects of Typicality, $F(1,81) = 133.7$, $p < .0001$, and Instruction, $F(3,81) = 6.75$, $p < .001$, and a significant interaction, $F(3,81) = 6.87$, $p < .001$. As shown in the top two rows of Table 1, subjects in all four instruction conditions performed equally well on the typical burglaries, $F(3,81) = 0.57$, n.s., but there were differences across instruction conditions on the atypical burglaries, $F(3,81) = 6.87$, $p < .001$. Newman–Keuls post hoc comparisons revealed that the performance of preliminary plus burglary subjects did not differ significantly from that of preliminary only subjects. Consistent with previous research, hearing the judge's instructions on burglary did not significantly improve subjects' abilities to identify atypical category members. However, subjects in both preliminary plus crime conditions did outperform the preliminary only subjects, p's $< .05$; hearing the substantive instruction with the crime name un-

[2] The order of presenting scenarios interacted significantly with typicality, $F(2,73) = 5.92$, $p < .01$. For all three orders, typical scenarios produced significantly more guilty votes than atypical scenarios, as expected, all p's $< .0001$, but the difference was larger for Order 2 (1.00 vs. .31) than for Orders 1 (1.00 vs. .62) and 3 (.98 vs. .50). Because the typicality effect was in the same direction and significant for all three orders, the data were collapsed across order. Neither the Order × Instruction nor the Order × Typicality × Instruction interaction was significant. Unless otherwise indicated, there were no order effects in the remaining analyses.

Table 1. Conviction Rates on Burglary and Nonburglary Scenarios in Each Instruction Condition

	Instructions			
			Preliminary plus crime	
Scenario type	Preliminary only	Preliminary plus burglary	Label before	Label after
Burglaries[a]				
Typical	0.99	1.00	0.99	1.00
Atypical	0.22_a	$0.39_{a,b}$	0.69_b	0.65_b
Nonburglaries[b]	0.77_a	0.11_b	0.10_b	0.15_b

Note. Numbers with different subscripts in a given row differ at $p < .05$. Rows without subscripts contain no significant differences.
[a] High numbers reflect greater accuracy.
[b] Low numbers reflect greater accuracy.

specified did improve subjects' abilities to recognize the atypical category members.

The improved performance of preliminary plus crime subjects is consistent with the goal of this experiment, namely, to circumvent the conflict between people's prior knowledge and the law by not activating their prior knowledge and thus forcing them to rely on the judge's instructions for decision making. Nevertheless, there are reasons to believe that this preliminary plus crime intervention did not operate as planned. First, preliminary plus crime subjects did not significantly outperform preliminary plus burglary subjects, although the differences were marginally significant, pairwise $.05 < p\text{'s} < .10$. Thus, it is not clear in this experiment that avoiding the category label is a better method of instruction than providing the label, although there is a trend in that direction.

Second, there is evidence that in the preliminary plus crime—label after condition subjects did access their prior knowledge. In this condition, typicality influenced decision making, with typical scenarios producing significantly more guilty votes than atypical scenarios, $F(1,19) = 15.26, p < .001$. If subjects did not access their prior knowledge, there should have been no greater tendency to convict for typical than atypical burglaries; all are category members and all should have resulted in guilty verdicts.

Third, subjects in both preliminary plus crime conditions made similar decisions. The preliminary plus crime—label before subjects were forced to activate their own prior knowledge of a category by labeling the crime before making their verdict decisions. Thus, both the judge's instructions and subjects' prior knowledge of whatever category they chose were potentially available for decision making. The preliminary plus crime—label after subjects were asked to label the crime only after all of their verdict decisions were made. It was hoped that these subjects would refrain from choosing a label for the crime until they were asked to do so, and thus have only the judge's instructions available for decision making. If this occurred, the label before and label after groups would have access to different information for verdict selection and should have made different deci-

sions. However, the verdict choices of these two groups did not differ, suggesting that they were using similar decision processes. This conclusion is further supported by the labels subjects chose in response to the question "What do you think is the name of the crime the judge described?" The distribution of label choices did not differ for the label before and label after conditions, $\chi^2(2, N = 41) = 0.42$, n.s. Both groups chose the label *breaking and entering* most frequently (44% for label after and 48% for label before subjects), followed by *burglary* (22% and 14%, respectively). Other labels, including *stealing, theft,* and *robbery,* were the remaining choices (34% and 38%, respectively).

The similarity in label choices and verdict decisions for both preliminary plus crime conditions suggests that the two groups were using similar decision processes. It appears that after hearing the judge's instructions, subjects selected a label for the unspecified crime, whether they were asked to do so or not. This gave them access to their prior knowledge of the category selected, which they could then use for decision making. The fact that both preliminary plus crime conditions voted guilty more often for the typical than the atypical burglaries, p's $< .002$, indicates that this prior knowledge was influential. Under these circumstances, there are two possible reasons that the preliminary plus crime subjects were more accurate than the preliminary only subjects when identifying atypical category members. First, preliminary plus crime subjects may have been unwilling to rely on their own guesses about what crime was charged. Uncertainty about the correctness of their chosen label may have prompted them to rely less on their prior knowledge and more on the judge's instructions, thus increasing their accuracy. Preliminary only and preliminary plus burglary subjects were told that the defendants were charged with burglary, so there was no uncertainty for them about what crime was charged and they could be confident about what prior knowledge to access. If this characterization of subjects' decision making is correct, then withholding the crime name may be a useful intervention. It may not avoid the conflict between people's prior knowledge and the law, but it may discourage their reliance on their prior knowledge. If so, then preliminary plus crime subjects should outperform preliminary only subjects regardless of the target crime. Experiment 2 tested this possibility using kidnapping cases.

The second possible reason that preliminary plus crime subjects outperformed preliminary only subjects on the atypical burglaries is that the former made a fortunate choice of category labels. About half of the preliminary plus crime subjects labeled the crime *breaking and entering.* As all of the burglary scenarios involved unlawful entry, using this label as a basis for verdict selection could indeed boost accuracy on the atypical burglaries. Thus, the improvement in performance of the preliminary plus crime subjects may not reflect an understanding and use of the judge's instructions; it may be a product of subjects' label choices. If this is true, preliminary plus crime subjects who chose the label *breaking and entering* should be significantly more accurate at identifying atypical category members than subjects who chose other labels.

To test this possibility, the verdict choices of the preliminary plus crime subjects were submitted to a 3-way ANOVA with Instruction condition (label before versus label after) and Label (breaking and entering versus other) as be-

tween-subjects factors and Typicality as a within-subject factor. The only significant effect was a Label × Typicality interaction, $F(1,35) = 4.35$, $p < .05$. As predicted, subjects who labeled the crime *breaking and entering* were more accurate (typical = .99, atypical = .82) than subjects who chose other labels (typical = 1.00, atypical = .60) when it came to identifying atypical category members.[3] These results suggest that the improved performance of preliminary plus crime subjects may have been a byproduct of a fortunate choice of labels. If this explanation is correct, such improvement is unlikely to replicate with a different target crime. Experiment 2 tested this prediction using kidnapping cases.

