Field Test of the Cognitive Interview: Enhancing the Recollection of Actual Victims and Witnesses of Crime

Ronald P. Fisher Florida International University R. Edward Geiselman University of California, Los Angeles

Michael Amador Florida International University

The Cognitive Interview was tested in the field to enhance the recollection of actual victims and witnesses of crime. The technique is based on laboratory-tested principles of memory retrieval, knowledge representation, and communication. Seven experienced detectives from the Metro-Dade Police Department were trained to use the technique and were compared with 9 untrained detectives. Before and after training, all detectives tape-recorded interviews with victims and witnesses of crime. The trained detectives elicited 47% more information after than before training, and 63% more information than did the untrained detectives. Overall collaboration rates (94%) were extremely high and were equivalent for pre- and posttrained interviews. Because the Cognitive Interview reliably enhances memory and is easily learned and administered, it should be useful for a variety of investigative interviews.

Sanders (1986) asked sheriffs' deputies and detectives across New York, "What is the central and most important feature of criminal investigations?" The majority of respondents answered, "Eyewitnesses." Nevertheless, few reported that they had any training in interviewing witnesses. Even though many studies have sought to document and give theoretical explanations for the fallibility of witness memory (see Goodman & Hahn, 1987; Loftus, 1979; Yarmey, 1979, for reviews), only recently has research been conducted on police interview techniques to increase the completeness of a witness's report (e.g., Wells, 1988).

One dramatic technique for eyewitness memory enhancement is hypnosis. Hypnosis has been reported to be useful in criminal cases, especially with traumatized witnesses (Reiser, 1980). Enhanced memory under hypnosis has also been found in some controlled laboratory experiments. In many studies, however, researchers have found no memory enhancement with hypnosis. On the whole, the evidence about memory under hypnosis is mixed (see Sanders & Simmons, 1983; Smith, 1983, for reviews). Of greater practical consequence is that some researchers have concluded that hypnosis may distort the memory process (see Geiselman & Machlovitz, 1987; Orne, Soskis, Dinges, & Orne, 1984). As a result of the inconsistency in the empirical literature, and as a general safeguard against the potential problems encountered with memory under hypnosis,

several U.S. states have placed restrictions on the admissibility of hypnosis recall in a court of law.

In response to the need to improve police interview techniques and to avoid the legal problems of hypnosis, Geiselman and Fisher (Geiselman, Fisher, Cohen, Holland, & Surtes, 1986; Geiselman, Fisher, Firstenberg, Hutton, Sullivan, Avetissian, & Prosk, 1984; Geiselman, Fisher, MacKinnon, & Holland, 1985) developed a nonhypnotic interview procedure based on generally accepted scientific principles of memory. The resulting procedure, called the Cognitive Interview, is a set of instructions given by the interviewer to the witness at the beginning of the interview. The goals of these instructions are (a) to encourage the witness to reinstate the context of the original event and (b) to search through memory by using a variety of retrieval routes (see Geiselman et al., 1985, for specific details). The Cognitive Interview was compared with standard police interview techniques in three laboratory experiments under highly realistic conditions (e.g., using police films of simulated crimes). Overall, the Cognitive Interview elicited approximately 25%-35% more information than did the standard police interview, without generating any more incorrect information (Geiselman et al., 1984, 1985; Geiselman, Fisher, Cohen, et al., 1986). We then refined the technique on the basis of insights gained from analyzing tape-recorded field interviews² (Fisher, Geiselman, & Raymond, 1987). In the revised version, which was evaluated in the present study, we approached the eyewitness's problem from the following three perspectives: representation of knowl-

This research was supported by a grant from the National Institute of Justice (USDJ-85-IJ-CX-0053).

We would like to thank Brian Cutler for his helpful comments on an earlier draft of this article.

Correspondence concerning this article should be addressed to either Ronald P. Fisher, Department of Psychology, Florida International University, North Miami, Florida 33181, or R. Edward Geiselman, Department of Psychology, University of California, Los Angeles, California 90024.

