Eyewitness confidence and the impact of expert testimony by a psychologist versus an opposing psychologist

Jonette R. Zulauf

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EYEWITNESS CONFIDENCE AND THE IMPACT OF
EXPERT TESTIMONY BY A PSYCHOLOGIST
VERSUS AN OPPOSING PSYCHOLOGIST

by:

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The use of expert psychological testimony on the unreliability of eyewitness testimony has become increasingly common in recent years. However, no previous studies have examined the impact of an opposing psychologist giving expert testimony on the reliability of eyewitness testimony, a phenomenon occurring more frequently in the courtroom today.

120 subjects were randomly assigned to one of six experimental conditions. Half of the subjects viewed a videotape of a highly confident eyewitness, while half viewed an eyewitness of low confidence. Subjects then viewed a videotape of a psychologist giving expert testimony on the unreliability of eyewitness testimony, or viewed the above psychologist plus an opposing psychologist giving testimony on the reliability of eyewitness testimony, or no further videotapes (control group). Subjects then completed Likert-scale questions concerning the guilt or innocence of the defendant, reasons for and confidence in their guilt versus innocence decision.

Subjects who viewed the expert psychologist alone more frequently believed that the eyewitness had identified an innocent person rather than the gunman in a crime; they reported reduced guilt ratings, more decision confidence, and lower estimated percentages of accurate eyewitness testimony. When subjects subsequently viewed the opposing psychologist, they believed equivocally that the eyewitness had identified the gunman or an innocent person, similar to Controls. Expert testimony did not differentially effect subjects exposed to high or low confidence eyewitnesses. However, expert testimony alone did reduce subjects' reported reliance on eyewitness confidence as a basis for their decision; these effects were mitigated by arguments presented by the opposing psychologist. Subjects who heard only expert testimony based their decision on it more than subjects who heard both expert and opposing expert testimony. This study was the third in a series on expert/eyewitness testimony and replicated the findings of the first, but not the previous, study.

In summary, results support the use of expert testimony in cases where eyewitness testimony is important and suggest that an opposing psychologist will mitigate the effects of an expert giving testimony on the unreliability of eyewitness testimony. Implications for further research were discussed.
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Introduction

As Justice Felix Frankfurter once noted, the identification of strangers is proverbially untrustworthy. The hazards of such testimony are established by a formidable number of instances in the records of English and American trials" (Woocher, 1977). Even the Supreme Court has emphasized the dangers inherent in eyewitness identification evidence, stating: "The vagaries of eyewitness identification are well-known; the annals of criminal law are rife with mistaken identification" (Woocher, 1977).

Yet jurors tend to "overbelieve" eyewitnesses. A juror's opinion regarding whether or not an eyewitness properly identified an innocent person can critically decide the juror's vote (Wells and Lindsay, 1983). The average juror views evidence of identification by an eyewitness as absolute proof; for the layperson, visual identification of the defendant by the victim or witness often provides the most persuasive evidence which cannot be overcome by contrary evidence supporting the accused (Wall, 1965). Wells, Lindsay and Ferguson (1979) found that eyewitnesses were believed almost 80% of the time. In one condition of a study conducted by Loftus (1974), jurors were told that an eyewitness to a robbery had less than 20/400 vision, had not been wearing his
glasses, and could not possibly have seen the robber's face; yet 68% of the jurors still convicted the defendant.

Unless some steps are taken to ensure that the unreliability of eyewitness evidence is brought to the attention of the triers of fact, mistaken identifications will continue to be a major source of wrongful convictions (Woocher, 1977). Yarmey (1979), an expert in the area of eyewitness testimony, concluded that misidentification is more the rule than the exception. In a study staged in a University classroom, a professor was "attacked" in front of 141 student observers. Afterward, the eyewitnesses were asked to describe the attacker. Such descriptions were grossly inaccurate, with a total accuracy score of only 25% of the total possible points. In fact, an innocent bystander present at the scene of the crime was chosen by subjects 25% of the time. Even the professor, the attacked victim, incorrectly identified the innocent bystander as the attacker (Buckhout, 1974).

One proposed safeguard against convictions resulting from faulty identifications is the admission of expert psychological testimony on the reliability or unreliability of eyewitness identification (Woocher, 1977). This trend, and the known inaccuracies of eyewitness testimony, warrant considerable attention from experts.
in the judicial system and from researchers examining relevant issues in forensic psychology.

This paper will focus on the following objectives:

a. the review of psychological factors relevant to the accuracy and reliability of eyewitness testimony;

b. in relationship to the above-mentioned factors, discuss memory processes as they relate to eyewitness performance;

c. discuss the accuracy-confidence relationship in eyewitness testimony, and the tendency for jurors to rely on eyewitness confidence to assess witness accuracy;

d. review expert testimony and opposing expert testimony research and its potential for reversing some of the justice-impairing effects; and

e. present a study which compared the effects of different types of expert testimony (opposing versus supporting) following an eyewitness of high or low confidence.
Factors Affecting the Accuracy of Eyewitness Testimony

Despite the alarmingly and unacceptably high number of false identifications and misses given by eyewitnesses, the criminal justice system continues to depend heavily on such testimony. Eyewitness testimony is considered as direct, rather than circumstantial, evidence. Recently, however, in a variety of books and reviews, psychologists have begun to question the esteem given to eyewitness testimony by the criminal justice system (Brown, Deffenbacher, and Sturgill, 1977; Buckhout, 1974, 1976; Buckhout, Alper, Chern, Silverberg, and Somovits, 1974; Egan, Pittner and Goldstein, 1977; Katz and Reid, 1977; Leippe, Wells, and Ostrom, 1978; Lloyd-Bostock and Clifford, 1983; Loftus, 1979; Woocher, 1977; Yarmey, 1979). Through research, psychologists have delineated over a score of factors which affect the accuracy of eyewitness testimony. Such experiments yield almost uniform results: Most observers make significant errors on almost every facet of the description, from the duration of the event, the physical description of the attacker and the clothing worn, to the words spoken, the weapon used, and even the sequence of events (Woocher, 1977). Yet:

...most juries, and even some judges, are unaware of the sources of error in eyewitness testimony and consequently place undue faith in its veracity... For the layperson, visual identification of the defendant by the victim or the witness often provides the most persuasive evidence, which cannot be overcome by contrary evidence supporting the accused (Woocher, 1977).
Knowledge of such factors would certainly facilitate the jurors' decision-making process, for they are the people required to make a judgment about the reliability of eyewitness testimony in a given factual situation. In a recent survey, Loftus (1979) found that citizens were correct only half the time in regard to some important assumptions about eyewitness behavior. While entire reviews of these factors have been written elsewhere and are beyond the scope of this paper, those factors applicable to the proposed study will be reviewed briefly herein.

Research has demonstrated that people often experience difficulty in estimating the duration of an event (Doehring, 1961; Block, 1974). Eyewitnesses are often asked to estimate time in a courtroom trial, and have a marked tendency to overestimate the duration of an incident. In studies using staged crimes of assault and theft on university campuses (Buckhout, 1974; Buckhout, Alper, Chern, Silverberg, and Somovits, 1975), subjects estimated the duration of an event to be two-and-a-half times as long as it had actually lasted. Another study which confirmed this tendency to overestimate time was done by Marshall (1966), who had subjects view a 42 second film. Two weeks later, subjects were asked to estimate the length of the film.
and, on the average, estimated the length as 90 seconds. An additional study which supports the tendency for witnesses to overestimate time was done by Johnson and Scott (1976, cited in Loftus, 1979). Subjects in this study viewed a target for only four seconds; males overestimated that the target was presented for seven seconds, while females overestimated that the target was viewed for 25 seconds.

Researchers (Filer and Meals, 1959; Langer, Wapner, and Werner, 1961) found that time is perceived to pass more slowly when the observer is caught in an anxiety-producing situation. The desire to escape makes it seem as if the unpleasant event is lasting longer than it actually is (Buckhout, 1975). Woccher (1977) found that persons tend to judge time by the amount of activity occurring. A sudden, action-packed event like a crime often elicits an overestimation of the time passed because of the flurry of activity which has occurred. If the witness is in an anxiety-provoking or stress-producing situation, there is a tendency to further overestimate the amount of elapsed time (Sarason and Stoops, 1978). In addition, a complex situation may increase the tendency to overestimate time. Schiffman and Bobko (1974) found that as the level of
stimulus complexity increased, subjects' estimates of the interval involved also increased. In conclusion, "there is solid evidence that errors occur in people's estimates of the duration of an incident, and the errors are in the direction of overestimation" (Loftus, 1979).

Crimes rarely occur in conditions ideal for observation. Such common circumstantial factors such as darkness, fast movement, and distance from the criminal have been shown to decrease reliability of eyewitness identification (Levine and Tapp, 1973). If lighting is poor or rapidly changing, and distracting noise or other activity is present, visual efficiency may drop drastically (Buckhout, 1975; Lezak, 1973).

Crimes often occur suddenly and unexpectedly, catching the witness offguard and unprepared to focus his or her perceptual attention on the important features of the event (Levine and Tapp, 1973). The period of observation of a criminal is often brief, and eyewitnesses are frequently asked to make an identification of a criminal after such an extremely short viewing time; the already short viewing time will often be even less than that reported by the eyewitness, given the tendency for eyewitnesses to overestimate
the duration of a crime. Research has shown that the shorter the observation time, the less reliable the identification of the criminal and the poorer the recall. As viewing time is decreased, the subjects' memory for an image becomes more unreliable (Fox, Note 1). Additionally, researchers have shown that picture recognition increases with exposure time (Loftus, 1972; Hintzman, 1976; Laughery, et al., 1971).

While it is commonly believed, especially within the judicial system, that stress will increase the ability of a victim or witness to recall a subjects' identity, it has been known since 1908 that this is not the case. The Yerkes-Dodson Law (in Braun and Linder, 1979) states that "for a given task, there is an optimal amount of arousal; a greater or lesser degree of activation will result in less efficient behavior". While some studies have shown that a mild level of anxiety may increase the attentiveness of the observer and, therefore, result in more accurate perception (Munsterberg, 1908), psychological research overwhelmingly demonstrates that perceptual abilities are significantly decreased and distorted when an observer is stressed. During a crime, where a witness
perceives that there is a high degree of danger imminent, the level of stress may be considerably greater than the optimal level. In fact, research has shown that perceptual and memory processes are actually disrupted by high levels of anxiety and stress (Harden, 1930; Postman and Bruner, 1948; Stone, 1925). Anxious eyewitnesses tend to be more inaccurate when giving testimony than non-anxious eyewitnesses (Muellar, Carlomusto, and Goldstein, 1978; Siegal and Loftus, 1978; Zanni and Offerman, 1978).

Under highly stressful conditions, people tend to constrict attention, concentrating on fewer and fewer details in their environment and attending less and less to extraneous details (Easterbrook, 1959). People may experience increased heart rate, rapid breathing, excessive perspiration and, most importantly, fixation of the eyes, which usually goes unnoticed (Noton and Stark, 1971). Even experienced Air Force pilots tended to become poor observers under stressful conditions, narrowing attention to the airplane joystick, for example (Buckhout, 1974). Researchers (Levine and Tapp, 1973; Woocher, 1977) have found that under stress, an eyewitness may "close" his or her mind, focusing instead on a "psychologically important" detail as a "perceptual defense".
More specifically, "weapon focus" is a phrase provided by Loftus (1979) to describe the tendency for an eyewitness to focus his/her attention on the criminal's weapon. This results in "a reduced ability to recall details about the assailant, and to recognize the assailant at a later time". As Kahneman (1973) has noted, increasing the amount of time spent focusing on one stimulus will reduce the amount of time available to perceive competing stimuli due to a limited amount of processing capacity.