There was a significant effect of typicality in each of the four instruction conditions, all p's $< .005$. This suggests that, as predicted, subjects' prior knowledge did influence their decision making, despite important variations in the instructions they heard. It is possible, however, that the differences in conviction rates for the typical and atypical scenarios were not due to variations in typicality, but to differences in (a) the perceived heinousness of the defendants' actions or (b) the degree to which the legal elements of burglary were met. The first of these possible alternative explanations suggests that subjects voted guilty more often for the typical than the atypical scenarios because the former described more heinous crimes. To test this possibility, 20 new subjects read the typical and atypical burglaries and rated for each one how heinous the defendant's actions were on a 7-point scale, where 1 = *not at all heinous* and 7 = *extremely heinous*. A matched-pair t test revealed that the atypical scenarios were perceived to be just as heinous as the typical scenarios (4.58 vs. 4.70, respectively), $t < 1$, n.s., indicating that the difference in conviction rates for typical and atypical crimes was not a byproduct of perceived heinousness.

The second alternative explanation suggests that subjects voted guilty more often for the typical than the atypical crimes because they believed that the legal requirements for burglary were met in the typical scenarios but were not met in the atypical scenarios. To test this possibility, 20 additional subjects judged for each scenario whether the legal requirements were met. Subjects were asked (1) did (defendant) knowingly enter a building?, and (2) if yes, did he enter without authority?, and (3) did he enter with the intent to commit a felony? The name of the particular defendant was inserted for each scenario, and subjects responded to each question by checking yes or no. If subjects answered yes to all three questions, then they believed that all of the legal requirements for burglary were met; a no response on any one of these questions meant they believed the legal requirements for burglary were *not* met. Subjects answered yes to all three questions equally often for the typical and atypical burglaries (.93 vs. .88, respectively), $F < 1$, n.s., indicating that both types of scenarios satisfied the legal requirements for burglary. This, of course, means that subjects should have voted

[3] A similar analysis was conducted comparing subjects who chose the label *breaking and entering* and those who chose the label *burglary*. Although the means were in the right direction (atypical breaking and entering = .82, atypical burglary = .57), the Label × Typicality interaction did not reach significance, $p = .12$, probably because of insufficient power; only 7 subjects chose the label *burglary*.

guilty at a high rate for both types of burglaries. However, the verdict choices in Experiment 1 differed dramatically from this pattern—subjects voted guilty at a high rate for the typical burglaries, but not for the atypical burglaries.

Also of interest in the present experiment was the impact of the judge's instructions on subjects' abilities to reject non-category members, an issue that previous research did not systematically address (Smith, 1991b). Verdict choices on the nonburglary (robbery and theft) scenarios were submitted to a one-way ANOVA, which yielded a significant effect of Instruction, $F(3,81) = 35.6$, $p < .0001$. As illustrated in the bottom row of Table 1, the conviction rate was higher for subjects who heard only preliminary instructions than for subjects who heard the substantive definition of the crime charged. This higher conviction rate means that preliminary only subjects made more errors than subjects in the other conditions, pairwise p's $< .05$ by Newman–Keuls tests, which did not differ significantly from each other. This same pattern of results was obtained when the two types of nonburglaries (theft and robbery) were analyzed separately. Thus, hearing the definition of the crime charged helped subjects to reject non-category members, regardless of whether the crime name was specified. In fact, preliminary only subjects were significantly less likely to vote guilty on the atypical burglaries than on the nonburglaries, $F(1,24) = 42.2$, $p < .0001$. Hearing the definition of burglary favorably changed that pattern. Preliminary plus burglary subjects were marginally more likely to vote guilty on the atypical burglaries than on the nonburglaries, $F(1,18) = 4.04$, $p = .06$, and preliminary plus crime subjects were significantly more likely to do so, both p's $< .001$.

The improvement on the nonburglaries among preliminary plus crime subjects may be due to their tendency to label the crime *breaking and entering*. Although some of the thefts and robberies were committed indoors (e.g., in a department store, locker room, bar), none involved a break-in. Correctly rejecting these scenarios, then, may have been a product of subjects' label choice. Indeed, subjects who chose the label *breaking and entering* were significantly more accurate at rejecting the non-category members than were subjects who chose other labels (.04 vs. .20), $F(1,35) = 4.58$, $p < .05$. However, this explanation cannot account for the unexpected improvement of the preliminary plus burglary subjects. Hearing the substantive instructions on burglary did not help these subjects to correctly identify atypical burglaries, but it did help them to correctly reject nonburglaries. The reason for this selective improvement is unclear. It may be that subjects extracted a partial understanding of the category definition from the instructions. If, for example, subjects learned that *unlawful entry* is important, but failed to learn the *intent to commit a felony* feature, they could reject many nonburglaries more accurately without being able to identify atypical burglaries. Taken together, the results for the preliminary plus burglary subjects indicate that the instructions were not wholly effective in educating subjects about burglary, but it appears that they were partially effective. Experiment 2 also investigated subjects' abilities to reject non-category members to determine whether this selective improvement replicates with a different target crime.

Differences in the patterns of results for the burglaries and nonburglaries were not due to differences in perceived heinousness of these crimes; independent

ratings indicated that subjects perceived the nonburglaries to be just as heinous as the burglaries (4.9 vs. 4.65), $t < 1$, n.s. Furthermore, 20 additional subjects verified that the legal requirements for burglary were *not* met in the nonburglary scenarios. Subjects were much less likely to believe that all three legal elements were satisfied for the nonburglaries (.03) than for either the typical (.93) or the atypical (.88) true burglaries, both p's $< .001$. Thus, subjects believed that the nonburglaries did *not* satisfy the legal requirements for burglary, and they should have voted not guilty.

EXPERIMENT 2

The purpose of Experiment 2 was to determine whether the improvements in decision accuracy obtained in Experiment 1 replicate with a different target crime, namely, kidnapping. If the preliminary plus crime subjects in Experiment 1 were better able to identify atypical category members than the preliminary only subjects because of either genuine gains in their understanding and use of the law or a decreased reliance on their prior knowledge, then the same improvement should be obtained with a new crime. However, if their improved performance was due to a fortuitous choice of labels for the target category, then the improvement is unlikely to replicate. This experiment also explores more comprehensively subjects' abilities to reject non-category members. Both typical and atypical non-category members were included to provide more information about the role of people's prior knowledge in these decisions.

Method

Subjects and Procedure

Subjects were 80 introductory psychology students who participated in partial fulfillment of a course requirement. Subjects were randomly assigned to one of the four instruction conditions of Experiment 1. They listened to an audiotape of the judge's instructions, then made verdict decisions for eight scenarios. At the conclusion of the experimental session, subjects were fully debriefed.

Instructions

Preliminary only subjects were told that the defendants were charged with kidnapping, then they heard the preliminary instructions on the presumption of innocence and reasonable doubt. *Preliminary plus kidnapping* subjects were told the defendants were charged with kidnapping, then they heard the preliminary instructions and the substantive definition of kidnapping:

> A person commits the offense of kidnapping when he knowingly and (1) secretly confines another person against his will; or (2) by force, or by threat of imminent force, carries another person from one place to another with intent secretly to confine that person against his will; or (3) by deceit or enticement induces another person to go from one place to another place with intent secretly to confine that person against his will. To

> sustain the charge of kidnapping, the State must prove the following propositions: first, that the defendant acted knowingly; and second, that the defendant secretly confined the victim against his will; or second, that the defendant, by force or threat of imminent force, carried the victim from one place to another place; and third, that when the defendant did so he intended secretly to confine the victim against his will; or second, that the defendant, by deceit or enticement, induced the victim to go from one place to another place; and third, that when the defendant did so he intended secretly to confine the victim against his will. If you find from your consideration of all the evidence that each one of these propositions has been proved beyond a reasonable doubt, you should find the defendant guilty. If you find from your consideration of all the evidence that any one of these propositions has not been proved beyond a reasonable doubt, you should find the defendant not guilty. (Illinois Pattern Jury Instructions, Criminal, § 8.01 and 8.02, 1981)

The defining features of kidnapping specified in the Illinois instructions also appear in the Model Penal Code definition, which has been used by many states when drafting their criminal codes (American Law Institute, 1962; see also Black, 1983). *Preliminary plus crime* subjects were told that the defendants were charged with a serious crime, then they heard the preliminary instructions and the substantive definition of kidnapping, with the word *kidnapping* removed.