¹ This work was supported by an earlier grant from the National Institute of Justice (USDJ-83-IJ-CX-0025). See Geiselman & Fisher (1986) for a review of the research.

² We sincerely appreciate the assistance of Chief John S. Farrell, Bureau Commander (Headquarters Detective Bureau), Lieutenant Ken Russ, Sergeant Jim Wander (Robbery Division), and the participating detectives of the Metro-Dade Police Department, Dade County (Miami), Florida.

edge, memory retrieval, and communication. The following is a brief description of some of the core principles. A more complete and detailed description of cognitive interviewing is provided in a short handbook by Fisher and Geiselman (in press).

The primary issue of knowledge representation is that information about an event is represented at various levels of specificity (Fisher & Chandler, 1988; Fisher & Cuervo, 1983). For example, the representation of a bank robbery might be stored at the very detailed level, including precise descriptions of the event's actions and the robber's appearance and mannerisms, and concurrently at the general level, that the event was "a bank robbery." Because the most valuable information, from the investigator's perspective, is stored at the detailed level, one of the interviewer's goals is to maximize retrieval from the detailed level of representation and to minimize retrieval from the general level. Various cues (e.g., speech rate and word selection) can be used to recognize when retrieval is likely mediated by the detailed level or the general level of description. In the ideal interview, the interviewer guides the respondent to the detailed level of representation and then tries to maintain that level of description as long as possible.

The principal components of the Cognitive Interview are geared to enhancing memory retrieval by making witnesses consciously aware of the events that transpired during the event. The following four basic principles are used: event-interview similarity, focused retrieval, extensive retrieval, and witness-compatible questioning.

Event-Interview Similarity

Memory of an event, such as a crime, is enhanced when the psychological environment at the interview is similar to the environment at the original event (Flexser & Tulving, 1978). The interviewer, therefore, should try to reinstate in the witness's mind the external (e.g., weather), emotional (e.g., feelings of fear), and cognitive (e.g., relevant thoughts) features that were experienced at the time of the crime.

Focused Retrieval

Memory retrieval, like other mental acts, requires concentrated effort (Johnston, Greenberg, Fisher, & Martin, 1970). One of the interviewer's roles, then, is to encourage and assist the witness to generate focused concentration. Any disruption of the retrieval process, such as physical disturbances or interrupting the witness's narration, will impair performance. Frequently, witnesses will not attempt to search memory in a concentrated manner because of the additional mental "work" involved. In those instances, the effective interviewer must encourage the witness to make the extra effort.

Extensive Retrieval

In general, the more attempts the witness makes to retrieve a particular episode, the more information will be recalled (e.g., Roediger & Thorpe, 1978). Witnesses should therefore be encouraged to conduct as many retrieval attempts as possible. Many witnesses will terminate their retrieval attempts after the first unsuccessful effort. In such cases, witnesses must be en-

couraged to continue trying to retrieve, even if they claim not to know a particular detail.

Witness-Compatible Questioning

Events are stored and organized uniquely for each witness. Successful retrieval therefore reflects how compatible the questioning is with the witness's unique mental representation. The effective interviewer tries to tailor the interview to each witness because a uniform style of questioning, asked of all witnesses alike, will not effectively tap idiosyncratic memories. Interviewers should be flexible and alter their approach to meet the needs of each witness rather than use a rigid, uniform style of questioning, thereby forcing witnesses to adjust their mental representations to the interviewer's questioning.

Specific Mnemonics

In addition to the general memory-retrieval principles mentioned, the Cognitive Interview includes a variety of mnemonics to assist in retrieving specific pieces of information (e.g., names, numbers, etc.). The primary ingredient in most of these mnemonics is to elicit partial information when the whole response is unavailable. For example, if the witness cannot remember a particular name, questions should be asked about specific, salient features of the name, such as ethnicity, length, number of syllables, and so on.

The third component of the Cognitive Interview is geared toward facilitating communication of the witness's recollected events to the interviewer.³ The communication principles are directed toward four goals, as follows: (a) assisting the witness to convert a conscious recollection into a detailed, elaborate response; (b) keeping the witness's statements "on target," that is, relevant to the investigative needs of the interviewer; (c) facilitating the interviewer's comprehension and recording of the witness's response; and (d) assisting the interviewer to understand the psychological needs of the witness.