In a recent study, Wells and Leippe (1981) found that eyewitnesses were more accurate in identifying a criminal if they paid less attention to peripheral details in the room, as measured by performance on a test. Jurors, however, were more likely to believe an inaccurate witness who recalled peripheral details.

Johnson and Scott (1976, cited in Loftus, 1977), compared the ability of eyewitnesses to identify a target individual in a violent "weapon" condition versus a non-violent "no weapon" condition. In this study, observers were highly stress and either witnessed a confederate run into the room after hearing a violent interaction carrying a bloodied letter opener ("weapon" condition); or, after hearing a calm conversation, witnessed a man enter the room holding a pen in his greased hands ("no weapon" condition). In the "no weapon"
condition, 49 percent of the witnesses accurately identified the confederate; in the "weapon" condition, only one third of the subjects correctly identified the criminal.

Similarly, it has been shown that eyewitness testimony is less accurate following an emotionally-loaded or violent incident than a less emotional or non-violent incident (Clifford and Hollin, 1981; Clifford and Scott, 1978). Clifford and Scott (1978) found significantly greater ability to recall events after viewing detectives pressuring a reticent informant in a nonviolent manner than for those who viewed a more violent version of the same incident.

In addition, witnesses were significantly more accurate in their testimony after viewing a woman being asked for directions than after viewing a woman being mugged (Clifford and Hollin, 1981). Loftus (1979) has warned that testimony regarding an emotionally loaded incident should be treated more cautiously than testimony in regard to a less emotional event.

Accuracy in identifying a target individual decreases as the number of criminals increases, as the increased number of criminals reduces the time available to focus on other details. Clifford and Hollin (1981) found that accuracy of eyewitness testimony decreased as the number
of criminals was increased from one to three to five criminals, especially in the violent "mugging" condition.

The uniqueness or distinctiveness of a suspect's facial features is another factor which influences the accuracy of eyewitness testimony. Recent research has shown that atypical or unusual faces are more readily recognized than nondistinct or typical faces (Courtois and Muellar, 1981; Light, Kayra-Stuart, and Hollander, 1979; Going and Read, 1974). Even one distinctive feature may be sufficient to bias a witness toward identifying a suspect (Woocher, 1977). Some of the more common factors which may unfavorably increase a suspect's chance of being selected are unusual physical characteristics (e.g., scars or tattoos), different clothing, demeanor, facial expression, or anything which increases dissimilarity to other suspects (Woocher, 1977). On the other hand, more typical-looking males are more likely to be misidentified, especially if the suspect is described as average (Courtois, and Muellar, 1981).

Another phenomenon common in many eyewitness misidentifications is "unconscious transference", a phrase coined by Williams (1963, cited in Loftus, 1979) in his description of an English murder case which may
have resulted in the execution of an innocent man. One of the witnesses who identified the defendant had interacted with him briefly prior to the crime and "may have unconsciously effected a transference" (Williams, 1963, in Loftus, 1979). Unconscious transference occurs when a person seen in an insignificant situation is recalled as a person viewed in a significant event. Or more specifically,

the phenomenon by which an otherwise insignificant event, occurring immediately before or after a significant event may, upon recall, become merged with the most significant event. One consequence is that, upon recollection, one could confuse the face of a person seen in an insignificant event with that of a person involved in a subsequent significant event (Fishman and Loftus, 1978).

An illustrative and classic case of unconscious transference has been provided by Wall (1965). An employee who sold tickets in a railroad station was robbed at gunpoint. Subsequently, he mistakenly identified a sailor from a lineup as the malefactor. The sailor, however, had a credible alibi when questioned and was released. When the ticket agent was questioned, he stated that he had identified the sailor "because he looked familiar". Subsequent investigation revealed that the sailor had purchased train tickets from this agent on three different occasions. The ticket agent had inaccurately connected
the familiar sailor's face with the context of the robbery. Knowing the face is familiar but confusing the context in which it was seen is a basic definition of unconscious transference.

Another study which exemplifies the phenomenon of unconscious transference was done by Buckhout (1974). An assault was staged in front of a classroom on a professor. Seven weeks later, witnesses attempted to pick the assailant from an array of six photographs. Over forty percent of the witnesses identified the criminal as the innocent bystander who had been present during the assault but was not the criminal. Forty percent of the witnesses accurately identified the guilty person.

Similarly, Loftus (1976) provided subjects with a story about six college students, with an accompanying photograph of each story character, including a photograph of the criminal. Three days later, half of the subjects were required to identify the criminal from a set of five pictures which did not include the criminal but did include the face of a bystander incidental to the story. Results showed that 79 percent of the witnesses selected the innocent bystander.
The phenomenon of unconscious transference brings into question the common practice of asking a witness to identify a criminal from a group of photographs. Research demonstrates that a witness will often make a future identification by relying on familiarity rather than their original memory. What seems to be occurring is a blending of the witness's original perception of the event, knowledge acquired prior to the event, and inferences drawn after the event; over time, information from these sources has been integrated into a single memory (Loftus, 1976). Misidentifications are exacerbated further if the original choice of the eyewitness is incorrect (Brown, Deffenbacher, and Sturgill, 1977; Gorenstein and Ellsworth, 1980).

There are numerous factors which may affect the accuracy of eyewitness identification when witnesses are attempting to select a criminal from a lineup. For example, Katz and Reid (1977) found that when a witness had already provided police with a description of the criminal and was later asked to identify the suspect in a lineup, the witness sought a suspect who fit his/her given description. Therefore, an unbiased lineup must be composed of potential suspects.
who each fit the witness's initial description of
the criminal. Buckhout (1976) has delineated three
factors to ensure an impartial lineup, arranging it
so that:

a. all items have an equal chance of being
selected by a person who did not see
the suspect;
b. the items are similar enough to each
other and to the original description
of the suspect to be confusing to a
person who is merely guessing; and
c. the test is conducted without leading
questions or suggestions from the
test giver (p. 84).

A number of studies are illustrative of the poten­
tial influence on witnesses of subtle suggestions
given by an interrogator. Indeed, research has shown
that test or lineup administrators may "verbally,
nonverbally, or unconsciously" cue subjects in ways
which influence identification of the criminal
(Rosenthal, 1966). For example, telling a witness
that the suspect "is in the lineup" resulted in an
increased number of misidentifications versus telling
witnesses that the suspect "may or may not be" in
the lineup (Hall and Ostrom, cited in Wells, 1978).
If the identification procedure is conducted by an
authority figure, such as the police, subjects are
particularly likely to be influenced by suggestive
procedures (Milgram, 1963). Subjects more frequently
attempt identifications in the presence of authority
figures, even if they are inaccurate. If witnesses are shown a series of photographs, some of which are mugshots and some of which are not, witnesses will more frequently choose one of the mugshots as the suspect. In addition, Buckhout (1974) provided witnesses one of two layouts of photographs; a biased spread, where the suspect's head is tilted, he is grinning, and the photograph itself is placed at an angle; and an unbiased spread, where the attacker's photograph is aligned with the others and shows a similar full-face view. Under varying conditions, the same suspect was chosen significantly more frequently under the biased condition. Further, if a person feels pressured by social desirability or majority opinions, s/he may go along with a decision even if it is wrong (Asch, 1955).

Recently, experts have been focusing on the "foils" used in a lineup, the persons in the lineup who are not suspects. The "functional size" of the lineup is more important than the actual number of persons employed in the lineup (Lindsay and Wells, 1980; Wells, Leippe, and Ostrom, 1979). Functional size is determined through the use of mock witnesses who view a lineup after being given a simple description of the suspect. The functional size is then derived by a formula: the total number of mock witnesses asked
to make an identification divided by the number of eyewitnesses who choose the suspect (Fox, Note 1). Functional size decreases as foils are increasingly dissimilar from the suspect. Conversely, the functional size of the lineup increases as foils more closely resemble the suspect. For example, if the suspect is described as a "short, heavy-set, older man", a lineup consisting of a tall, slim, redhaired woman, a young teenager, an elderly lady, and a five year old child would yield a functional size of 1.0. Conversely, if all the foils in the lineup were short, heavy-set, older men, the functional size would approximately equal the number of foils. As the functional size increases, so does the likelihood that a fair lineup was conducted (Fox, Note 1).

One identification procedure which is likely to be extremely biased is the "showup", with a functional size of 1.0. In the showup, a police officer (most frequently) presents only the suspect to the eyewitness for identification, and s/he is expected to respond "yes" or "no" as to whether that person is the criminal. Katz and Reid (1977) stated that during a showup, the witness assumes that the subject is the prime suspect. Researchers agree that under such circumstances, a witness is apt to cast aside his or her doubts about the suspect's identity, preferring to trust the judgment
of the police officer who identified him or her and who the witness may subconsciously wish to please or fear disagreeing with (Buckhout, 1976; Katz and Reid, 1977).

"Retroactive inhibition" as a phenomenon affecting eyewitness testimony has been well-documented in the psychological literature. Essentially, as the time elapsed between an observation of an incident and its recall increases, memory for the event decreases. Buckhout (1974) found that observers reproduced an original drawing with decreasing accuracy at immediate, one month and three month intervals. More specifically, Egan, Pittner, and Goldstein (1977) found that mistaken identifications by eyewitnesses increased in number (from 48 percent to 62 percent to 93 percent) as the crime-identification interval increased from two days to 21 days to 56 days. Similarly, Courtois and Mueller (1981) showed significant decreases in correct identifications by subjects as the interval increased (from one minute to two days to 28 days) between viewing photographs and re-viewing photograph arrays with distractors. Shepard (1967) demonstrated a decrease from 100 percent correct picture recognition after a two-hour delay to 57 percent correct picture recognition after four months (guessing would have yielded
50 percent correct).

While many of the most pertinent psychological factors which affect eyewitness testimony have been reviewed here, it should be noted that there are numerous additional well-documented factors. Such factors as the attractiveness of the suspect, needs and motives of the witness, cross-racial identifications, the effects of alcohol, the physical condition of the eyewitness, personal biases, perceived significance of the witnessed event, expectancies of the eyewitness, etc., also influence the accuracy of eyewitness testimony. One might wonder how jurors' decisions would be affected if they were made aware of these factors which cast considerable doubt on the reliability of eyewitness testimony.
A complete, comprehensive review of the literature and research on memory has been presented recently by Wickelgren (1981) and, therefore, will not be included herein. Rather, a description of the hypothetical stages of memory, distortions and inaccuracies of memory, and a brief discussion of several theoretical models of memory follow.

Often the issue of identification accuracy is sufficient to decide a case in that if a witness's memory is correct, then the defendant is undoubtedly guilty. Yet memory is imperfect and quite malleable (Loftus, 1980). Distortions of memory may occur at any basic hypothetical "stage" of memory or within one of the proposed basic "types" of memory. Yarmey (1979) has divided the memory process into three theoretical stages: (1) sensory memory, (2) short-term memory, and (3) long-term memory. Sensory memory includes the initial rapid, superficial information processing that occurs within a fraction of a second. A select part of this information is further processed at the next stage of memory, short-term, while the remainder becomes quickly lost through the process of decay or is replaced by attention to novel stimuli.
If information in short-term memory is rehearsed within the first thirty seconds, it is transferred to long-term memory. Unrehearsed information is lost, and some additional loss may occur during the transfer to long-term storage. Once information is stored in long-term memory, it is vulnerable to loss over time or to distortion by subsequently occurring events. The theoretical dimensions of long-term memory include an infinite capacity for storage and lifetime duration.