Scenarios

As in Experiment 1, subjects' abilities to perform two kinds of categorization decisions were of interest: identify true category members and reject non-category members. The true category members met the legal requirements for kidnapping, but varied in how typical of kidnapping subjects perceived them to be. Two scenarios contained many characteristic features and were rated by 100 students as quite typical, averaging 5.75 on a 7-point scale where 7 = *very typical.* For example, in the following scenario Ken is guilty of kidnapping under the law because he secretly confined Tony against his will. The characteristic features are underlined:

> Tony was playing ball with his friends in the playground of his elementary school one afternoon. Ken knew that Tony's parents were very wealthy and very protective of their child. Ken called to Tony and waved him over to his car. When Tony came over, Ken asked if he wanted to go for ice cream. Tony said, "Sure," and got in the car. Ken bought Tony an ice cream, then took him to a motel room, where he tied him to a chair, gagged him, and told him if he made any noise he'd kill him. Ken then took a note demanding $500,000 for Tony's safe return, and left it in the mailbox of Tony's parents' house.

Two of the true kidnapping scenarios contained few characteristic features and were rated by 100 students as relatively atypical, averaging 2.87 where 1 = *not at all typical.* For example, in the following scenario the drug dealers are guilty of kidnapping because they secretly confined Leon against his will:

> Leon was an investigator with the Drug Enforcement Administration. He discovered the headquarters of a major drug ring and went there to gather evidence against them. He hid behind a stack of boxes and listened to their conversation. In their discussion, the dealers revealed everything Leon needed to bust them. When he tried to sneak out, he knocked over one of the boxes and was discovered. The dealers told Leon to tell them everything

> he knew or they would beat him until he did. Leon wouldn't tell them anything, so the dealers locked him in their hide-out and left him there.

An experienced trial attorney reviewed these scenarios and confirmed that the defendants in all four of the true kidnapping scenarios are guilty of kidnapping under the law.

There were four scenarios that did not meet the legal requirements for kidnapping. These non-category members also varied in how typical of kidnapping subjects perceived them to be. Two of the nonkidnappings contained many characteristic features and were rated by 64 students as moderately typical of kidnapping, averaging 3.92 where 7 = *very typical.* For example, in the following scenario, Neil is not guilty of kidnapping because he did not secretly confine the child or intend to secretly confine her.

> Neil and his wife went through a nasty divorce and custody battle. Neil's wife was awarded custody of their daughter, but she got to stay with Neil every third weekend of the month. One Friday afternoon, Neil drove to his daughter's elementary school. She was playing with her friends in the schoolyard. Neil waved to her and she got in the car with him. Neil took her to his apartment briefly, and then the two went to a basketball game. It was only the second weekend of the month, and Neil's wife did not know that Neil had picked up the child from school. The girl's friends said only that she had gotten into a car with some man. Neil's wife reported the incident to the police.

Two of the nonkidnappings contained few characteristic features and were perceived by 64 students as relatively atypical of kidnapping, averaging 2.55 where 1 = *not at all typical.* For example, in the following scenario Craig is not guilty of kidnapping because Jennifer consented to go away with him:

> Jennifer was planning to go away for the weekend with her secret lover, Craig. She agreed to meet Craig downtown, and they would go to Jamaica together. Craig drove up to the designated place and got out of the car. Jennifer was walking down the street when Craig walked over to her, took her arm, and escorted her quickly to the car. Jennifer looked around to see if anyone was watching, then got into the car. One of her husband's employees saw this incident, and became alarmed. He wrote down the license plate of the car, and went back to work to tell his boss what had happened. Jennifer's husband called the police and told them his wife was missing. Meanwhile, Jennifer and Craig drove to the airport and left the country together.

The typical nonkidnappings were rated as only moderately typical ($M = 3.92$), but they were perceived as significantly more typical than the atypical nonkidnappings ($M = 2.55$), $t(63) = 7.53$, $p < .0001$. An experienced trial attorney verified that none of the four defendants in the nonkidnapping scenarios is guilty of kidnapping under the law. Thus, if subjects understand and use the judge's instructions, all of these scenarios should produce not guilty verdicts because none meets the legal requirements for kidnapping. In contrast, if subjects' prior knowledge of kidnapping influences their decisions, typical nonkidnappings should produce more guilty votes than atypical nonkidnappings.

The scenarios were presented to subjects in one of three random orders. For each scenario, preliminary only and preliminary plus kidnapping subjects were asked "Is (defendant) guilty of kidnapping?" Preliminary plus crime subjects were asked "Is (defendant) guilty of the crime the judge described?" The name of

the particular defendant was inserted for each scenario and subjects responded by checking yes or no. Preliminary plus crime subjects were also asked "What do you think is the name of the crime the judge described?" As in Experiment 1, half the subjects answered this question before making any of their verdict decisions, half answered it after making all of their verdict decisions.

Results and Discussion

The goal of this experiment was to determine whether withholding the name of the crime category effectively prevents subjects from accessing their prior knowledge of kidnapping and thus enhances their abilities to identify atypical category members. Subjects' verdict choices on the true kidnappings were submitted to an Instruction × Typicality ANOVA, with Typicality as a within-subject factor. This analysis revealed a significant main effect of Typicality, in which typical scenarios produced a higher conviction rate than atypical scenarios (.96 vs. .69, respectively), $F(1,76) = 41.3$, $p < .0001$. Thus, over all four instruction conditions, subjects' prior knowledge did influence their verdict decisions. There was no main effect of Instruction, $F(3,76) = 0.85$, n.s., and no interaction, $F(3,76) = 0.80$, n.s. As illustrated in the top two rows of Table 2, subjects in all conditions performed equally well on the typical kidnappings and equally poorly on the atypical kidnappings.