Finally, a temporal sequence was developed which specifies the subgoals of the beginning, middle, and end of the interview. Briefly, the interviewer's initial goal is to infer the respondent's mental representation of the event and then structure the remainder of the interview so as to be compatible with that representation. The interview is divided into five segments. The introduction is used to establish rapport between the interviewer and witness and to convey to the witness the appropriate psychological principles of memory. In the second stage, the interviewer encourages the witness to give an uninterrupted narration of the crime scene. This stage is intended more as a planning phase—for the interviewer to plan the strategy for the remainder of the interview—than as an information-collection phase. The middle of the interview is the information-gathering stage, when the interviewer guides the witness through various information-rich mental representations of the event. After probing these mental representations, the interviewer reviews the witness's recollections. The interview is terminated formally, but with a suggestion that prolongs its functional life.

³ Although communication is not typically a problem in laboratory research, it can be a major hurdle in field interviews, in which victims frequently are extremely anxious and inarticulate.

The revised Cognitive Interview elicited approximately 45% more information than the original version, again, without eliciting any more incorrect information (Fisher, Geiselman, Raymond, Jurkevich, & Warhaftig, 1987). Compared with similar conditions in our earlier studies (Geiselman et al., 1985; Geiselman, Fisher, Cohen, et al., 1986), the revised Cognitive Interview elicited almost twice as much information as the standard police interview.

Having demonstrated reliably in the laboratory that the Cognitive Interview can elicit more information than a standard police interview, we entered the last, and ultimately the most important, phase of the research, that is, testing the Cognitive Interview in the field, with real victims and witnesses of crime. As noted by Malpass and Devine (1980), the relevance of laboratory research will always be questioned unless it can be applied to the real situation. Ultimately, if the Cognitive Interview is to be applied outside the friendly confines of the laboratory, it must be demonstrated to be effective in the real world. Our present research was geared toward that goal.

Method

Interviewers

Sixteen detectives from the Robbery Division of Metro-Dade Police Department, Dade County (Miami), Florida, were selected for the study. All of the detectives were experienced police officers, with a minimum of 5 years with the Robbery Division.

Preliminary Interviews

In the initial phase, all of the participating detectives were requested to tape-record their next several interviews, using standard interviewing procedures. The detectives were asked to select the cases for recording using the following criteria: (a) Each case was to be serious enough so that ample time and resources were available, if necessary, to conduct a thorough interview; (b) at least one victim or witness had a decent chance to observe the suspect or suspects and the event; and (c) each interviewed victim or witness had to be reasonably fluent in English and cooperative. Cases to be eliminated included those in which the interview was conducted more than a few days after the crime, when the witness was intoxicated, when the suspect was clearly known to the witness, or when a suspect had been detained for identification.⁴

The preliminary phase of interviewing took 4 months to complete, with each detective recording 5–7 interviews. In all, 88 interviews were recorded, primarily with victims of commercial robbery or purse-snatching. On the basis of the amount of information gathered in these preliminary interviews and the recommendations of the detectives' commanding officer, two equivalent groups of detectives were formed. One group was trained on the Cognitive Interview; the other group was untrained and served as the control.

Training in the Cognitive Interview

The training was conducted in four 60-min group sessions, including lectures describing various components of the procedure and demonstrations of good and poor interviewing techniques. The schedule of topics was

- Session 1: Overview and principles of cognition
- Session 2: Specific interviewing techniques to enhance memory
- Session 3: Enhancing eyewitness-interviewer communication
- Session 4: Temporal sequence of the Cognitive Interview.

After the fourth session, each detective tape-recorded a practice interview in the field and received individual feedback on the quality of his interview. The individual feedback session was an integral component of the training, as many of the techniques explained in the lecture-demonstration sessions were not fully implemented until after the feedback session.

Because of the emergency nature of police work, changing schedules and assignments, and mandatory court appearances, three members of the trained group did not complete the entire training program. Our results include only the seven detectives who completed the program.