Most authors (e.g., Loftus, 1979; Yarmey, 1979; Wickelgren, 1981) divide the memory process into three separate stages: (1) acquisition (or encoding), (2) retention, and (3) retrieval. During acquisition, physical stimuli are encoded into memory. Next, during the retention stage, the coded information is systematized and stored. Finally, during the retrieval process, the material is recalled from storage and transferred to short-term memory for utilization.

A commonly held belief among both professionals and laypersons is the view that memory functions like a videotape recorder, permanently recording and storing events as they occur. Historically, this model has been supported by work done by Penfield during the 1940's using electrical stimulation while operating on the brains of epileptics to produce recall of forgotten events. Both Penfield's research and the videotape
recorder model of memory have been refuted. Penfield's reports demonstrated spontaneous memory recall in only 3.5% of his patients, and there is reason to believe that even these cases involved reconstructions or inferences and not actual memories (Loftus and Loftus, 1980). In regard to the videotape recorder model of memory, Wickelgren (1981) stated that "we can confidently assert that this nonassociative theory [videotape recorder model] of LTM is false." Despite such contrary evidence, Loftus and Loftus (1980) recently found that 84 percent of psychologists surveyed and 69 percent of laymen surveyed agreed that "everything we learn is permanently stored in the mind."

For over a decade, the videotape recorder model of memory has been supported through the use of hypnosis to retrieve details of permanently stored memories (Cheek and LeCron, 1968). However, recent research contradicts this model on several bases. Hypnosis is an interpersonal relationship between the therapist and the subject which demands that the subject behave in a way that is pleasing to the hypnotist (Hilgard, 1979; Watkins, 1982); therefore, the subject may be more willing, rather than more able, to report the recollection of past events. Highly suggestible subjects often provide responses desired by the hypnotist.
even when prior instructions were to the contrary (Watkins, 1982). This "transference" between the hypnotist and subject can have a determining effect on the responses elicited (Watkins, 1982). Experiments have shown that subjects under hypnosis will confidently recall events not only from the past, but from the future as well (Kline, 1958; Rubenstein and Newman, 1954); and that hypnosis may irreversibly alter one's memory (Hilgard and Loftus, 1979; Loftus, 1979). Putnam (1979) recently completed research which suggests that hypnotized subjects are more vulnerable to distortion of memories generated by leading questions than are nonhypnotized subjects.

Misleading questions and other events occurring subsequent to the target event may actually produce a change in the stored memory. Loftus (1975) demonstrated that if a subject is asked a question which presupposes the existence of a nonexistent object, that object may become merged with the actual memory of the event. In this study, subjects viewed a film showing a car traveling on a country road. Later, when subjects were asked a leading question about how fast the car was traveling when it passed the barn, seventeen percent claimed to have seen a barn; however, only three percent of the
control subjects said they had seen a barn. Other misleading questions pertaining to an object actually present in the scene may lead to distortion of color or type; for example, asking about the red car when the color of the viewed car was actually green (Loftus, 1977; Loftus, Miller and Burns, 1978).

Loftus and Zanni (1975) demonstrated that the phrasing of the interrogation can strongly influence stored memory. Questions asked of subjects regarding nonexistent objects which included the word the (Did you see the broken headlight?) were significantly more likely to elicit "recognition" responses than the same question phrased with the word "a" (Did you see a broken headlight?). Loftus and Palmer (1974) had subjects view a film and subsequently estimate the speed a car was traveling in the film. Those subjects who were asked how fast the cars were traveling when they smashed each other provided significantly higher speed estimates and increased reports of broken glass (although there was no broken glass in the film) than subjects who were asked how fast the cars were going when the hit each other.

The above-mentioned research and a series of studies done by Loftus and her colleagues (1975, 1977, 1978) have
clearly demonstrated that stored memory may be distorted by later events, leading psychologists to support the "reconstructive" model of memory, which explains the propensity for originally stored information to differ from recalled information. In an experiment involving a stop sign where the subject is subsequently asked a misleading question implying that they had viewed a "yield" sign, subjects reported seeing what they were told they saw (the yield sign) rather than what they actually saw (the stop sign). Even when confronted with two slides simultaneously (on halves of the same screen), one being the actual slide containing the stop sign and the other containing the yield sign (what the subject was told s/he saw), subjects reported that they had seen the yield sign.

The "supplementation of nothing" hypothesis states that the subject may simply fail to store information about the critical object (e.g., the stop sign) at the time of the original viewing, and the postperceptual distortion results from adding the misleading information to memory, providing the basis for the subsequent report. This theory has been rejected by research which has demonstrated that immediately after a viewing, over 90% of subjects tested correctly identified the sign they had seen. A second coexistence or permanence
hypothesis suggests that the information acquired post-perceptually is added to the memory and coexists with the original information. This theory has been difficult to refute but attempts to recover the original information once it has been tampered with have failed. Loftus and Loftus' (1980) research tested this hypothesis experimentally and they concluded that "... the pattern of responses ... suggests that the subjects had completely lost the original information...". These and results of other studies suggest that substitution has occurred, where the misleading information has irrevocably replaced the original memory. Loftus and Loftus (1980) have convincingly demonstrated that there is evidence to support the "substitution" hypothesis. It is therefore reasonable to believe that memory is not necessarily permanent.

However, two very recent studies suggest that the coexistence hypothesis should not be so readily dismissed. Anton (Note 3) completed a partial replication of one of Loftus' second guess experiments using misleading information which had provided support for the substitution hypothesis of memory. He found that subjects' second guesses revealed that the original information about the critical item had been retained in memory, a finding that is inconsistent with the substitution hypothesis. Using the same stop sign/yield sign sequence,
Bekerian and Bowers (1983) also found strong support for the coexistence hypothesis using similar methodology. Bekerian and Bowers attribute their results to having increased the number of cues in the retrieval environment and point out that in Loftus' second-guess experiments, no additional cues relevant to the original encoding were given to subjects between their first and second responses.

Wells and Lindsay (1983) have provided a "metamemory theory", a complex analysis explaining the types of information used by people to infer the accuracy of another person's memory. For their purposes, metamemory is defined as the individual's knowledge of and awareness of memory or of anything pertinent to information storage and retrieval. It is postulated that three types of information are used to judge the accuracy of another person's memory.

The first is conditional information, which includes information from "self-based judgments" (would I have remembered under those conditions?) and sample-based information or expert opinions. While the latter type of information may not be optimally utilized, Loftus (1980) has shown that people do use it at least at some level.
The second type of information used is intra- and inter-subjective agreement information. Intrasubjective disagreement is defined as the lack of consistency in one's report of his/her memory of an event. Lack of intrasubjective agreement has a significant discrediting effect which goes beyond the inconsistent item(s) to produce a more general discrediting effect of the person and his/her memory for the entire event. Wells and Leippe (1981) showed that if an eyewitness changes even a trivial detail of his or her report, that person would subsequently be judged less likely to have accurately identified the accused from a lineup. Intersubjective agreement, referring to the consistency of memorial accounts between two or more witnesses, is a rational process of inference used by a memory judge. However, it can be distorted by conditional information which favors one witness over another. Also, two or more witnesses may be subject to the same error; for example, overestimating and agreeing upon the duration of an event. Wells and Leippe (1981) explored a subset of intersubjective disagreement and found that witnesses who erred in regard to peripheral detail of a scene or event were discredited by the memory judge, even though they were ultimately less likely to make a false identification in the lineup - they were perceived as if the opposite were true.
The third type of information used by a memory judge is response-bias information. Response bias refers to the tendency of a witness to report s/he has remembered something without regard for the strength of the memory trace. For example, an eyewitness making an identification from a lineup may have a response bias to choose a member of the lineup and to do so in spite of low certainty. Wells and Lindsay (1983) suggest that confidence might be construed as only a subset of a broader phenomenon, merely providing an avenue for the memory judge to discern the existence of a response bias.

In a similar vein, it has been shown that a person who has previously made a free admission of memory failure is accorded greater credibility on some other memory item (Wells and Leippe, 1981). It seems that this communicates to the memory judge that the person is not likely to fabricate a response, i.e., is not operating with a response bias. Further, a witness with high confidence in his/her memory tells the memory judge that his/her memory trace exceeds a certain high criterion. However, a witness who expresses low confidence tells the memory judge that had a higher criterion for reporting been applied, the memory might not have been reported; the memory judge may then infer that there is a response bias to report a memory despite
its weak trace.

More specifically, those eyewitnesses who consistently (i.e., on every cross-examination question) show high confidence in response to every probe of their memory are not believed, but are judged to have a bias to respond with confidence (e.g., are seen as "too sure" of themselves). A witness' confidence does not have to be explicitly stated; rather, it is communicated through both verbal and nonverbal channels. One of the most consistent factors judged is the application of verbal qualifiers in an eyewitness's report of a memory. Verbal qualifiers, such as "I think ..." or "I guess ..." or "It must have been ...", signal the memory judge that a process labeled "constructive invocation" is in use; this tells the judge that the memory reporter is utilizing reconstructive memory and that, therefore, the reporter has a response bias toward providing an answer even if it is not truly remembered.

Clearly, then the concept of memory as a pure, passive, and permanent process must be reconsidered. Instead, memory must be reconceptualized as an active process that is both fallible and sensitive to a variety of external influences which render it inaccurate and subject to distortion at times. As psychologists closely examine memory processes and become increasingly aware of the intricacies involved therein, they move further and
further away from the prevalent view of the brain as a permanent and accurate videotape recorder. As a result, this knowledge has serious implications for police work and the processes used by our judicial system.

It has become increasingly common for attorneys to procure expert witnesses to educate jurors in regard to the strengths and weaknesses of human memory, depending on which side of the adversarial system one might stand. As experts become pitted against experts, jurors will have an increasingly difficult time drawing culpability conclusions. How jurors react and wade through the quagmire of facts they are bombarded with has important implications for the future of the use of eyewitness testimony, presently so heavily relied upon, and for the functioning of the entire legal system.
Confidence

Recent research in the area of eyewitness testimony has focused on the confidence of the eyewitness. Studies have shown that subject-jurors are as likely to believe an inaccurate eyewitness as they are to believe an accurate one (Lindsay, Wells, and Rumpel, 1981; Wells, Lindsay and Ferguson, 1979; Wells, Lindsay and Tousignant, 1980; Wells, Ferguson and Lindsay, 1981). Jurors consistently tended to overbelieve eyewitnesses in such studies, their belief being highly correlated with the confidence of the witness (Lindsay, et al., 1981; Wells, et al., 1979, Wells, et al., 1980). Specifically, research suggests that as much as fifty percent of the variance in the jurors' choice to believe an eyewitness can be accounted for by the confidence of the eyewitness (Wells, et al., 1979). For example, Hastie (cited in Wells, et al., 1980) subjected jury deliberation videotapes to an analysis of eyewitness identification remarks and found that most jurors assumed that high confidence by the eyewitness implied accuracy.

The judicial system itself relies upon eyewitness confidence to evaluate witness credibility. In Neil v. Biggers (1972), a landmark United States Supreme Court case, the jurors assumed and the Court insisted
that eyewitness confidence is a highly reliable cue to
determine witness credibility. However, the relation­
ship between eyewitness confidence and accuracy has
not been supported by research. Wells, et al., (1979)
propose that more than ninety percent of the variance
in eyewitness confidence can be accounted for by factors
other than eyewitness accuracy. Although the confidence-
accuracy relationship has at times been shown to be
positive (Lipton, 1977; Wells, et al., 1979), it has
more often been found to be unrelated or even negative
(Buckhout, 1979; Loftus, Miller and Burns, 1978; Leippe,
Wells, and Ostrom, 1978; Yarmey, 1979). In a compre­
hensive review of such studies, Deffenbacher (1980)
concluded that about half of the studies found a positive
but modest confidence-accuracy correlation, and half
noted a zero or negative correlation. Deffenbacher
(1980) suggests that under conditions not conducive
to forming an accurate memory (reviewed earlier),
the relationship between confidence and accuracy is
near zero. Further, the "significant" relationships
between accuracy and confidence are often modest, at
most ($r = .20$ to $r = .40$).