Consistent with Experiment 1, preliminary plus kidnapping subjects made the same decisions as preliminary only subjects. Unlike Experiment 1, preliminary plus crime subjects did not outperform the preliminary only group, pairwise p's > .05 by Newman–Keuls tests; neither did they outperform the preliminary plus kidnapping group, indicating that withholding the crime name did not significantly enhance decision accuracy on the kidnapping scenarios. The preliminary plus crime—label before and preliminary plus crime—label after conditions produced comparable conviction rates, suggesting that these two groups were using similar

Table 2. Conviction Rates on Kidnapping and Nonkidnapping Scenarios in Each Instruction Condition

	Instructions			
			Preliminary plus crime	
Scenario type	Preliminary only	Preliminary plus kidnapping	Label before	Label after
Kidnappings[a]				
Typical	0.95	0.98	0.95	0.95
Atypical	0.60	0.73	0.65	0.78
Nonkidnappings[b]				
Typical	0.45_a	0.15_b	$0.23_{a,b}$	$0.28_{a,b}$
Atypical	0.00	0.00	0.00	0.00

Note. Numbers with different subscripts in a given row differ at $p < .05$. Rows without subscripts contain no significant differences.
[a] High numbers reflect greater accuracy.
[b] Low numbers reflect greater accuracy.

decision processes. Subjects in both conditions overwhelmingly labeled the crime *kidnapping* (90% of label before subjects and 95% of label after subjects), $\chi^2(1, N = 38) = 1.03$, n.s. Both groups' verdicts showed a significant effect of Typicality, $F(1,19) = 12.7$, $p < .01$ for label before subjects and $F(1,19) = 4.41$, $p < .05$ for label after subjects, indicating that their prior knowledge did influence their decisions. This similarity in labels and verdict choices suggests that both groups actually labeled the crime before making their decisions and accessed their prior knowledge of kidnapping for verdict selection. The fact that their decisions did not differ from the preliminary only and preliminary plus kidnapping groups suggests that they relied on this prior knowledge just as heavily as subjects who were told explicitly what crime was charged. Together, these findings reveal no improvement in performance when the crime name is withheld. Thus, it appears that the gains in identifying atypical category members obtained in the previous experiment were not the result of a successful intervention.

A significant typicality effect emerged in each of the four instruction conditions, p's $< .05$, indicating that subjects' prior knowledge did influence decision making, even with important variations in instructions. It is possible that the differences in conviction rates for the typical and atypical scenarios are due to differences in perceived heinousness or the degree to which the legal elements of kidnapping were met. To test the heinousness hypothesis, 20 new subjects read the typical and atypical kidnappings and rated for each one how heinous the defendant's actions were on a 7-point scale (1 = *not at all heinous* and 7 = *extremely heinous*). A matched-pairs t test revealed that the atypical scenarios were perceived to be just as heinous as the typical scenarios (5.88 vs. 6.15), $t < 1$, n.s., indicating that the difference in conviction rates is not a byproduct of perceived heinousness.

To test the possibility that subjects believed the legal elements for kidnapping were met for the typical but not met for the atypical crimes, 20 new subjects judged for each scenario whether the legal elements of kidnapping were satisfied. They were asked (1) did (defendant) secretly confine (victim)? If yes, did he confine (victim) against his/her will?; (2) did (defendant) take (victim) from one place to another by force or threat of force? If yes, did he intend to secretly confine (victim)? Did he intend to confine (victim) against his/her will?; (3) did (defendant) induce (victim) to go from one place to another by deceit or enticement? If yes, did he intend to secretly confine (victim)? Did he intend to confine (victim) against his/her will? The names of the particular defendant and the particular victim were inserted for each scenario. Subjects responded to each question by checking yes or no. Subjects indicated that the legal requirements for kidnapping were met by (a) answering yes to both parts of Question 1, and/or (b) answering yes to all three parts of Question 2, and/or (c) answering yes to all three parts of Question 3. Any other pattern of responses indicated that the subject did *not* believe the legal elements of kidnapping were satisfied. In this experiment, subjects indicated that the legal requirements were met by both the typical and the atypical kidnappings (.95 vs. 1.00), $F = 1$, n.s. This means that the differences in conviction rates for the typical and atypical scenarios are not due to differing perceptions of the degree to which the legal elements of kidnapping were satisfied.

Subjects' verdict choices for the noncategory members were also submitted

to an Instruction × Typicality ANOVA. This analysis yielded main effects of Typicality, $F(1,76) = 51.2$, $p < .0001$, and Instruction, $F(3,76) = 2.75$, $p < .05$, and a significant interaction, $F(3,76) = 2.75$, $p < .05$. As illustrated in the bottom two rows of Table 2, subjects in all four conditions performed equally well on the atypical nonkidnappings, but there were condition differences on the typical nonkidnappings, $F(3,76) = 2.75$, $p < .05$.[4] Preliminary only subjects voted guilty significantly more often than preliminary plus kidnapping subjects, meaning that the preliminary plus kidnapping group was more accurate at rejecting the non-category members, $p < .05$ by Newman–Keuls post hoc tests. Thus, as in Experiment 1, hearing the definition of the target crime improved subjects' abilities to reject non-category members, suggesting that the instructions were partially effective. The conviction rates of the preliminary plus crime conditions fell between the other groups and did not differ significantly from either.[5]

In each of the four instruction conditions, typical nonkidnappings produced a higher conviction rate than atypical nonkidnappings, p's $< .05$, indicating that subjects' prior knowledge did influence their decisions about non-category members. If their prior knowledge of kidnapping had played no role in these decisions, the conviction rates for the typical and atypical scenarios would have been equal and ideally would have been equally low. Again, it is possible that the differences in conviction rates for the typical and atypical nonkidnappings are due to differences in the perceived heinousness of the scenarios or the degree to which the legal elements of kidnapping are satisfied. However, 20 subjects rated the heinousness of each nonkidnapping and perceived the atypical scenarios to be just as heinous as the typical scenarios (2.75 vs. 3.28), $t(19) = 1.69$, n.s. Twenty additional subjects were asked to determine whether the legal elements of kidnapping were met. They indicated that both the typical and atypical nonkidnappings *failed* to meet the legal requirements (.05 vs. .00 satisfied the legal elements), $F(1,19) = 2.11$, n.s. Thus, neither possible alternative explanation can account for the higher conviction rate on the typical nonkidnappings.[6]

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[4] It is important to remember that the terms *typical* and *atypical* refer to how typical *of kidnapping* a scenario is perceived to be. The designations *true kidnapping* and *nonkidnapping* are independent of typicality and are based on whether or not the scenario meets the legal requirements for kidnapping. Thus, a typical nonkidnapping is a scenario that does not constitute kidnapping under the law, but that subjects nevertheless perceive to be relatively typical of kidnapping.

[5] The partial effectiveness of the judge's instructions is also demonstrated by a comparison of the middle two rows of Table 2. The atypical kidnappings and the typical nonkidnappings are the two types of scenarios for which subjects' prior knowledge and the law are most inconsistent. An Instruction × Scenario type (atypical kidnappings vs. typical nonkidnappings) ANOVA revealed no main effect of instruction, $F(3,76) = 0.90$, n.s. However, there was a significant main effect of scenario type, with atypical kidnappings producing more guilty verdicts than typical nonkidnappings, $F(1,76) = 50.9$, $p < .0001$, and a marginally significant interaction, $F(3,76) = 2.57$, $p = .06$. Follow-up analyses revealed that, in the preliminary only condition, the conviction rates for the atypical kidnappings and the typical nonkidnappings did not differ (.60 vs. .45), $F(1,19) = 1.31$, n.s. In the other three conditions, in which subjects heard the substantive definition of kidnapping, the atypical kidnappings produced significantly more guilty votes than the typical nonkidnappings, as they should, all p's $< .001$. As noted earlier, this improvement among instructed subjects is due to more accurate rejections of the typical nonkidnappings.