Posttraining Interviews

After the training phase, each of the seven trained and six untrained detectives tape-recorded 2-7 cases that met the aforementioned criteria. In all, 47 interviews were recorded, 24 by the trained group and 23 by the untrained group. As in the pretraining interviews, these interviews were primarily of victims of either commercial robbery or purse-snatching. The posttraining interview phase took about 7 months to complete.

Analysis of Interviews

All of the tape-recorded interviews were transcribed by a team of trained research assistants at the University of California, Los Angeles (UCLA). The transcribers were not told whether an interview was conducted by a trained or an untrained detective. The only identifying marks on a cassette recording were the detective's name and case number. The transcriptions included only relevant, factual statements made by the eyewitness; none of the detective's questions were recorded. A second group of research assistants, who were also blind to the conditions, counted the number of relevant, objective statements made by the witness in each interview. Irrelevant statements (e.g., "I was going to work") and opinionated statements (e.g., "The guy seemed nervous") were not scored. The statements scored included primarily physical descriptions of the assailants and relevant actions; in addition, clothing, weapons, vehicles, objects taken, and conversations were reported.

Results

The effectiveness of the Cognitive Interview can be examined in the following two ways: (a) by comparing the number of facts elicited before and after training for the detectives who completed the training program and (b) by comparing the number of facts elicited by the trained versus untrained detectives. As Table 1 shows, the Cognitive Interview was found to be effective in both the before-after comparison and the trained-untrained groups comparison. As a group, the seven trained detectives elicited 47% more information after than before training, F(1,6) = 12.66, $MS_e = 45.49$, p < .05. Of these seven detectives, six elicited more information after than before training (34%-115% improvement). Only one detective did not do appreciably better after than before (23% decrement). Not coincidentally, an analysis of the posttraining interviews showed that he was the only one of the seven detectives who did not incorporate the recommended procedures into his posttraining interviews.

The comparison between the trained and untrained detectives is shown in the Training \times Phase interaction, F(1, 11) = 9.01, $MS_e = 27.04$, p < .05. Planned comparison tests indicated that the trained and untrained groups were equivalent before training, F(1, 11) < 1, $MS_e = 88.16$, but that the trained group

⁴ When police have detained a suspect for identification, interviews with eyewitnesses who can probably make an identification are sometimes less detailed than they would be otherwise, as the police are concerned primarily with securing a positive identification.

elicited considerably more (63%) information after training, F(1, 11) = 4.84, $MS_e = 157.46$, p < .05.

Because these analyses were conducted on only a limited number of cases (24 posttrained interviews), the possibility exists that these few cases were unrepresentative of the entire sample of cases. Perhaps the 24 posttrained cases involved crimes that occurred under better observing conditions, or perhaps these particular witnesses had unusually good verbal skills. Although this seems unlikely because no special instructions were given to the detectives when tape-recording posttraining interviews, we examined the possibility that these were particularly easy interviews to conduct. In each of the cases analyzed, the evewitness was interviewed by a uniformed police officer before being interviewed by the detective. Presumably, "easy" interviews, cases involving witnesses with good verbal skills or good viewing conditions, should be apparent from the amount of information in the uniformed officer's initial interview. Thus, in "easy" interviews, witnesses should generate more information for both the follow-up detective and the uniformed officer; whereas, in "difficult" cases, witnesses should generate less information in both the detective's and the uniformed officer's interviews. As an unbiased measure of the quality of the detective's interview, we scored the transcripts in terms of how much additional information the detective elicited compared with the uniformed officer. Each statement in the detective's interview was categorized as being either the same as found in the uniformed officer's report (same), containing new information not described in the uniformed officer's report (new), or being different from that reported by the uniformed officer (different). In all, we examined 29 interviews conducted by detectives before training in the Cognitive Interview and 22 conducted by detectives after training.5 The results, which are shown in Table 2, mirror the analysis of total number of facts. Overall, more information was collected in the posttrained interviews (49.82) facts) than in the pretrained interviews (35.48), F(1, 49) = 3.55, $MS_c = 81.85$, although the effect here was only marginal, .05 < p < .10. The effect of training interacted with type of fact (same, new, different), F(2, 98) = 3.96, $MS_e = 55.57$, p < .05. The difference between pre- and posttrained interviews was observed only for new information collected, facts that the uniformed officer had not uncovered. There were no differences for the same and different information. Theoretically, the detective's role is to elicit additional information from that collected by the uniformed officer. Information that duplicates the uniformed officer's report (same) provides no new insights for the police investigation, and different information just casts doubt on the reliability of the witness or investigation procedures. That the superiority of the posttrained group occurred only for new information testifies to its practical utility.