The familiarity or novelty of a task has been shown
to effect the confidence-accuracy relationship. Lich-
Tenestein and Fischhoff (1977) found no relationship between confidence and accuracy on a novel task, while subjects' confidence was significantly related to accuracy on a familiar task. It has been suggested that criminal identification usually involves a novel experience, described as a single exposure to a novel stimulus and subsequent subjection to a recognition test (Wells, et al., 1979). Therefore, they predict that novel encounters such as criminal identification will result in a poor accuracy-confidence relationship.

Similarly, Leippe (1980) found that as viewing conditions became less optimal, the accuracy-confidence relationship became nonexistent; and hypothesized that both reconstructive memory processes and social influences markedly affect such a relationship. Therefore, as Deffenbacher (1980) concludes, the judicial system should cease its reliance upon eyewitness confidence as an index of eyewitness accuracy.

Perhaps more importantly, studies suggest that the accuracy-confidence relationship can be readily influenced by certain legal procedures. Specifically, it has been shown that witness' confidence in a false memory can easily be enhanced by a common legal procedure used by attorneys known as "briefing" (Wells, et al., 1981). Wells, et al. (1981) briefed half their eyewitnesses in
a manner which closely parallels the tactic of briefing used by attorneys. Eyewitnesses were instructed to rehearse their testimony, were given sample questions in preparation for cross-examination, and were warned that cross-examiners would be probing for inconsistencies in their testimony. The briefed eyewitnesses rated themselves as more confident than the eyewitnesses who were not briefed; the majority of the increase in confidence was attributed to inaccurate eyewitnesses increasing their confidence. Subject-jurors judged briefed eyewitnesses as more confident than non-briefed eyewitnesses. The confidence-accuracy correlation was essentially eliminated for briefed witnesses, but a small relationship was found for non-briefed witnesses. More importantly, greater belief was given to the briefed eyewitness's testimony, which corresponded with an increase in guilty votes. Thus, eyewitness confidence is more than just a correlate of the extent to which jurors believe the eyewitness; increasing the witness's expressed confidence actually increased the juror's reliance upon their testimony (Wells, et al., 1981). Techniques such as briefing, both commonly employed and openly advocated in the legal system, make inaccurate witnesses more confident in their testimony. As a result, jurors overbelieve inaccurate eyewitnesses (Wells, et al., 1981).
Wells, Lindsay and Tousignant (1980), in a replication of another study (Lindsay, Wells, and Rumpl, 1981), instructed subject-jurors to ignore the eyewitness's confidence because it has not proven to be a reliable indicator of eyewitness accuracy. Subject-jurors who were not told to ignore witness confidence were unable to distinguish between accurate-identification and false-identification witnesses, displayed the tendency to overbelieve eyewitnesses under poor witnessing conditions, and showed some adjustment in belief rates according to the witnessing conditions. Subject-jurors who were told to ignore confidence also showed no ability to distinguish between accurate-identification and false-identification eyewitnesses; they did no better in taking witnessing conditions into account. However, they did greatly reduce their belief in eyewitness testimony, from 61.5% (with no advice to ignore confidence) to 40.5% (with advice). Further, in marked contrast to control (no advice) group results, high-confidence eyewitnesses were no more likely to be believed than were low-confidence eyewitnesses. Thus, while it is possible to lessen the jurors' degree of reliance on eyewitness confidence, this in itself will not make them better judges of eyewitness accuracy (Wells, Lindsay, and Tousignant, 1980).
The findings that suggest that jurors are strongly affected by the confidence of the eyewitness and that accuracy and confidence do not correspond, presenting serious problems and challenges for the judicial system as it functions today. However, recent research indicates that expert testimony focusing on the unreliability of eyewitness identification, or similar instructions presented to jurors by a judge, may mitigate the impact of eyewitness confidence and lessen jurors' tendencies to overbelieve eyewitnesses. Unfortunately, this is likely to result in attorneys pitting expert against expert, resulting in confusion to jurors and unknown consequences in regard to the fairness of verdicts.
Several recent studies have examined the impact of expert psychological testimony on jurors' decision (Hosch, Beck and McIntyre, 1980; Loftus, 1980b; Wells, Lindsay and Tousignant, 1980; Fox (Note 1)). The results consistently demonstrate that subject-jurors are significantly influenced by hearing expert testimony on eyewitness identification.

The first studies conducted in the area were done by Loftus (1980b). In a pair of experiments, she presented subject-jurors with written summaries of an assault case, half of which included expert testimony and half did not. The results of the first study showed that expert testimony significantly reduced the percentage of individually-reached guilty verdicts from 57.5% to 39%. In the second study, it was found that when deliberating to reach a verdict, juries whose summaries included expert testimony spent significantly more time discussing the eyewitness' accounts than did those juries whose summaries did not include expert testimony. This result suggests that presenting psychological expert testimony on the unreliability of eyewitness testimony may increase the amount of attention jurors pay to eyewitness accounts, perhaps increasing scrutinization of such testimony. In addition, juries whose summaries contained expert testimony convicted the defendant less frequently.
Hosch, Beck and McIntyre (1980) investigated the effects of expert testimony first on community resident subjects who served as jurors in a reenacted courtroom trial; and secondly on college student juries who viewed a videotape of the same court proceedings. Both groups viewed a burglary case trial in which the eyewitness identified the defendant as the criminal. Half of the subjects in each sample subsequently heard the expert testimony of a psychologist. While there were no significant differences between the community resident verdicts and those of college-student juries, subjects who heard the expert psychological testimony placed less importance on eyewitness testimony in reaching their decision and spent more time examining all of the evidence that was presented in the case.

Wells, Lindsay and Tousignant (1980) presented subjects with a videotape of expert psychological testimony prior to exposing them to a videotapes cross-examination of an eyewitness. The eyewitnesses had previously witnessed a staged theft under poor, moderate, or good visibility conditions and had been asked to make an identification; they were either accurate or inaccurate. The expert testimony was found to significantly reduce the subjects' tendency to rely heavily on eyewitness confidence; belief of accurate witnesses was reduced by 18% and belief of inaccurate witnesses was reduced.
by 24%. Expert psychological testimony essentially eliminated jurors' overbelief tendencies, although it did lead to some "underbelief" of accurate witnesses.

While only the handful of studies cited above have been completed in this area, it is certain from the results that expert psychological testimony may significantly impact the weight and credibility the juror assigns to eyewitness testimony. Psychologists generally agree that their role as experts should focus on the provision of scientific knowledge to facilitate and increase the accuracy of a juror's verdict. While the testimony offered in some studies has included case-relevant factors, most psychologists believe that expert testimony should not offer jurors post hoc probabilities of an eyewitness's credibility or accuracy in a particular case (Loftus, 1980b; Hosch, et al., 1980; Wells, et al., 1980; Woocher, 1977).

However, there is some controversy surrounding the issues of how relevant the expert psychological testimony should be to the instant case. It has been suggested (Woocher, 1977) that expert psychological testimony should provide jurors the scientific knowledge necessary for evaluating the eyewitness evidence by tailoring their responses to the facts of the case at hand. In accordance with this advice, both the Loftus (1980b) and Hosch, et al., (1980) studies included "relevant factors"
testimony. The expert in the Hosch, et al., (1980) research testified on the relevant factors of duration of the event and stress; and offered an opinion on a hypothetical case which so closely paralleled the facts of the instant case that he bordered on offering an opinion in the case. The expert in the Loftus (1980b) study testified on the relevant factors of cross-racial identification, stress, weapon focus, and alcohol. In contrast, Wells, et al., (1980) argues that a more general form of expert testimony is more time and cost-efficient than relevant factors expert testimony. Accordingly, the expert in the Loftus (1980b) study focused only on the general unreliability of using eyewitness confidence to assess accuracy, and instead advised a strategy of focusing on the situational factors that the eyewitness reports; and testified on the fallibility of accurately choosing a defendant from a lineup.

One study (Fox, Note 1) compared the effects of "general" expert testimony with "relevant factors" testimony, and also manipulated the variable of eyewitness confidence. Results of his study showed that both "general" and "relevant factors" expert testimony significantly reduced guilt ratings, and also decreased
the subject-jurors' belief that the eyewitness had accurately identified the gunman. While "relevant factors" testimony reduced guilt ratings and the belief that the eyewitness had correctly identified the gunman more than "general" expert testimony, the differences were not statistically significant. Although subject-jurors' reliance on eyewitness confidence as an indicator of eyewitness accuracy was significantly reduced by the expert testimony, it did not totally eliminate the subject-jurors' tendency to believe the high-confidence witness more than the low-confidence eyewitness.

In a very recent study, Weisser (Note 2), in a partial replication of Fox's (note 1) research, explored the effects of both general and relevant factors expert testimony and expert testimony given to jurors in the form of judge's instructions. Although he used equivalent methodology to the Fox (Note 1) study, results of his study failed to replicate the previous findings in that the majority of subjects in all conditions believed the eyewitness had identified an innocent person. The use of judge's instructions to convey psychological research results concerning the unreliability of eyewitness identification was found
to be as effective as the use of a psychologist giving expert (general or relevant factors) testimony.

The present study compared the effects of relevant factors psychological expert testimony to relevant factors expert testimony plus opposing psychological expert testimony to a control (no expert testimony) condition. Relevant factors expert testimony was used here because it has been shown to be more effective than general expert testimony (Fox, Note 1), and would be better suited for rebuttal by another expert psychologist hired by opposing counsel in an actual court case. As was done in the Fox (Note 1), Loftus (1980b), Hosch, et al. (1980), and Weisser (Note 2) studies, the expert testimony was presented following the eyewitness testimony, as this is the order used most frequently in the actual courtroom setting.

The eyewitness videotapes and one of the psychologist expert testimony videotapes were the same as those used by Fox (Note 1) and Weisser (Note 2). These tapes have been rated by subject-jurors as very realistic and their use facilitated this second replication in a series of expert testimony studies. This was the first known study to simulate the adversarial use of psychologists providing expert testimony on the unreliability of eyewitness identification. Hypotheses were non-directional due to the exploratory nature of the study.
CHAPTER II
METHODS

Design

A 3 X 2 X 2 factorial design was used in this study. The factor of "eyewitness confidence" during testimony had two levels (high confidence vs. low confidence). The "expert testimony" variable had three levels: the no expert testimony (control) condition, relevant factors expert testimony only condition, and the relevant factors expert testimony plus opposing expert testimony condition. The sex of subject variable had two levels (male and female). Subjects were randomly assigned to serve in one of the six conditions, with twenty (20) subjects, including ten (10) males and ten (10) females, in each experimental condition. The design utilized, exclusive of the sex factor, is shown diagrammatically below:

<table>
<thead>
<tr>
<th>Eyewitness Confidence</th>
<th>Low Confidence</th>
<th>High Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control (no expert testimony)</td>
<td>n = 20</td>
<td>n = 20</td>
</tr>
<tr>
<td>Relevant Factors Expert Testimony Only</td>
<td>n = 20</td>
<td>n = 20</td>
</tr>
<tr>
<td>Relevant Factors Expert Testimony Plus Opposing Expert Testimony</td>
<td>n = 20</td>
<td>n = 20</td>
</tr>
</tbody>
</table>
Subjects

One-hundred twenty (sixty male and sixty female) introductory psychology student at the University of Montana volunteered to serve as subjects. Each received course credit for participation in the experiment.
Data Analysis

Analysis of variance was performed on the dependent measures employing Likert-type scales. When significant main effects were found for the expert testimony factor or when significant interaction effects were found, Newman-Keuls tests were subsequently performed, allowing for pairwise comparisons among the cells. For the single dichotomous question, the gunman versus innocent person decision, the chi-square test was performed. When significant results were found for the level of expert testimony factor, then Bonferroni tests, which allowed for comparisons among individual cells involved in the chi-square test, were subsequently performed.
Procedure

Subjects were randomly assigned to one of the six experimental conditions. Small group videotape viewing sessions were conducted at the Clinical Psychology Center on the University of Montana campus. Each session was conducted by an undergraduate psychology student who was blind to the experimental hypotheses. Subjects first received a written introduction to the eyewitness videotape (see Appendix 6) which provided information about the purpose of the study, facts pertinent to the crime being tried, and important points made in the defendant's previous testimony.