[6] It is interesting to note that typicality and substantive instructions are not the only factors influencing subjects' verdict choices in this experiment. As illustrated in Table 2, subjects voted guilty much

Together, the results of Experiments 1 and 2 suggest that we cannot circumvent the conflict between people's prior knowledge and the law by withholding the name of the crime charged. It appears that people label the crime for themselves and activate their own prior knowledge. In both experiments, subjects in the two preliminary plus crime conditions made comparable verdict decisions and label choices and both exhibited typicality effects, suggesting that both groups labeled the crime and activated their prior knowledge before making their decisions, whether they were specifically asked to do so or not. Thus, it appears that withholding the name of the crime charged is not a viable solution to the conflict between prior knowledge and the law. If this conflict cannot be avoided, perhaps its impact can be minimized by reducing people's reliance on their prior knowledge for decision making. Current jury instructions inform jurors of the legally correct decision criteria and strategy, but they do not acknowledge jurors' naive concepts or warn them of possible discrepancies between their prior knowledge and the law. Perhaps specifically informing jurors that their prior knowledge is irrelevant would prompt them to focus their attention more narrowly on the judge's instructions.

EXPERIMENT 3

Experiment 3 tested the effectiveness of a supplementary instruction designed to discourage subjects' reliance on their prior knowledge of kidnapping. Subjects were told that they should *not* base their verdict decisions on their own knowledge of what constitutes kidnapping; they should disregard how typical or atypical of kidnapping the facts seem to be and rely solely on the information

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more often for atypical kidnappings than atypical nonkidnappings. Because this occurred in all four instruction conditions, this effect cannot be attributed to delivery of the substantive definition of kidnapping. Furthermore, pretest subjects perceived the atypical kidnappings and the atypical nonkidnappings to be similarly atypical (2.87 vs. 2.55 on a 7-point scale), $t(162) = 1.62$, n.s. Therefore, the differences in conviction rates cannot be due to differences in perceived typicality either. There are two possible explanations for these conviction differences. First, all subjects heard preliminary instructions on the procedural law and requirements of proof, and they may have extracted some information from those instructions that prompted different verdicts on these scenarios. However, it is not at all clear how general instructions on the presumption of innocence and reasonable doubt (that contain no information about the crime of kidnapping) could produce more guilty verdicts on atypical kidnappings than on atypical nonkidnappings. More plausible is the possibility that there is some aspect of people's prior knowledge that is not captured by typicality ratings. Perhaps, for example, some features of people's crime prototypes are weighed more heavily for verdict decisions than for typicality judgments. This could produce the conviction differentials on the atypical kidnappings and atypical nonkidnappings obtained in this experiment (and in Experiments 3 and 4) even though the typicality ratings are similar. This would mean that typicality ratings are not perfect descriptors of people's prior knowledge and are, therefore, not perfect predictors of verdict choice. This is an important prospect that should be addressed in future research. What is critical for these experiments is that typicality does play an important (although perhaps not perfect) role in subjects' verdict decisions. Consistent with previous research, these experiments demonstrate that people's prior knowledge of the law powerfully (and inappropriately) influences their decision making; these experiments strive to reduce that influence.

contained in the judge's instructions. This instruction has the potential advantages of (a) alerting subjects that their prior knowledge may be inconsistent with the law and (b) underscoring the importance of the judge's instructions as the basis for decision making.

Method

Subjects and Procedure

Subjects were 60 introductory psychology students who participated in partial fulfillment of a course requirement. Subjects were randomly assigned to one of three instruction conditions. They listened to an audiotape of the judge's instructions, then made verdict decisions for the eight kidnapping scenarios used in Experiment 2. Four of the scenarios were true kidnappings, two typical and two atypical. Four scenarios were nonkidnappings under the law, two relatively typical of kidnapping and two relatively atypical. The scenarios were presented to subjects in one of three random orders. At the end of the experimental session, subjects were fully debriefed.

Instructions

The *preliminary only* and *preliminary plus kidnapping* conditions were identical to those used in Experiment 2. In a third condition, subjects listened to the preliminary instructions and then heard the following supplementary instruction:

> These defendants are charged with the crime of kidnapping. Do *not* base your verdict decisions on how similar the facts are to your own notion of kidnapping. You must disregard how typical or atypical the facts sound. You must base your verdict decisions on the following instructions.

Subjects in this *typicality irrelevant* condition then heard the substantive definition of kidnapping. The supplementary instruction was delivered before the substantive definition so that subjects would be alerted to the importance of the legal definition and would have the opportunity to process this information more carefully.

Results and Discussion

Subjects' verdict choices on the true kidnappings were submitted to an Instruction × Typicality ANOVA. This analysis yielded a significant main effect of Typicality, in which typical scenarios produced a higher conviction rate than atypical scenarios (.94 vs. .60), $F(1,57) = 44.3$, $p < .0001$. No other effects were significant. As illustrated in the top two rows of Table 3, all three instruction groups performed equally well on the typical kidnappings and equally poorly on the atypical kidnappings.

An ANOVA on subjects' verdict choices for the non-category members yielded significant main effects of Typicality, $F(1,57) = 30.4$, $p < .0001$, and Instruction, $F(3,76) = 4.59$; $p < .01$, and a significant interaction, $F(3,76) = 5.8$, $p < .002$. As illustrated in the bottom two rows of Table 3, subjects in all three

Table 3. Conviction Rates on Kidnapping and Nonkidnapping Scenarios in Each Instruction Condition

Scenario type	Instructions: Preliminary only	Preliminary plus kidnapping	Typicality irrelevant
Kidnappings[a]			
Typical	0.98	0.93	0.93
Atypical	0.55	0.60	0.65
Nonkidnappings[b]			
Typical	0.45_a	0.13_b	0.10_b
Atypical	0.00	0.00	0.00

Note. Numbers with different subscripts in a given row differ at $p < .05$. Rows without subscripts contain no significant differences.
[a] High numbers reflect greater accuracy.
[b] Low numbers reflect greater accuracy.

instruction conditions performed equally well on the atypical nonkidnappings. On the typical nonkidnappings, preliminary only subjects made more errors than subjects who heard the definition of kidnapping, as evidenced by a higher conviction rate on these non-category members, pairwise p's $< .05$ by Newman–Keuls tests. As in the previous experiments, hearing the substantive definition of the target crime improved subjects' abilities to reject non-category members, even though it did not improve their abilities to identify true category members. Again, it appears that the judge's instructions were at least partially effective.[7]

These results indicate that the supplementary instruction did not effectively discourage subjects from using their prior knowledge of kidnapping and focus their attention more narrowly on the judge's instructions. The verdict decisions of the typicality irrelevant subjects did not differ from those of the preliminary plus kidnapping subjects. It should be noted that preliminary plus kidnapping subjects were quite accurate when rejecting nonkidnappings, so there was little room for improvement with the typicality irrelevant instruction. Whether improvement would have occurred had the error rates in the preliminary plus kidnapping condition been higher is thus still an open question. However, there was ample room for improvement on the true kidnappings and no improvement occurred. Therefore, these data provide no evidence that the typicality irrelevant instruction has any benefit for verdict accuracy.