As with the laboratory studies, we were concerned with not

Table 1
Number of Facts Elicited by Trained and Untrained Detectives

Research phase	Training group		
	Trained	Untrained	
Before training	26.83	23.75	
After training	39.57	24.21	

Table 2
Comparison of Pre- and Posttrained Detectives' Interviews with Uniformed Officers' Reports

Research phase	Relation between Detectives' and Uniformed Officers' Interviews				
	Same	Different	New	Total	
Before training	12.76	1.45	21.27	35.48	
After training	13.68	1.68	34.45	49.82	

Note. Cell entries are the number of elicited facts.

only the amount of information, but also its accuracy. To what degree might the additional information elicited by the Cognitive Interview simply reflect a lower response threshold and a concomitant decrease in accuracy? In previous laboratory studies, we found no differences in the accuracy rates of the Cognitive Interview and standard police interviews (Geiselman et al., 1985; Geiselman, Fisher, MacKinnon, et al., 1986). Approximately 85% of all the statements elicited were correct, in all conditions. In a field study, there are obviously no data about accuracy because one cannot determine exactly what transpired during the crime. We therefore estimated accuracy by comparing a witness's report with another reliable source of information. In 22 cases there was another witness or victim, in one case a confession, and in one case a film from a hidden camera. When the source was another witness or victim, the interview was almost always conducted by someone other than the detectives participating in the study (typically, a uniformed police officer) and within a few minutes after the crime. Obviously, corroboration with another witness measures something other than accuracy, as witnesses can corroborate one another's report, yet both be inaccurate. Nevertheless, we can still expect corroboration to be correlated with accuracy, and in the field, with no perfect replica of the crime, corroboration is our best estimate of accuracy. In the 24 cases with corroborating evidence (16 by pretrained detectives and 8 by posttrained detectives), there were a total of 325 corroborable statements. Overall, 94% were corroborated. More important, the corroboration rates were equivalent for the pretrained (93.0%) and posttrained (94.5%) interviews. The similarity of the corroboration rates for the Cognitive Interview and the standard police interview duplicates the laboratory findings with accuracy rates and again suggests that the added information elicited by the Cognitive Interview does not come at the expense of increasing incorrect information.

⁵ Not all of the detective interviews could be compared with the uniformed officers' reports, as some reports were inaccessible.

⁶ Note that the corroboration rate is extremely high in comparison with the accuracy rates reported in typical laboratory studies. Similarly, high accuracy rates were reported in field studies by Yuille and Cutshall (1986) and Yuille and Kim (1987). Although they are not definitive, it is interesting that the accuracy-corroboration rates in the three field studies of eyewitness memory were considerably higher than their laboratory counterparts. If this difference between laboratory and field studies continues to appear, one may question the validity of describing in court the accuracy rates found in the laboratory as evidence of the general unreliability of eyewitness testimony in field cases (McCloskey & Egeth, 1983).

Because the Cognitive Interview is more complex and encourages more extensive and focused retrieval, we expected it to take longer to conduct than the standard police interview. Such differences have been found in previous laboratory studies (Fisher, Geiselman, Raymond, Jurkevich, & Warhaftig, 1987; Geiselman et al., 1985); however, in neither of these two studies was the extra time responsible for the superiority of the Cognitive Interview. In the present study, the interview times were surprisingly similar for the various interviews. The posttrained interviews of the trained detectives (11.47 min) were not reliably longer than their pretrained interviews (10.65 min) or than those conducted by the untrained detectives (9.05 min), both Fs < 1, dfs = (1, 6) and (1, 11), and $MS_es = 10.587$ and 21.295, respectively. Of the seven trained detectives, four took more time to conduct posttrained interviews than pretrained interviews, and three took less time. In this study, therefore, the observed superiority of the Cognitive Interview over the standard police interview was not due to differences in interview time.