After subjects completed reading this brief introduction, subjects viewed one of the eyewitness testimony (high or low confidence) videotapes. Subsequently, subjects in the two control conditions completed a cover sheet (age, sex, year in college) and the dependent measures, since this was the only videotape they viewed. Participants in the expert testimony conditions and in the expert plus opposing expert testimony conditions were given, additionally, a written introduction to the expert testimony videotape (see Appendices 7 and 8) describing the experience and expertise of the testifying psychologist. Subjects in the expert plus opposing expert testimony condition then read a third introduction prior to viewing the opposing expert videotape. After completing the videotape viewings, subjects in the
experimental conditions filled out cover sheets and completed the dependent measures.
Eyewitness Testimony Videotapes

Common Characteristics of Eyewitness Videotapes

Both eyewitness videotapes were the same as those used by Fox (Note 1) and Weisser (Note 2). Both tapes pertain to the same crime, the robbery of a 7-11 convenience store and the murder of the store's clerk (see Appendices 1 and 2). The eyewitness to the crime, who was also the store manager, was working in the stockroom at the back of the store when he heard an argument and then a gunshot. He ran to the front of the store and saw two robbers emptying the cash register, and another holding a gun; his store clerk was lying on the floor, motionless. The gunman yelled to the other robbers to leave the store and then fired a shot at the eyewitness which narrowly missed. All three criminals ran out of the store, the gunman stumbling on his way out, and down the street to a car parked out of sight. The eyewitness briefly turned his attention to the murdered clerk prior to telephoning the police. He provided the police with a description of the crime sequence and the gunman. After a month, the eyewitness identified the defendant as the gunman at a one-on-one "showup" at the police station jail cell.

In both videotapes, the prosecution initially interrogated the eyewitness with simple, straightforward questions. Subsequently, the eyewitness was questioned by the defense attorney in a more challenging and confrontive tone which required more explicit and detailed answers.
Low Confidence Videotape (See Appendix 1)

In the low confidence videotape, the eyewitness was hesitant, uncertain, and inconsistent in his testimony. The witness conveyed a marked lack of confidence through the use of verbal qualifiers ("I guess....", "I think....", "If I'm not mistaken ...."), which have been shown empirically to portray low confidence (Wells and Lindsay, 1982). To further illustrate low confidence, the script for this videotape was written to include questioning forms (rising intonation at the end of declarative statements) and hesitation forms (e.g., "uh", "well", "you know") which have been shown to communicate a "powerless" style of speech (Erickson, Lind, Johnson, and O'Barr, 1978).

High Confidence Videotape (See Appendix 2)

In the high confidence videotape (the same male actor used in the low confidence videotape), the eyewitness was confident, self-assured, and consistent in his testimony. He used phrases which expressed his certainty, such as "I'm sure...", "I'm certain...", and "I could never forget...", instead of verbal qualifiers which communicated low confidence. His responses to questioning were straightforward and he confidently identified the defendant as the gunman.
Expert Testimony Videotapes

Relevant Factors Expert Testimony (See Appendix 3)

The videotape was the same as that used in the Fox (Note 1) and Weisser (Note 2) studies, and was originally derived from Wells, Linsday and Tousignant (1980). In this tape, the psychologist discussed twelve specific factors affecting eyewitness perception and memory that were highly relevant to the case being tried. These twelve factors are highlighted below:

1. "Physical" factors affecting eyewitness performance, such as distance of eyewitness from the criminal, lighting conditions, and the effects of rapid movements;
2. Length of observation of the criminal during the crime;
3. Length of time between witnessing a crime and recall of identification of the criminal;
4. Stress effects;
5. Tendency of eyewitness to overestimate the duration of a crime;
6. "Weapon focus", the presence of a weapon has distracting effects on the eyewitness;
7. Negative effects of a violent or emotionally loaded incident;
8. Effects of the number of criminals involved in the crime;

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9. Uniqueness vs. typicality of the criminal's face;
10. "Unconscious transference", where a person seen in one situation is confused with and recalled as a person seen in a second situation;
11. Effects of a biased lineup or "showup"; and
12. Effects of police pressure on an eyewitness.

The psychologist's testimony ended by summarizing some general aspects of eyewitness testimony and by providing a review of the twelve relevant factors listed above. The psychologist was first questioned by the defense lawyer, and then interrogated by the prosecuting attorney.

Opposing Psychologist Expert Testimony (See Appendix 4)

This videotape was similar to the Relevant Factors Expert Testimony videotape except that the psychologist provided specific factors affecting eyewitness perception and memory that cast doubt on the expert testimony provided by the first expert, and gave support to the notion that eyewitness testimony is generally reliable and useful. These factors included the following:

1. Eyewitness accuracy and viewing conditions;
2. Effects of eyewitness confidence;
3. Generalizability of eyewitness research;
4. Effects of staged crimes;
5. Procedural differences in identifications (lineups versus photo arrays);
6. Effects of the use of college students as subject-jurors;
7. Need for additional research;
8. Effects of using statistical averages to predict eyewitness accuracy (ignoring individual differences);
9. Positive effects of stress;
10. Unknown effects of multiple factors affecting eyewitness testimony;
11. "Weapon focus";
12. The effects of expert psychological testimony.

The psychologist's testimony ended by summarizing and reviewing the twelve opposing relevant factors concerning research in the area of eyewitness and expert testimony listed above. The psychologist was only questioned by the prosecuting attorney.
Dependent Measures (See Appendix 5)

A maximum of seventeen questions were employed as dependent measures; eleven questions for the control condition, fourteen questions for the expert testimony only condition, and seventeen questions for the expert testimony plus opposing expert testimony condition. First subjects were asked to indicate whether they believed the witness had identified the gunman or an innocent person using a dichotomous question (Wells, Ferguson, and Lindsay, 1981). Subjects were subsequently asked to rate (1) how confident they were of that decision on a ten-point Likert scale; (2) the probability of the defendant's guilt on a ten-point Likert scale; (3) how confident they thought the witness was in his ability to identify the gunman; (4) what percentage of people they would expect to make a correct identification under the circumstances described by the eyewitness; and (5) to what extent they believed they could generally tell from a witness's confidence in his testimony whether or not the eyewitness made an accurate identification (Wells, Lindsay, and Ferguson, 1979). Subjects were then asked to indicate on Likert-type scales the percentage of eyewitness testimony in general they thought was accurate (Hosch, Beck, and McIntyre, 1980). Additional ten-point Likert scale questions
(Fox, Note 1; Weisser, Note 2) asked subjects to assess how much they relied upon the eyewitness's description of the crime, the eyewitness's confidence, and the psychologist's or opposing psychologist's expert testimony in deciding whether they thought the eyewitness had identified the gunman or an innocent person (the questions regarding expert testimony were not given to the two control conditions). Likert-scale questions also asked subjects to rate the realism of the eyewitness videotapes and the expert testimony videotapes (not given to the two control conditions). Subjects in the expert testimony conditions were asked if they recognized the psychologists and how much each psychologist influenced his or her decision about whether the eyewitness had identified the gunman or an innocent person. Finally, a question asked the subject-jurors to describe in their own words how they decided that the eyewitness had identified the gunman or an innocent person (Fox, Note 1; Weisser, Note 2).
CHAPTER III
RESULTS

Gunman vs. Innocent Person Decision

65% of subjects assigned to the Control conditions believed that the eyewitness accurately chose the gunman; versus 15% of subjects exposed to relevant factors Expert Testimony Only, and 53% of subjects viewing Expert Plus Opposing Expert Testimony videotapes.

42% of subjects exposed to the High Confidence eyewitness conditions believed the eyewitness had accurately identified the gunman, compared to 47% of subjects who viewed the Low Confidence eyewitness.

The following table summarizes the percentage of subjects in each condition who believed that the eyewitness accurately identified the gunman:

<table>
<thead>
<tr>
<th></th>
<th>High Confidence Eyewitness</th>
<th>Low Confidence Eyewitness</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Expert Testimony</td>
<td>50%</td>
<td>80%</td>
</tr>
<tr>
<td>Expert Testimony Only</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>Expert Testimony Plus</td>
<td>45%</td>
<td>60%</td>
</tr>
</tbody>
</table>

57
Chi squares were performed to test the null hypothesis that there is no association between the subjects' experimental condition and the proportion of subjects who believed the eyewitness had identified the gunman or an innocent person. Results of the chi square analysis suggest that there is a dependence between subjects' condition and who they identified. More specifically, in the Expert Plus Opposing Expert conditions, approximately equivalent numbers of subjects believed that the eyewitness had identified the gunman and an innocent person. However, a larger proportion of subjects in the Expert Only conditions believed the eyewitness had identified the innocent person; while in the Control conditions, the majority of subjects believed the eyewitness had identified the gunman. The following 3 X 2 table summarizes these results:

Table 2: Chi Square Analysis - Condition by Gunman vs. Innocent Person Decision

<table>
<thead>
<tr>
<th>Condition</th>
<th>Gunman</th>
<th>Innocent Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Expert Testimony (control)</td>
<td>26</td>
<td>14</td>
</tr>
<tr>
<td>Expert Testimony Only</td>
<td>6</td>
<td>34</td>
</tr>
<tr>
<td>Expert Testimony Plus Opposing</td>
<td>21</td>
<td>19</td>
</tr>
<tr>
<td>Expert Testimony Opposing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ x^2 = 21.97, \text{df} = 2, p < .05 \]
Because the chi square for Condition was significant, subsequent chi square analyses were performed to determine which Conditions differed significantly from each other in regard to the gunman versus innocent person decision and were tested at Bonferroni levels of significance. The chi square tests revealed that there is a significant difference between the Expert Only and the Expert Plus Opposing Expert Testimony Conditions; and between the Control (No Expert Testimony) and Expert Only Conditions. The Control and Expert Plus Opposing Expert Testimony Conditions did not differ significantly from each other. The following 2 X 2 tables (3, 4 and 5) summarize these results:

Table 3: Chi Square Analysis - No Expert Testimony (Control) and Expert Testimony Only Conditions by Gunman versus Innocent Person decision

<table>
<thead>
<tr>
<th></th>
<th>Gunman</th>
<th>Innocent Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Expert Testimony</td>
<td>26</td>
<td>14</td>
</tr>
<tr>
<td>Expert Testimony</td>
<td>6</td>
<td>34</td>
</tr>
</tbody>
</table>

\[ x^2 = 20.83, df = 1, p < .05 \text{ Bonferroni} \]