Although this intervention would have provided a simple and straightforward

[7] This conclusion is bolstered by comparison of the middle two rows of Table 3. An Instruction × Scenario type (atypical kidnappings vs. typical nonkidnappings) ANOVA revealed no main effect of instruction, $F(2,57) = 1.88$, n.s., a significant main effect of scenario type, $F(1,57) = 30.1$, $p < .0001$, and a significant interaction, $F(2,57) = 4.14$, $p < .05$. Follow-up analyses revealed that preliminary only subjects voted guilty equally often for the atypical kidnappings and the typical nonkidnappings, $F < 1$, n.s. Subjects in the other two conditions, who heard the substantive definition of kidnapping, voted guilty significantly more often for the atypical kidnappings than for the typical nonkidnappings, as they should, both p's $< .001$. As explained earlier, this improvement is due to more accurate rejection of the typical nonkidnappings.

solution to the conflict between subjects' prior knowledge and the law, its success depended on people being extremely flexible decision makers. Subjects were asked to set aside both the content of their naive representations ("Do not base your verdict decisions . . . on your own notion of kidnapping"), and their preferred decision strategy ("You must disregard how typical or atypical the facts sound."). For instructions to be effective, it may be necessary to provide more specific guidance on how to resolve the inconsistencies between prior knowledge and law. To that end, Experiment 4 tested the effectiveness of a supplementary instruction that provided a specific, feature-by-feature critique of subjects' naive representations of kidnapping.

EXPERIMENT 4

The goal of Experiment 4 was to revise subjects' prior knowledge of kidnapping so that the information contained in their representations was legally correct. A supplementary instruction provided subjects with concrete information about which features of their prototypes should be revised, and how. Rather than asking people to set aside a naive representation that they believe to be relevant and useful, this instruction concentrated on revising the misconceptions contained in people's representations to make them more consistent with the legal definition.

Method

Subjects and Procedure

Subjects were 94 introductory psychology students who participated in partial fulfillment of a course requirement. Subjects were randomly assigned to one of three instruction conditions. They listened to an audiotape of the judge's instructions, then made verdict decisions on the eight kidnapping scenarios used in Experiment 3. The scenarios were presented in one of three random orders. At the end of the experimental session, subjects were fully debriefed.

Instructions

The *preliminary only* and *preliminary plus kidnapping* conditions were identical to those used in Experiments 2 and 3. The third condition introduced a short supplementary instruction that contained a feature-by-feature evaluation of people's prior knowledge. The features that were included in the supplementary instruction were those that subjects in previous research had most frequently listed as characteristic of kidnapping (Smith, 1991b). Subjects in this *preliminary plus features* condition were told that the defendants were charged with kidnapping, then they heard the preliminary instructions and the following supplementary instruction:

> Many people believe that kidnapping requires a ransom demand. However, a person can be found guilty of kidnapping even when ransom is *not* demanded, and even when the motive for the crime is not money. It is also not necessary that the victim of the kid-

> napping be a child. Adults can be victims of kidnapping as well. When the victim is a child, it is not necessary that the kidnapping result from a custody battle. A person can be found guilty of kidnapping even when that person is not involved in a custody battle. It is also not necessary that the victim of the kidnapping be taken to another location. A person can be found guilty of kidnapping even if the victim is not taken away, as long as the following requirements are met. . .

After this instruction, subjects heard the substantive definition of kidnapping. The supplementary instruction preceded the legal definition so that subjects would be alerted to the importance of the legal requirements before they were presented.

Results and Discussion

If the preliminary plus features instruction effectively revises subjects' naive representations of kidnapping, these subjects should be better able to identify atypical category members, producing a conviction rate near 100%. Subjects' verdict choices on the true kidnappings were submitted to an Instruction × Typicality ANOVA, which revealed main effects of Typicality, $F(1,91) = 47.5$, $p < .0001$, and Instruction, $F(2,91) = 5.15$, $p < .01$, and a significant interaction, $F(2,91) = 8.03$, $p < .001$. As illustrated in the top two rows of Table 4, there were no instruction differences on the typical kidnappings, with all three groups performing equally well, $F(2,91) = 1.02$, n.s. However, there was a significant effect of instruction for the atypical kidnappings, $F(2,91) = 6.94$, $p < .002$. As in the previous experiments, preliminary plus kidnapping subjects performed no better than preliminary only subjects. However, those in the preliminary plus features condition performed significantly better than both of the other groups, pairwise p's $< .05$ by Newman–Keuls post hoc tests. In fact, these subjects performed just as accurately on the atypical kidnappings as they did on the typical kidnappings, $F(1,30) = 1.35$, n.s. In contrast, the preliminary only and preliminary plus kidnapping conditions both exhibited significant typicality effects, both p's $< .001$. These results indicate that attacking subjects' misconceptions on a feature-by-feature basis can markedly improve their ability to identify atypical category

Table 4. Conviction Rates on Kidnapping and Nonkidnapping Scenarios in Each Instruction Condition

	Instructions		
Scenario type	Preliminary only	Preliminary plus kidnapping	Preliminary plus features
Kidnappings[a]			
Typical	1.00	0.97	0.97
Atypical	0.57_a	0.69_a	0.90_b
Nonkidnappings[b]			
Typical	0.39_a	0.17_b	0.16_b
Atypical	0.00	0.00	0.00

Note. Numbers with different subscripts in a given row differ at $p < .05$. Rows without subscripts contain no significant differences.
[a] High numbers reflect greater accuracy.
[b] Low numbers reflect greater accuracy.

members and can do so without impairing their ability to identify typical category members.

Verdict choices for the nonkidnapping scenarios were also submitted to an Instruction × Typicality ANOVA. This analysis revealed significant main effects of Typicality, $F(1,91) = 62.8, p < .0001$, and Instruction, $F(2,91) = 5.86, p < .005$, and a significant interaction, $F(2,91) = 5.86, p < .005$. As illustrated in the bottom two rows of Table 4, subjects in all three instruction conditions performed equally well on the atypical nonkidnappings, but there were instruction differences on the typical nonkidnappings, $F(2,91) = 5.86, p < .005$. As in the previous experiments, subjects who heard the substantive definition of kidnapping significantly outperformed subjects who heard only preliminary instructions, pairwise p's $< .05$ by Newman–Keuls post hoc tests, indicating that the substantive instruction was at least partially effective.[8] The preliminary plus features subjects did not perform better than the preliminary plus kidnapping subjects on the typical nonkidnappings, indicating that the supplementary instruction did not significantly improve the rate of correct rejections. However, error rates for both groups were quite low, and there was little room for the preliminary plus features intervention to produce additional improvement. Whether such improvement would have occurred had error rates in the preliminary plus kidnapping condition been higher is thus still an open question.

On the nonkidnapping scenarios in this experiment, there was a significant Order of Presentation × Typicality × Instruction interaction, $F(4,85) = 5.02, p < .01$. Follow-up analyses were conducted within each presentation order to pinpoint the source of this interaction. These analyses were not very powerful, with only 10 or 11 subjects in each instruction condition. Nevertheless, there were significant typicality effects for all three orders, p's $< .001$. The Instruction main effect and Instruction × Typicality interaction did not reach significance for Order 1, although the means were similar to the overall Instruction effect (preliminary only = .23, preliminary plus kidnapping = .11, preliminary plus features = .10), $F(2,28) = 2.12$, n.s. The Instruction main effect and interaction did not approach significance for order 2, with subjects in all three conditions making few errors (preliminary only = .07, preliminary plus kidnapping = .08, preliminary plus features = .14), $F < 1$, n.s. The instruction main effect and interaction were significant for Order 3, with preliminary only subjects making more errors than preliminary plus kidnapping and preliminary plus features subjects (.30, .07, .00), $F(2,28) = 19.27, p < .001$. These analyses suggest that under some circum-