Discussion

The overall pattern of data—an increase in the amount of investigatively relevant information accompanied by extremely high corroboration rates—provides strong support for the effectiveness of the Cognitive Interview in field investigations. Training in the Cognitive Interview enhanced performance in both the before-after and the between-groups comparisons. Six of the seven detectives improved with training; only the one detective who did not use the technique as intended did not improve. In the between-groups comparison, the two groups of detectives were equivalent before training, as judged by their supervisors and by empirical observations. After training, the trained detectives elicited 63% more information. That the effectiveness of the training was comparable for the before-after and between-groups comparisons suggests that the conclusions are unlikely to be a product of anything unique to either design. Furthermore, the magnitude of the effect (50%-60% improvement) is reasonably close to what we would expect on the basis of the previous laboratory findings, in which the revised technique was 45% more effective than the original (Fisher, Geiselman, Raymond, Jurkevich, & Warhaftig, 1987), which, in turn, was 25%-35% more effective than standard police interviews (Geiselman et al., 1985; Geiselman, Fisher, Cohen, et al., 1986). The similarity of the corroboration rates associated with the Cognitive Interview and with standard police interviews also mirrors the findings from our laboratory studies, in which accuracy rates were equivalent. In sum, the Cognitive Interview increased the effectiveness of investigative interviews without any apparent negative consequences.

How does the Cognitive Interview compare with other memory-enhancing techniques used by investigative interviewers? Historically, little training has been provided to law-enforcement interviewers to enhance the recollection of cooperative witnesses. Similarly, there is no formal training in memory-enhancement techniques for law students or attorneys to conduct effective interviews with clients, even though the fact-finding stage is often critical to successful legal inquiry (Fisher, 1986). We know of no formal technique other than hypnosis that appears regularly in the training of investigative interviewers, at least for memory-enhancement purposes. How does the Cogni-

tive Interview compare with hypnosis? Although we have never directly compared the current version of the Cognitive Interview with hypnosis, Fisher, Geiselman, Raymond, Jurkevich, and Warhaftig (1987) found that in similar observing conditions across two experiments, the Cognitive Interview elicited 33.4% more correct information than did hypnosis. The Cognitive Interview also is not beset with the problems sometimes found with hypnosis. The Cognitive Interview does not lead to increased error rates and does not render respondents hypersuggestible to leading questions; if anything, it mitigates the effect (Geiselman, Fisher, MacKinnon, et al., 1986). Yuille and Kim (1987) recently analyzed several police hypnosis interviews and found that interviewers frequently used some components of the Cognitive Interview. Yuille and Kim concluded that "the advantage of hypnosis found in the present study has nothing to do with hypnosis. . . . [Instead] the cognitive interview is the 'active' memory component of hypnosis" (p. 427). Because the Cognitive Interview has been a reliable technique to enhance recall, yet has none of the negative consequences of hypnosis, it has been suggested as a preferable alternative (Deffenbacher, 1988; Orne, as cited in Commonwealth v. Di Nicola, 1985), and one that should be more acceptable by the courts (Yuille & Kim, 1987).

In addition to its technical merit, the Cognitive Interview has considerable practical utility; that is, (a) the technique can be learned within a few hours, (b) it requires little theoretical background or previous training, and (c) it is easily administered. Finally, because the technique is based primarily on proper timing, sequencing, and phrasing of questions, the respondent should not perceive that any special intervention is occurring. As such, eyewitnesses should have no apprehensions about participating in this form of interview.