Table 4: Chi Square Analysis - No Expert Testimony (Control) and Expert Plus Opposing Expert Testimony Conditions by Gunman versus Innocent Person Decision

<table>
<thead>
<tr>
<th></th>
<th>Gunman</th>
<th>Innocent Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Expert Testimony</td>
<td>26</td>
<td>14</td>
</tr>
<tr>
<td>Expert Plus Opposing Expert</td>
<td>21</td>
<td>19</td>
</tr>
</tbody>
</table>

\[ x^2 = 1.29, df = 1, p > .05 \text{ Bonferroni} \]
Table 5: Chi Square Analysis - Expert Testimony Only and Expert Plus Opposing Expert Testimony Conditions by Gunman versus Innocent Person Decision

<table>
<thead>
<tr>
<th></th>
<th>Gunman</th>
<th>Innocent Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expert Testimony Only</td>
<td>6</td>
<td>34</td>
</tr>
<tr>
<td>Expert Plus Opposing Expert</td>
<td>21</td>
<td>19</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 12.58, \text{ df} = 1, \text{ p} < .05 \text{ Bonferroni} \]
Another chi square analysis was performed to test the null hypothesis that there is no relationship between level of confidence (high or low) of the eyewitness the subjects viewed and whether they believed the eyewitness had identified the gunman or an innocent person. The chi square results provide support for the null hypothesis. The following 2 X 2 table summarizes these results:

Table 6: Chi Square Analysis - Level of Confidence by Gunman versus Innocent Person Decision

<table>
<thead>
<tr>
<th></th>
<th>Gunman</th>
<th>Innocent Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Confidence</td>
<td>25</td>
<td>35</td>
</tr>
<tr>
<td>High Confidence</td>
<td>28</td>
<td>32</td>
</tr>
</tbody>
</table>

\[ x^2 = 0.30, df = 1, p > 0.05 \]

An additional chi square was executed to test the null hypothesis that there is no relationship between the frequency of identifying the gunman or an innocent person based upon the sex of subject. The chi square results provide support for the null hypothesis. The following 2 X 2 table summarizes these results:

Table 7: Chi Square Analysis - Sex of Subject by Gunman versus Innocent Person Decision

<table>
<thead>
<tr>
<th></th>
<th>Gunman</th>
<th>Innocent Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Subjects</td>
<td>31</td>
<td>29</td>
</tr>
<tr>
<td>Female Subjects</td>
<td>22</td>
<td>38</td>
</tr>
</tbody>
</table>

\[ x^2 = 2.74, df = 1, p > 0.05 \]
Decision Confidence

Subjects were asked to rate their confidence in their decision as to whether the eyewitness identified the gunman or an innocent person. Mean scores on a ten-point Likert scale for each of the twelve individual groups are provided below in Table 8 (the higher the score, the greater the level of decision confidence indicated). The mean confidence rating for the Control conditions was 5.95; Expert Testimony Only conditions was 6.83; Expert Plus Opposing Expert Testimony conditions was 6.15. Subjects in the Low Confidence conditions obtained a mean confidence rating of 6.03; while those in the High Confidence conditions reported a mean confidence rating of 6.58. Males reported a mean confidence rating of 6.5, while females' mean confidence rating was 6.12. A 3 X 2 X 2 (condition by confidence by sex of subject): analysis of variance revealed no

| Table 8: Means for Each Group on Subjects' Ten-Point Likert Scale Ratings of their Confidence in the Gunman versus Innocent Person Decision (10 = absolutely confident, 1 = not at all confident) |
|---------------------------------|-----------------|-----------------|
|                                 | Low Confidence Eyewitness | High Confidence Eyewitness |
|                                 | Male | Female | Male | Female |
| No Expert Testimony            | 5.0  | 6.3    | 6.0  | 6.5    |
| Expert Testimony Only          | 7.4  | 5.6    | 7.1  | 7.2    |
| Expert Testimony Plus          | 6.4  | 5.5    | 7.1  | 5.6    |
   Opposing Expert Testimony      |      |        |      |        |
Table 9: 3 X 2 X 2 Analysis of variance of ratings of confidence on the gunman versus innocent person decision

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>16.82</td>
<td>2</td>
<td>8.41</td>
<td>1.89</td>
<td>.15</td>
</tr>
<tr>
<td>Confidence</td>
<td>9.08</td>
<td>1</td>
<td>9.08</td>
<td>2.04</td>
<td>.15</td>
</tr>
<tr>
<td>Condition X Confidence</td>
<td>0.35</td>
<td>2</td>
<td>0.18</td>
<td>0.04</td>
<td>.96</td>
</tr>
<tr>
<td>Sex of Subject</td>
<td>4.41</td>
<td>1</td>
<td>4.41</td>
<td>0.99</td>
<td>.68</td>
</tr>
<tr>
<td>Condition X Sex of S</td>
<td>25.32</td>
<td>2</td>
<td>12.67</td>
<td>2.85</td>
<td>.06</td>
</tr>
<tr>
<td>Confidence X Sex of S</td>
<td>0.21</td>
<td>1</td>
<td>0.21</td>
<td>0.05</td>
<td>.82</td>
</tr>
<tr>
<td>Condition X Confidence X Sex of S</td>
<td>11.32</td>
<td>2</td>
<td>5.66</td>
<td>1.27</td>
<td>.28</td>
</tr>
<tr>
<td>Error</td>
<td>480.10</td>
<td>108</td>
<td>4.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>547.59</td>
<td>119</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

significant effects, although the Condition by Sex of Subject interaction approached significance (P = .06).

Table 9 provides the ANOVA data.
Guilt

Subjects were asked to rate the probability of the defendant's guilt on a ten-point Likert scale (1 = definitely not guilty, 10 = definitely guilty). Mean scores for each group are shown in Table 10. The mean rating of guilt in the Control conditions was 5.63; in the Expert Testimony Only conditions, the mean was 3.80; and the Expert Plus Opposing Expert Testimony conditions reported a mean of 5.88. Mean guilt rating for subjects in the Low Confidence conditions was 5.15, compared to 5.05 in the High Confidence conditions. Mean guilt rating for Males was 5.43, while for Females it was 4.77 (See Table 10). A 3 X 2 X 2 analysis of variance revealed a significant main effect for condition. See Table 11 for the ANOVA. Subsequent Newman-Keuls pairwise comparisons found that the Expert Only groups' guilt rating (\( \bar{X} = 3.80, n = 40 \)) differed significantly from both the Control groups' (\( \bar{X} = 5.63, n = 40 \)) and Expert Plus Opposing Expert Testimony groups' (\( \bar{X} = 5.86, n = 40 \)) guilt ratings, which did not differ significantly from each other. In addition, the main effect for Sex of Subject (\( p = .0969 \)) and the Condition by Confidence interaction (\( p = .0649 \)) approached significance.
Table 10: Means for each group on subjects' ten-point Likert scale ratings of the probability of the defendant's guilt (1 = definitely not guilty, 10 = definitely guilty)

<table>
<thead>
<tr>
<th></th>
<th>Low Confidence Eyewitness</th>
<th>High Confidence Eyewitness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>No Expert Testimony</td>
<td>6.2</td>
<td>6.2</td>
</tr>
<tr>
<td>Expert Testimony Only</td>
<td>4.2</td>
<td>3.7</td>
</tr>
<tr>
<td>Expert Plus Opposing</td>
<td>5.5</td>
<td>5.1</td>
</tr>
</tbody>
</table>

Table 11: Analysis of variance of ratings of probability of defendant's guilt

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>102.65</td>
<td>2</td>
<td>51.33</td>
<td>10.54</td>
<td>.0002</td>
</tr>
<tr>
<td>Confidence</td>
<td>.30</td>
<td>1</td>
<td>0.30</td>
<td>0.06</td>
<td>.7999</td>
</tr>
<tr>
<td>Condition X Confidence</td>
<td>27.05</td>
<td>2</td>
<td>13.53</td>
<td>2.78</td>
<td>.0649</td>
</tr>
<tr>
<td>Sex of Subject</td>
<td>13.33</td>
<td>1</td>
<td>13.33</td>
<td>2.74</td>
<td>.0969</td>
</tr>
<tr>
<td>Condition X Sex of S</td>
<td>2.32</td>
<td>2</td>
<td>1.16</td>
<td>0.24</td>
<td>.7916</td>
</tr>
<tr>
<td>Confidence X Sex of S</td>
<td>4.03</td>
<td>1</td>
<td>4.03</td>
<td>0.83</td>
<td>.6322</td>
</tr>
<tr>
<td>Condition X Confidence X Sex of S</td>
<td>3.32</td>
<td>2</td>
<td>1.66</td>
<td>0.34</td>
<td>.7172</td>
</tr>
<tr>
<td>Error</td>
<td>525.80</td>
<td>108</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>678.80</td>
<td>119</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Manipulation Check - Eyewitness Confidence Ratings

Subjects were asked to indicate on a ten-point Likert scale how confident the eyewitness seemed to be in his ability to identify the gunman (1 = not at all confident, 10 = definitely confident). Mean scores for each group are portrayed in Table 12. The eyewitness was rated as significantly more confident in the High Confidence conditions ($\bar{X} = 9.03$) than in the Low Confidence conditions ($\bar{X} = 4.75$). Significant differences between the two groups indicate that the manipulation was effective. A $3 \times 2 \times 2$ analysis of variance revealed a significant main effect for Confidence and near significant Condition by Confidence ($p = .053$) and Confidence by Sex of Subject ($p = .069$) effects. See Figures 1, 2 and 3 for the graphs of the effects; see Table 13 for the ANOVA.

Figure 1: Graph of the effect of condition and confidence for the manipulation check - eyewitness confidence ratings
Figure 2: Graph of the effect of condition and confidence for the manipulation check - eyewitness confidence ratings

<table>
<thead>
<tr>
<th>Condition</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Expert Testimony</td>
<td>5.4</td>
<td>4.9</td>
</tr>
<tr>
<td>Expert Testimony Only</td>
<td>3.6</td>
<td>5.1</td>
</tr>
<tr>
<td>Expert Testimony Plus Opposing Expert</td>
<td>4.9</td>
<td>4.6</td>
</tr>
</tbody>
</table>

Table 12: Means for each group on subjects' ten-point Likert scale ratings of the degree of confidence of the eyewitness

<table>
<thead>
<tr>
<th>Low Confidence Eyewitness</th>
<th>Male</th>
<th>Female</th>
<th>High Confidence Eyewitness</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Expert Testimony</td>
<td>5.4</td>
<td>4.9</td>
<td>9.5</td>
<td>6.7</td>
<td></td>
</tr>
<tr>
<td>Expert Testimony Only</td>
<td>3.6</td>
<td>5.1</td>
<td>9.9</td>
<td>9.2</td>
<td></td>
</tr>
<tr>
<td>Expert Testimony Plus</td>
<td>4.9</td>
<td>4.6</td>
<td>9.5</td>
<td>9.4</td>
<td></td>
</tr>
<tr>
<td>Opposing Expert</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 13: 3 X 2 X 2 analysis of variance of eyewitness confidence ratings