[8] Comparison of the middle two rows of Table 4 supports this conclusion. An Instruction × Scenario type (atypical kidnappings vs. typical nonkidnappings) ANOVA revealed no main effect of instruction, $F(2,91) = 1.46$, n.s., a significant main effect of scenario type, $F(1.91) = 103.3, p < .0001$, and a significant interaction, $F(2,91) = 12.0, p < .0001$. In the preliminary only condition, subjects were only marginally more likely to vote guilty for the atypical kidnappings than for the typical nonkidnappings, $F(1,30) = 3.77, p = .06$. This difference was highly significant for the preliminary plus kidnapping and preliminary plus features subjects, both p's $< .0001$. As in the previous experiments, subjects who heard the substantive definition were more accurate at rejecting typical nonkidnappings. In addition, subjects who heard the supplementary instruction were better able to identify atypical category members.

stances, even subjects who have not heard the substantive instructions can accurately reject non-category members. Overall, however, these subjects tend to make more errors than those who have heard the substantive instructions. It is not clear why order of presentation had an impact in this experiment, but it should be noted that the overall effect of instruction obtained for the non-category members in this experiment is identical to the instruction effects obtained in Experiments 1, 2, and 3, in which order of presentation had no effect on performance. Across experiments, then, this finding of greater accuracy at rejecting non-category members for subjects who heard the substantive instruction is quite consistent.

GENERAL DISCUSSION

These experiments explored potential solutions to the conflict between people's prior knowledge of crime categories and the legal definitions. Current jury instructions ignore the existence of people's prior knowledge, and the data have consistently shown that these instructions do not prevent subjects from using their naive concepts for decision making. Preliminary plus burglary and preliminary plus kidnapping subjects in the present experiments were still influenced by the typicality of the fact situations, despite having been instructed about proper legal decision making (see also Smith, 1991b). Apparently, these instructions alone are not sufficient to resolve the conflict between prior knowledge and law.

Experiments 1 and 2 attempted to circumvent the conflict by withholding the name of the crime charged against the defendant. Without this simple retrieval cue, it was hoped that subjects would not be able to access their prior knowledge of the relevant category and would have to rely on the judge's instructions for guidance when selecting verdicts. The results indicated, however, that subjects who were not told the crime name applied their own category label and accessed their own prior knowledge for decision making. So, not only was this intervention ineffective at resolving the conflict between prior knowledge and law, it has the added danger that jurors may choose the wrong label for the crime and access completely irrelevant prior knowledge. Apparently, then, this intervention does not offer a viable solution.

Experiment 3 investigated the possibility that people could be discouraged from using their prior knowledge of the target crime by informing them explicitly that they must disregard their existing notions of the crime and rely solely on the judge's instructions for decision making. This is perhaps the most straightforward solution available: If subjects are relying on inappropriate information for verdict selection, inform them of their error so that they might concentrate on learning the correct decision process. However, this supplementary instruction had no effect on decision making; subjects relied just as heavily on their prior knowledge of the target crime when they heard the supplementary instruction as when they did not hear it. This finding is consistent with research on cautionary instructions, in which subjects could not (or did not) follow judges' admonitions to disregard evidence that was inappropriately presented (Sue, Smith, & Caldwell, 1973; Wolf

& Montgomery, 1977). In this context, instructing subjects to disregard their existing knowledge of a crime category did not prompt them to set aside this seemingly relevant information.

These results suggest that jurors are strongly inclined to use their naive representations of crime categories for decision making, and this prior knowledge cannot simply be avoided or disregarded. Experiment 4 began with the understanding that people draw on their prior knowledge for decision making, and the goal of that experiment was to revise subjects' existing representations so that they conformed to the requirements of the law. To this end, a supplementary instruction was introduced that attacked subjects' misconceptions about the target crime on a feature-by-feature basis, giving them specific information about how to revise the features contained in their naive representations. This supplementary instruction produced remarkable improvements in subjects' abilities to identify atypical category members. In the preliminary plus features condition, subjects' verdicts for the true kidnappings no longer showed an effect of typicality, with equally high conviction rates for typical and atypical kidnappings. Furthermore, preliminary plus features subjects were just as accurate at rejecting non-category members as preliminary plus kidnapping subjects, suggesting two things. First, this supplementary instruction had no associated costs for decisions that were already made accurately. Second, the improvement in subjects' abilities to identify atypical category members was not due to a criterion shift, in which subjects simply voted guilty more often for all sorts of fact situations. Preliminary plus features subjects voted guilty more often for atypical category members, but not for non-category members, indicating that the instruction's effect was selective. It appears, then, that an instruction geared toward revising the misconceptions contained in people's existing representations is a promising way of improving decision accuracy.

Another interesting feature of the data obtained in these experiments is the selective effectiveness of the substantive instructions defining the crime charged. As in previous research (Smith, 1991b), the present experiments revealed that the substantive instructions did not improve subjects' abilities to identify true category members. However, instructed subjects *were* better able to reject non-category members. This improvement was not expected, but was consistently obtained across the four experiments. The reason for the selective effectiveness of the substantive instructions is not clear at this time, but it may reflect the relative ease of making these decisions. Rejecting fact situations may be easier than identifying fact situations as category members because there are multiple decision criteria to consider. Only one of the necessary conditions must be violated to correctly reject a fact situation, but all of the necessary conditions must be met before a crime is correctly identified. So, a decision maker can accurately reject many fact situations with only a partial understanding of the category definition, but cannot succeed in identifying a variety of true category members with only a partial definition. Of course, to correctly reject a wide variety of non-category members, a decision maker must know all of the necessary conditions for the category so that all violations are detected. At that point, the decision maker should know enough about the category requirements to correctly identify the

true category members as well. It is possible that the non-category members used in these experiments were not sufficiently varied to reveal the gaps in subjects' understanding. In sum, the fact that instructed subjects failed to recognize atypical category members indicates that the substantive instructions did not entirely succeed in educating subjects about the law, but the fact that they improved at rejecting non-category members suggests that the substantive instructions were partially effective. Precisely how the substantive instructions modify subjects' representations to produce this selective improvement will be addressed in future research that provides a more sensitive test of how these instructions modify particular features of people's representations.

At this point, it is important to consider the practical implications and limitations of this research. The experiments reported in this article indicate that inconsistencies between people's prior knowledge and the law remain an important obstacle to proper legal decision making even after standard jury instructions are presented. This obstacle cannot simply be avoided or disregarded. Introducing a feature-based supplementary instruction designed to revise people's existing representations appears to be a promising way of improving decision accuracy. However, several important aspects of this intervention remain to be explored in future research. First, it is important to determine the effectiveness of this type of supplementary instruction in more realistic trial situations. Subjects in these experiments made decisions on several scenarios that briefly and unambiguously presented the facts of a criminal encounter. Because this research was concerned with how people integrate their prior knowledge of the law with the judge's instructions when selecting a verdict, it was important that all subjects base their verdict decisions on the same evidence. To that end, the facts were presented in a straightforward, coherent, and internally consistent manner that did not require subjects to interpret the evidence, make credibility judgments, or fill gaps in the testimony. These descriptions differed considerably from the complex, voluminous, and often conflicting evidence that jurors encounter in real trials. This sacrifice of mundane realism was made in the interest of maintaining experimental control and minimizing variability in subjects' verdicts that might result from differing interpretations of the evidence. There is no reason to believe at this time that the existence of evidentiary complexity would alter the way in which jurors integrate their prior knowledge of the law with the judge's instructions. However, this issue remains to be tested in future research. It is possible that the additional demands of evidence processing in a real trial could reduce the salience and impact of a supplementary instruction. Therefore, it is important to assess the power of this feature-based intervention to improve decision accuracy in more complex trial situations.