Although the Cognitive Interview is an effective investigative instrument, there are a few limitations. First, its usefulness may vary from one event to another. Its primary contribution for police will be in cases such as commercial robbery or battery, in which the bulk of the evidence comes from eyewitness reports, as opposed to crimes that rely more heavily on physical evidence. Second, the Cognitive Interview can be used only with cooperative witnesses. Witnesses who wish to withhold information intentionally will not be "broken" by the Cognitive Interview. Third, although our study found no differences between the time taken to conduct the Cognitive Interview and a standard interview, we expect that the Cognitive Interview takes somewhat longer. It can be used to greatest effect, therefore, when there is ample time to conduct the interview. Finally, the Cognitive Interview requires considerable mental concentration on the part of the interviewer. He or she must make more on-line decisions and show greater flexibility than is typically demonstrated in standard police interviews. In that sense, it is probably more difficult to conduct the Cognitive Interview than the standard interview. As with other skills, however, with practice, many of the resource-demanding mental operations required initially will be handled automatically.

Because this version of the Cognitive Interview contains several components, we cannot be sure which of the suggested techniques are primarily responsible for its overall effectiveness. Some components may have only marginal value. Others may vary depending on the specific features of the interview, for example, whether the witness is a child or an adult and whether

interviews are conducted immediately after the crime or after a long delay. Some components of the Cognitive Interview have been isolated and demonstrated to be effective in an eyewitness task (e.g., witness-compatible questioning: Fisher & Price-Roush, 1987; context reinstatement: Geiselman, Fisher, Mac-Kinnon, et al., 1986). We invite other researchers to tease apart the various components (more explicitly described in Fisher & Geiselman, in press) to determine their relative efficacy and to help refine the technique even further. At this time, given (a) its proven record in the laboratory and in the field, (b) the ease of learning and implementation, and (c) the positive feedback we have received from detectives who have used it, we recommend that the Cognitive Interview be incorporated into the standard training program of all investigative interviewers.

As a final note, although we have examined the Cognitive Interview as a method to improve criminal investigations from the police's (or prosecutor's) perspective, the technique can be used equally well to help defend innocent suspects. The Cognitive Interview simply facilitates the recollection of relevant evidence; whether the gathered evidence serves to acquit or convict is immaterial. In a similar vein, the technique should be useful for civil as well as criminal investigations. In its broadest scope, because the Cognitive Interview is based on principles of cognition and is not limited by any specific content area, it should be useful for a wide range of investigations, for example, developing medical histories, clinical interviews, journalistic interviews, accident investigations, oral histories, and so forth. As evidence of this generalizability, Fisher and Quigley (1988) have shown that a variant of the current technique can be used in epidemiological investigations to trace foodborne outbreaks of disease.

References

- Commonwealth v. Di Nicola, Pa. (1985).
- Deffenbacher, K. A. (1988). Eyewitness research: The next ten years. In M. Gruneberg, P. Morris, & R. Sykes (Eds.), Practical aspects of memory: Current research and issues. New York: Wiley.
- Fisher, R. P. (1986). Client memory enhancement with the cognitive interview. Florida Bar Journal, 60(11), 53-56.
- Fisher, R. P., & Chandler, C. C. (1988). *Independence of theme-cued and episodically cued recall.* Unpublished manuscript.
- Fisher, R. P., & Cuervo, A. (1983). Memory for physical features of discourse as a function of their relevance. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 9, 130-138.
- Fisher, R. P., & Geiselman, R. E. (in press). Memory-enhancement techniques for investigative interviewing: The Cognitive Interview. Springfield, IL: Charles C. Thomas.
- Fisher, R. P., Geiselman, R. E., & Raymond, D. S. (1987). Critical analysis of police interview techniques. *Journal of Police Science and Ad*ministration, 15, 177-185.
- Fisher, R. P., Geiselman, R. E., Raymond, D. S., Jurkevich, L. M., & Warhaftig, M. L. (1987). Enhancing enhanced eyewitness memory: Refining the Cognitive Interview. *Journal of Police Science and Administration*, 15, 291-297.
- Fisher, R. P., & Price-Roush, J. (1987). The effect of question sequence on eyewitness recall. Unpublished manuscript, Florida International University, Miami.
- Fisher, R. P., & Quigley, K. L. (1988). Improving epidemiological investigations with the Cognitive Interview: Tracing the source of food-