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>4.72</td>
<td>2</td>
<td>2.36</td>
<td>2.36</td>
<td>.61158</td>
</tr>
<tr>
<td>Confidence</td>
<td>550.41</td>
<td>1</td>
<td>550.41</td>
<td>117.50</td>
<td>.00001</td>
</tr>
<tr>
<td>Condition X Confidence</td>
<td>27.92</td>
<td>2</td>
<td>13.96</td>
<td>2.98</td>
<td>.05344</td>
</tr>
<tr>
<td>Sex of Subject</td>
<td>7.01</td>
<td>1</td>
<td>7.01</td>
<td>1.50</td>
<td>.22165</td>
</tr>
<tr>
<td>Condition X Sex of S</td>
<td>22.22</td>
<td>2</td>
<td>11.11</td>
<td>2.37</td>
<td>.09616</td>
</tr>
<tr>
<td>Confidence X Sex of S</td>
<td>15.41</td>
<td>1</td>
<td>15.41</td>
<td>3.29</td>
<td>.96893</td>
</tr>
<tr>
<td>Condition X Confidence X Sex of S</td>
<td>10.02</td>
<td>2</td>
<td>5.01</td>
<td>1.07</td>
<td>.34775</td>
</tr>
<tr>
<td>Error</td>
<td>505.90</td>
<td>108</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1143.59</td>
<td>119</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 3: Graph of the effect of confidence and sex of subjects for the manipulation check - eyewitness confidence ratings

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Estimated General Percentages of Correct Identifications

Subjects were asked to make estimates of the percentage of people who would make a correct identification under the circumstances described by the eyewitness on a 0% - 100% scale. Table 14 provides a summary of the individual group means. Subjects in the Control conditions gave mean estimations of the percentage of people who would make a correct identification under the circumstances described of 51.25%, versus 32.75% in the Expert Only conditions, and 49.80% in the Expert Plus Opposing Expert conditions. Subjects in the Low Confidence conditions estimated that 45.5% of the population would make a correct identification under the given circumstances, versus 43.7% in the High Confidence conditions. Males' mean estimation was 54.33% compared to 34.87% for Females. A 3 X 2 X 2 analysis of variance revealed a significant main effect for Sex of Subject; Males gave significantly higher ratings than did Females. See Table 15 for the ANOVA. An interaction of condition by level of confidence indicates that under the Control conditions, subjects exposed to the High Confidence eyewitness gave smaller percentage estimates of the people who would make a correct identification under circumstances similar to those described by the eyewitness compared to subjects exposed to the Low Confidence witness, who gave higher percentage estimates of correct identifica-
tions under similar circumstances. In the Expert Only conditions, High and Low Confidence groups differed only slightly, and both provided low estimates of the percentage of people who would make a correct identification under the circumstances described. In the Expert Plus Opposing Expert Testimony conditions, High Confidence groups gave higher estimates of the percentage of people who would make a correct identification under the circumstances described by the eyewitness than did Low Confidence groups. Subsequent Newman-Keuls pairwise comparisons revealed that only the following specific pairs of means differed significantly: Low Confidence Control differed significantly from High Confidence Expert Only and Low Confidence Expert Only; High Confidence Expert Plus Opposing Expert differed significantly from High Confidence and Low Confidence Expert Only conditions.

Table 14: Mean percentages for each group on subjects' Likert-type estimations of the percentage of people who would make a correct identification under the circumstances described by the eyewitness

<table>
<thead>
<tr>
<th></th>
<th>Low Confidence</th>
<th>High Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>No Expert Testimony</td>
<td>68%</td>
<td>50%</td>
</tr>
<tr>
<td>Expert Testimony Only</td>
<td>39%</td>
<td>25%</td>
</tr>
<tr>
<td>Expert Plus Opposing</td>
<td>54%</td>
<td>37%</td>
</tr>
<tr>
<td>Expert Testimony</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Table 15: 3 x 2 x 2 analysis of variance of estimated general percentage of correct identifications

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>8467.40</td>
<td>2</td>
<td>4233.70</td>
<td>9.24</td>
<td>0.0040</td>
</tr>
<tr>
<td>Confidence</td>
<td>97.20</td>
<td>1</td>
<td>97.20</td>
<td>0.21</td>
<td>0.65101</td>
</tr>
<tr>
<td>Condition X Confidence</td>
<td>3067.40</td>
<td>2</td>
<td>1533.70</td>
<td>3.35</td>
<td>0.03773</td>
</tr>
<tr>
<td>Sex of Subject</td>
<td>11368.50</td>
<td>1</td>
<td>11368.50</td>
<td>24.80</td>
<td>0.0003</td>
</tr>
<tr>
<td>Condition X Sex of S</td>
<td>180.07</td>
<td>2</td>
<td>90.03</td>
<td>0.20</td>
<td>0.82368</td>
</tr>
<tr>
<td>Confidence X Sex of S</td>
<td>294.53</td>
<td>1</td>
<td>294.53</td>
<td>0.64</td>
<td>0.56980</td>
</tr>
<tr>
<td>Condition X Confidence X Sex of Subject</td>
<td>28.07</td>
<td>2</td>
<td>14.03</td>
<td>0.03</td>
<td>0.97036</td>
</tr>
<tr>
<td>Error</td>
<td>49501.60</td>
<td>108</td>
<td>458.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>73004.80</td>
<td>119</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 4: Graph of interaction of condition and confidence at estimated general percentage of correct identifications

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Belief in Eyewitness Confidence as an Indicator of Accuracy

Subjects were asked to indicate on a ten-point Likert scale the extent to which one can tell from an eyewitness' confidence whether or not the eyewitness made a correct identification (1 = can almost never tell if eyewitness is accurate, 10 = can almost always tell if eyewitness is accurate). Subjects in the Control conditions reported a mean rating of 5.95, compared to those in the Expert Only conditions, with a mean rating of 4.35, and those in the Expert Plus Opposing Expert Testimony condition, reporting a mean rating of 5.83. Subjects in the Low Confidence conditions gave a mean rating of 5.45 versus 5.30 in the High Confidence conditions. Males mean rating of belief in eyewitness confidence as an indicator of accuracy was 5.48, compared to 5.27 for Females. See Table 16 for the means of the individual groups. A 3 X 2 X 2 analysis of variance revealed a significant main effect for subjects' condition. Subsequent Newman-Keuls pairwise comparisons indicated that there were no significant differences among any pair of groups. See Table 17 for the ANOVA.
Table 16: Means for each groups on subjects' ten-point Likert scale ratings of the extent to which eyewitness' confidence can be used to infer eyewitness accuracy (1 = can almost never tell if eyewitness is accurate, 10 = can almost always tell if eyewitness is accurate)

<table>
<thead>
<tr>
<th></th>
<th>Low Confidence Eyewitness</th>
<th>High Confidence Eyewitness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>No Expert Testimony</td>
<td>5.90</td>
<td>6.10</td>
</tr>
<tr>
<td>Expert Testimony Only</td>
<td>4.30</td>
<td>5.10</td>
</tr>
<tr>
<td>Expert Plus Opposing</td>
<td>5.80</td>
<td>5.50</td>
</tr>
</tbody>
</table>

Table 17: 3 X 2 X 2 analysis of variance of belief in eyewitness confidence as an indicator of accuracy

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>174.05</td>
<td>2</td>
<td>87.03</td>
<td>3.08</td>
<td>.0485</td>
</tr>
<tr>
<td>Confidence</td>
<td>33.08</td>
<td>1</td>
<td>33.08</td>
<td>1.17</td>
<td>.2813</td>
</tr>
<tr>
<td>Condition X Confidence</td>
<td>51.45</td>
<td>2</td>
<td>25.73</td>
<td>0.91</td>
<td>.5921</td>
</tr>
<tr>
<td>Sex of Subject</td>
<td>37.41</td>
<td>2</td>
<td>18.71</td>
<td>1.32</td>
<td>.2510</td>
</tr>
<tr>
<td>Condition X Sex of S</td>
<td>67.92</td>
<td>2</td>
<td>33.96</td>
<td>1.20</td>
<td>.3043</td>
</tr>
<tr>
<td>Confidence X Sex of S</td>
<td>6.08</td>
<td>1</td>
<td>6.08</td>
<td>0.22</td>
<td>.6488</td>
</tr>
<tr>
<td>Condition X Confidence X Sex of Subject</td>
<td>36.65</td>
<td>2</td>
<td>18.33</td>
<td>0.65</td>
<td>.5295</td>
</tr>
</tbody>
</table>

Error 3050.70 108 28.25

Total 2457.33
Estimated General Percentage of Accurate Eyewitness Testimony

Subjects were asked to estimate on a Likert-type scale the general percentage of eyewitness testimony that is accurate. Subjects in the Control conditions estimated that 61% of eyewitness testimony is accurate, compared to 47.5% in the Expert Only conditions and 57.25% in the Expert Plus Opposing Expert conditions (see Table 18 for the means of the individual groups). Subjects in the Low Confidence conditions estimated that 55.83% of eyewitness testimony is accurate, versus 54.67% in the High Confidence conditions. Male subjects estimated that 61.67% of eyewitness testimony is accurate, compared to 48.83% for Female subjects. A 3 X 2 X 2 analysis of variance revealed a significant main effect for condition. Subsequent Newman-Keuls pairwise comparisons indicate that the Control groups (X̄ = 61.0, n = 40) differ significantly from the Expert Only groups (X̄ = 47.5, n = 40) but not from the Expert Plus Opposing Expert groups (X̄ = 57.25, n = 40); and that the Expert Only groups differ significantly from the Expert Plus Opposing Expert groups. In addition, a significant main effect for sex of subject was revealed, with Males giving significantly higher percentages (X̄ = 61.7%) that eyewitness testimony is accurate than Females (X̄ = 48.83). See Table 19 for the ANOVA.
Table 18: Means for each group on subjects' Likert-type estimations of the general percentage of accurate eyewitness testimony

<table>
<thead>
<tr>
<th></th>
<th>Low Confidence Eyewitness</th>
<th>High Confidence Eyewitness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>No Expert Testimony</td>
<td>72%</td>
<td>56%</td>
</tr>
<tr>
<td>Expert Testimony Only</td>
<td>55%</td>
<td>41%</td>
</tr>
<tr>
<td>Expert Testimony Plus</td>
<td>58%</td>
<td>53%</td>
</tr>
</tbody>
</table>

Table 19: 3 X 2 X 2 analysis of variance of estimated general percentage of accurate eyewitness testimony

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>3885.00</td>
<td>2</td>
<td>1942.50</td>
<td>4.80</td>
<td>0.0101</td>
</tr>
<tr>
<td>Confidence</td>
<td>40.83</td>
<td>1</td>
<td>40.83</td>
<td>.10</td>
<td>.7500</td>
</tr>
<tr>
<td>Condition X Confidence</td>
<td>451.67</td>
<td>2</td>
<td>224.83</td>
<td>.56</td>
<td>.5795</td>
</tr>
<tr>
<td>Sex of Subject</td>
<td>4940.83</td>
<td>1</td>
<td>4940.83</td>
<td>12.20</td>
<td>.0010</td>
</tr>
<tr>
<td>Condition X Sex of S</td>
<td>211.67</td>
<td>2</td>
<td>105.83</td>
<td>.26</td>
<td>.7740</td>
</tr>
<tr>
<td>Confidence X Sex of S</td>
<td>40.83</td>
<td>1</td>
<td>40.83</td>
<td>.10</td>
<td>.7500</td>
</tr>
<tr>
<td>Condition X Confidence X Sex of S</td>
<td>291.67</td>
<td>2</td>
<td>145.83</td>
<td>.36</td>
<td>.7037</td>
</tr>
<tr>
<td>Error</td>
<td>43730.00</td>
<td>108</td>
<td>404.91</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total                        | 53592.50       | 119|              |     |                   |
Eyewitness' Description of Crime as Basis for Gunman/Innocent Person Decision