Second, a more comprehensive picture of the features contained in actual jurors' naive representations of these crimes must be generated. The available research using student subjects offers a clue to what some of those features might be, but to be optimally effective in actual trials, the supplementary instruction must provide a comprehensive critique of the features contained in community members' representations. Third, it is important to investigate the optimal timing of the supplementary instruction. In this research, subjects heard all of the in-

structions before reading the scenarios and making verdict choices. It is possible that this "pretrial" presentation contributed to the effectiveness of this instruction. Several experiments have demonstrated that jurors actively process and evaluate evidence and testimony throughout a trial (Kassin & Wrightsman, 1979; Smith, 1991a; Weld & Danzig, 1940; Weld & Roff, 1938). Under these circumstances, jurors may select a verdict preference based on their prior knowledge of the crime before they ever hear the judge's instructions. Presenting the supplementary instruction after trial may have no effect on these preferences because of the difficulty of reevaluating the evidence post hoc. Thus, it is possible that this supplementary instruction will revise jurors' decision making only when presented pretrial, before the evidence is processed.

Fourth, this feature-based supplementary instruction was written in plain English, and the simplicity of the language may have contributed to its effectiveness (e.g., Charrow & Charrow, 1979; Elwork et al., 1977; Severance & Loftus, 1982). If this kind of supplementary instruction is to be used in actual trials, the resulting language may be more complex than that used in Experiment 4. It is important to determine from judges, attorneys, and legal scholars what kinds of modifications to the instruction would be necessary for its adoption in actual trials and to test the effectiveness of those modified instructions for improving decision accuracy.

The research reported in this article indicates that much can be gained by taking people's existing concepts of law seriously. Significant improvements in decision accuracy were achieved by providing subjects with information about how to revise their naive representations of crime categories. This does not mean that other reforms of the instruction process are unnecessary. As already discussed, rewriting jury instructions in simpler language and presenting instructions pretrial both have advantages for jurors' performance. Neither solves the problem of poor comprehension, but each clearly has value. Thus, one might expect greatest improvement in jurors' performance from a combination of available reforms—pretrial presentation of simply written instructions that both correct the misconceptions about law that jurors bring to trial and explain the proper legal decision criteria.

In summary, the feature-based supplementary instruction of Experiment 4 appears to be a promising method for improving jurors' use of the law. It acknowledges the existence and influence of people's naive representations and concentrates on correcting the misconceptions contained in those representations. This emphasis on concept revision, rather than concept formation, appears to be an important step toward effective jury instruction.

REFERENCES

American Bar Association (1968). *Project on standards for criminal justice: Standards relating to the administration of criminal justice: Trial by jury* (Vol. 12). Chicago: Author.

American Law Institute (1962). *Model penal code*. Philadelphia: Author.

Black, H. C. (1983). *Black's law dictionary*. St. Paul, MN: West.

Buchanan, R. W., Pryor, B., Taylor, K. P., & Strawn, D. U. (1978). Legal communication: An investigation of juror comprehension of pattern instructions. *Communication Quarterly, 26,* 31–35.

California jury instructions, criminal (CALJIC, 3d ed.). (1970). St. Paul, MN: West.

Charrow, R. P., & Charrow, V. (1979). Making legal language understandable: A psycholinguistic study of jury instructions. *Columbia Law Review, 79,* 1306–1374.

Elwork, A., Sales, B. D., & Alfini, J. J. (1977). Juridic decisions: In ignorance of the law or in light of it? *Law and Human Behavior, 1,* 163–189.

Goldberg, J. C. (1981). Memory, magic, and myth: The timing of jury instructions. *Oregon Law Review, 59,* 451–475.

Hans, V. P., & Vidmar, N. (1986). *Judging the jury.* New York: Plenum.

Hastie, R. (1982). Final report to the National Institute of Justice: An empirical evaluation of five methods of instructing the jury. Unpublished manuscript, University of Colorado, Boulder.

Heuer, L., & Penrod, S. D. (1988). Increasing jurors' participation in trials: A field experiment with jury notetaking and question asking. *Law and Human Behavior, 12,* 231–261.

Heuer, L., & Penrod, S. D. (1989). Instructing jurors: A field experiment with written and preliminary instructions. *Law and Human Behavior, 13,* 409–430.

Illinois pattern jury instructions, criminal (2d ed.). (1981). St. Paul, MN: West.

Kagehiro, D. K., & Stanton, W. C. (1985). Legal vs. quantified definitions of standards of proof. *Law and Human Behavior, 9,* 159–178.

Kassin, S. M., & Wrightsman, L. S. (1979). On the requirements of proof: The timing of judicial instruction and mock juror verdicts. *Journal of Personality and Social Psychology, 37,* 1877–1887.

Kerr, N. L., Atkin, R. S., Stasser, G., Meek, D., Holt, R. W., & Davis, J. H. (1976). Guilt beyond a reasonable doubt: Effects of concept definition and assigned decision rule on the judgments of mock jurors. *Journal of Personality and Social Psychology, 34,* 282–294.

Loh, W. D. (1984). *Social research on the judicial process: Cases, readings, and text.* New York: Russell Sage Foundation.

Prettyman, E. B. (1960). Jury instructions—First or last? *American Bar Association Journal, 46,* 1066.

Rosch, E. (1975). Cognitive representations of semantic categories. *Journal of Experimental Psychology: General, 104,* 192–233.

Rosch, E., & Mervis, C. B. (1975). Family resemblances: Studies in the internal structure of categories. *Cognitive Psychology, 7,* 573–605.

Sand, L. B., & Reiss, S. A. (1985). A report on seven experiments conducted by District Court judges in the Second Circuit. *New York University Law Review, 60,* 423–497.

Severance, L. J., & Loftus, E. F. (1982). Improving the ability of jurors to comprehend and apply criminal jury instructions. *Law and Society Review, 17,* 153–197.

Smith, E. E., & Medin, D. L. (1981). *Categories and concepts.* Cambridge: Harvard University Press.

Smith, V. L. (1991a). Impact of pretrial instruction on jurors' information processing and decision making. *Journal of Applied Psychology, 76,* 220–228.

Smith, V. L. (1991b). Prototypes in the courtroom: Lay representations of legal concepts. *Journal of Personality and Social Psychology, 61,* 857–872.

Strawn, D. U., & Buchanan, R. W. (1976). Jury confusion: A threat to justice. *Judicature, 59,* 478–483.

Sue, S., Smith, R. E., & Caldwell, C. (1973). Effects of inadmissible evidence on the decisions of simulated jurors: A moral dilemma. *Journal of Applied Social Psychology, 3,* 345–353.

Weld, H. P., & Danzig, E. R. (1940). A study of the way in which a verdict is reached by a jury. *American Journal of Psychology, 53,* 518–536.

Weld, H. P., & Roff, M. (1938). A study in the formation of opinion based upon legal evidence. *American Journal of Psychology, 51,* 609–628.

Wolf, S., & Montgomery, D. A. (1977). Effects of inadmissible evidence and level of judicial admonishment to disregard on the judgments of mock jurors. *Journal of Applied Social Psychology, 7,* 205–219.