- borne outbreaks of disease. Unpublished manuscript, Florida International University, Miami.
- Flexser, A., & Tulving, E. (1978). Retrieval independence in recognition and recall. *Psychological Review*, 85, 153–171.
- Geiselman, R. E., & Fisher, R. P. (1986). Interviewing victims and witnesses of crime. U.S. Department of Justice, Research in Brief, 1-9.
- Geiselman, R. E., Fisher, R. P., Cohen, G., Holland, H., & Surtes, L. (1986). Eyewitness responses to leading and misleading questions under the Cognitive Interview. Journal of Police Science and Administration, 14, 31-39.
- Geiselman, R. E., Fisher, R. P., Firstenberg, I., Hutton, L. A., Sullivan, S. J., Avetissian, I. V., & Prosk, A. L. (1984). Enhancement of eyewitness memory: An empirical evaluation of the Cognitive Interview. Journal of Police Science and Administration, 12, 130-138.
- Geiselman, R. E., Fisher, R. P., MacKinnon, D. P., & Holland, H. L. (1985). Eyewitness memory enhancement in the police interview: Cognitive retrieval mnemonics versus hypnosis. *Journal of Applied Psychology*, 70, 401-412.
- Geiselman, R. E., Fisher, R. P., MacKinnon, D. P., & Holland, H. L. (1986). Enhancement of eyewitness memory with the Cognitive Interview. American Journal of Psychology, 99, 385-401.
- Geiselman, R. E., & Machlovitz, H. (1987). Hypnosis memory recall: Implications for forensic use. American Journal of Forensic Psychology, 5, 37-47.
- Goodman, G. S., & Hahn, A. (1987). Evaluating eyewitness testimony. In I. B. Werner & A. K. Hess (Eds.), Handbook of forensic psychology. New York: Wiley.
- Johnston, W. A., Greenberg, S. N., Fisher, R. P., & Martin, D. W. (1970). Divided attention: a vehicle for monitoring memory processes. *Journal of Experimental Psychology*, 83, 164-171.
- Loftus, E. F. (1979). Eyewitness testimony. Cambridge, MA: Harvard University Press.
- Malpass, R. S., & Devine, P. G. (1980). Realism and eyewitness identification research. Law and Human Behavior, 4, 347-358.
- McCloskey, M., & Egeth, H. (1983). What can a psychologist tell a jury? American Psychologist, 38, 550-563.
- Orne, M. T., Soskis, D. A., Dinges, D. F., & Orne, E. C. (1984). Hypnotically induced testimony. In G. L. Wells & E. F. Loftus (Eds.), Eyewitness testimony: Psychological perspectives. New York: Cambridge University Press.
- Reiser, M. (1980). Handbook of investigative hypnosis. Los Angeles, CA: LEHI.
- Roediger, H. L., & Thorpe, L. A. (1978). The role of recall time in producing hypermnesia. Memory & Cognition, 6, 296-305.
- Sanders, G. S. (1986). The usefulness of eyewitness research from the perspective of police investigators. Unpublished manuscript, State University of New York at Albany.
- Sanders, G. S., & Simmons, W. L. (1983). The use of hypnosis to enhance eyewitness accuracy: Does it work? *Journal of Applied Psychology*, 68, 70-77.
- Smith, M. (1983). Hypnotic memory enhancement of witnesses: Does it work? Psychological Bulletin, 94, 387-407.
- Wells, G. (1988). Eyewitness identification: A system handbook. Toronto, Ontario, Canada: Carswell Legal Publications.
- Yarmey, A. D. (1979). The psychology of eyewitness testimony. New York: Free Press.
- Yuille, J. C., & Cutshall, J. L. (1986). A case study of eyewitness memory for a crime. *Journal of Applied Psychology*, 71, 291–301.
- Yuille, J. C., & Kim, C. K. (1987). A field study of the forensic use of hypnosis. Canadian Journal of Behavioral Science, 19, 418-429.

Received May 31, 1988
Revision received February 13, 1989
Accepted March 8, 1989