Subjects were asked to indicate on a ten-point Likert scale how much they based their gunman versus innocent person decision on the eyewitness' description of the crime (1 = did not base decision on eyewitness' description of the crime at all, 10 = based decision largely upon eyewitness' description of the crime). Mean scores for individual groups are displayed in Table 20. Control group subjects gave mean ratings of 6.98; mean for the Expert Only subjects was 6.40; and mean for the Expert Plus Opposing Expert Testimony groups was 6.725. The mean of the Low Confidence groups was 6.73, and for the High Confidence groups it was 6.67. For Males, the mean was 7.03, versus 6.37 for Females. A 3 X 2 X 2 analysis of variance revealed a significant interaction of Condition by Confidence by Sex of Subject, and a near significant (p = .056) effect for Sex of Subject. However, subsequent Newman-Keuls pairwise comparisons revealed no significant differences among any pair of groups. The interaction is portrayed in Figure 5. The ANOVA is displayed in Table 21.
Table 20: Means for each group on subjects' ten-point Likert scale ratings of how much they based their gunman versus innocent person decision on the eyewitness' description of the crime (10 = based decision largely upon eyewitness' description of the crime)

<table>
<thead>
<tr>
<th></th>
<th>Low Confidence Eyewitness</th>
<th>High Confidence Eyewitness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>No Expert Testimony (Control)</td>
<td>7.0</td>
<td>7.6</td>
</tr>
<tr>
<td>Expert Testimony Only</td>
<td>8.0</td>
<td>5.3</td>
</tr>
<tr>
<td>Expert Testimony Plus</td>
<td>6.7</td>
<td>5.8</td>
</tr>
</tbody>
</table>

Opposing Expert Testimony

Figure 5: Graph of interaction of condition by confidence by sex of subject at eyewitness' description of crime as basis for gunman/innocent person decision

---

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Table 21  
3 x 2 x 2 analysis of variance of description of crime as a basis of gunman/innocent person decision (10 = based decision largely upon eyewitness' description of the crime, 1 = did not base decision on eyewitness' description of the crime at all)

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>6.65</td>
<td>2</td>
<td>3.33</td>
<td>.91</td>
<td>.5902</td>
</tr>
<tr>
<td>Confidence</td>
<td>.13</td>
<td>1</td>
<td>.13</td>
<td>.04</td>
<td>.8435</td>
</tr>
<tr>
<td>Condition X Confidence</td>
<td>15.62</td>
<td>2</td>
<td>7.81</td>
<td>2.13</td>
<td>.1220</td>
</tr>
<tr>
<td>Sex of Subject</td>
<td>13.33</td>
<td>1</td>
<td>13.33</td>
<td>3.63</td>
<td>.0561</td>
</tr>
<tr>
<td>Condition X Sex of S</td>
<td>15.62</td>
<td>2</td>
<td>7.81</td>
<td>2.13</td>
<td>.1220</td>
</tr>
<tr>
<td>Confidence X Sex of S</td>
<td>3.33</td>
<td>1</td>
<td>3.33</td>
<td>.91</td>
<td>.6553</td>
</tr>
<tr>
<td>Condition X Confidence X Sex of S</td>
<td>24.12</td>
<td>2</td>
<td>12.06</td>
<td>3.29</td>
<td>.03996</td>
</tr>
<tr>
<td>Error</td>
<td>396.40</td>
<td>108</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>475.20</td>
<td>119</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Eyewitness Confidence As Bases of Gunman/Innocent Person Decision

Subjects were asked to indicate on a ten-point Likert scale how much their gunman versus innocent person decision was based on the eyewitness' confidence in his testimony (1 = did not base decision on the eyewitness' confidence at all, 10 = based decision largely upon the eyewitness' confidence). Subjects in the Control conditions (\( \bar{X} = 6.03 \)) and Expert Plus Opposing Expert conditions (\( \bar{X} = 5.98 \)) gave higher mean ratings than did subjects in the Expert Only conditions (\( \bar{X} = 4.60 \)). Subjects exposed to Low Confidence videotapes based their decision on the confidence of the eyewitness more (\( \bar{X} = 5.93 \)) than subjects in the High Confidence conditions (\( \bar{X} = 5.13 \)), although this difference was not significant. Males (\( \bar{X} = 5.98 \)) gave higher mean ratings on this measure than did Females (\( \bar{X} = 5.08 \)). See Table 22 for the means of the individual groups. A 3 X 2 X 2 analysis of variance revealed a significant main effect for Condition; subjects in both Control and Expert Plus Opposing Expert conditions gave higher mean ratings of how much they based their gunman versus innocent
person decision on eyewitness confidence than subjects in the Expert Only conditions. The Confidence ($p = .08$) and Sex of Subject ($p = .051$) effects approached significance. See Table 23 for the ANOVA. Subsequent Newman-Keuls pairwise comparison indicated that this effect was due to the subjects in the Control and Expert Plus Opposing Expert conditions basing their decision on eyewitness confidence significantly more than subjects in the Expert Only groups; Control and Expert Plus Opposing Expert Testimony groups did not differ significantly from each other.

Table 22: Means for each group on subjects' ten-point Likert scale ratings of how much they based their gunman vs. innocent person decision upon the eyewitness' confidence in his testimony (10 = based decision largely upon the eyewitness' confidence)

<table>
<thead>
<tr>
<th></th>
<th>Low Confidence Eyewitness</th>
<th>High Confidence Eyewitness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>No Expert Testimony</td>
<td>6.6</td>
<td>5.9</td>
</tr>
<tr>
<td>Expert Testimony Only</td>
<td>6.7</td>
<td>4.4</td>
</tr>
<tr>
<td>Expert Plus Opposing Expert Testimony</td>
<td>6.5</td>
<td>5.5</td>
</tr>
</tbody>
</table>
Table 23: 3 X 2 X 2 analysis of variance of eyewitness confidence as basis of gunman vs. innocent person decision

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>52.317</td>
<td>2</td>
<td>26.158</td>
<td>4.09</td>
<td>.0190</td>
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<tr>
<td>Confidence</td>
<td>19.200</td>
<td>1</td>
<td>19.200</td>
<td>3.00</td>
<td>.0823</td>
</tr>
<tr>
<td>Condition X Confidence</td>
<td>18.950</td>
<td>2</td>
<td>9.475</td>
<td>1.48</td>
<td>.2306</td>
</tr>
<tr>
<td>Sex of Subject</td>
<td>24.300</td>
<td>1</td>
<td>24.300</td>
<td>3.80</td>
<td>.0509</td>
</tr>
<tr>
<td>Condition X Sex of S</td>
<td>1.550</td>
<td>2</td>
<td>0.775</td>
<td>0.12</td>
<td>.0886</td>
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<tr>
<td>Confidence X Sex of S</td>
<td>5.633</td>
<td>1</td>
<td>5.633</td>
<td>0.88</td>
<td>.6474</td>
</tr>
<tr>
<td>Condition X Confidence X Sex of S</td>
<td>6.717</td>
<td>2</td>
<td>3.358</td>
<td>0.53</td>
<td>.5988</td>
</tr>
<tr>
<td>Error</td>
<td>691.200</td>
<td>108</td>
<td>6.400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>819.867</td>
<td>119</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Eyewitness Testimony - Realism Ratings

Subjects were asked to rate their agreement on a ten-point Likert scale with the following statement: "The film presented a realistic example of an eyewitness testimony" (1 = strongly disagree, 10 = strongly agree). Mean realism ratings were sufficiently high across groups, with an overall mean of 6.43 (n = 120); the means of the individual groups are displayed in Table 24. A 3 X 2 X 2 analysis of variance of subjects' realism ratings revealed no significant differences among the cells, although the Condition effect approached significance (p = .056). See Table 25 for the ANOVA.

Table 24: Means for each group on subjects' ten-point Likert scale ratings of their agreement with the statement that the videotape presented a realistic example of eyewitness testimony (1 = strongly disagree, 10 = strongly agree)

<table>
<thead>
<tr>
<th></th>
<th>Low Confidence Eyewitness</th>
<th>High Confidence Eyewitness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>No Expert Testimony</td>
<td>7.2</td>
<td>6.8</td>
</tr>
<tr>
<td>Expert Testimony Only</td>
<td>7.6</td>
<td>7.0</td>
</tr>
<tr>
<td>Expert Testimony Plus</td>
<td>6.3</td>
<td>5.9</td>
</tr>
<tr>
<td>Opposing Expert Testimony</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 25: 3 X 2 X 2 analysis of variance of eyewitness testimony realism ratings for individual groups

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>35.22</td>
<td>2</td>
<td>17.61</td>
<td>2.94</td>
<td>.0555</td>
</tr>
<tr>
<td>Confidence</td>
<td>16.13</td>
<td>1</td>
<td>16.13</td>
<td>2.69</td>
<td>.0997</td>
</tr>
<tr>
<td>Condition X Confidence</td>
<td>1.82</td>
<td>2</td>
<td>.91</td>
<td>.15</td>
<td>.8599</td>
</tr>
<tr>
<td>Sex of Subject</td>
<td>17.63</td>
<td>1</td>
<td>17.63</td>
<td>2.94</td>
<td>.0852</td>
</tr>
<tr>
<td>Condition X Sex of S</td>
<td>2.62</td>
<td>2</td>
<td>1.31</td>
<td>.22</td>
<td>.8065</td>
</tr>
<tr>
<td>Confidence X Sex of S</td>
<td>2.70</td>
<td>1</td>
<td>2.70</td>
<td>.45</td>
<td>.5105</td>
</tr>
<tr>
<td>Condition X Confidence X Sex of Subject</td>
<td>4.55</td>
<td>2</td>
<td>2.28</td>
<td>.38</td>
<td>.6904</td>
</tr>
<tr>
<td>Error</td>
<td>646.80</td>
<td>108</td>
<td>5.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>727.47</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Expert Testimony As a Basis of Subjects' Gunman/Innocent Person Decision

Subjects in the Expert Testimony groups were asked to indicate how much they based their gunman versus innocent person decision upon the expert testimony on a ten-point Likert scale (1 = did not base decision on the psychologist's expert testimony at all, 10 = based decision largely upon the psychologist's expert testimony). Subjects in the Expert Testimony Only conditions gave mean basis of decision ratings of 6.23, compared to mean ratings of 5.18 in the Expert Plus Opposing Expert Testimony conditions. See Table 26 for the means of the individual groups. A 2 X 2 X 2 analysis of variance revealed no significant differences among any of the cells, although the Condition effect approached significance (p = .06) as did the Confidence effect (p = .06). See Table 24 for the ANOVA.

Table 26: Means for each group on subjects' ten-point Likert scale ratings of how much they based their gunman vs. innocent person decision upon expert testimony (10 = based decision largely upon the psychologist's expert testimony)

<table>
<thead>
<tr>
<th></th>
<th>Low Confidence Eyewitness</th>
<th>High Confidence Eyewitness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Expert Testimony Only</td>
<td>5.6</td>
<td>5.8</td>
</tr>
<tr>
<td>Expert Plus Opposing Expert Testimony</td>
<td>5.3</td>
<td>5.5</td>
</tr>
</tbody>
</table>
Table 27: 2 X 2 X 2 analysis of variance of expert testimony as a basis of gunman versus innocent person decision

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>22.05</td>
<td>1</td>
<td>22.05</td>
<td>3.49</td>
<td>.0626</td>
</tr>
<tr>
<td>Confidence</td>
<td>1.80</td>
<td>1</td>
<td>1.80</td>
<td>.29</td>
<td>.0618</td>
</tr>
<tr>
<td>Condition X Confidence</td>
<td>11.25</td>
<td>1</td>
<td>11.25</td>
<td>1.78</td>
<td>.1833</td>
</tr>
<tr>
<td>Sex of Subject</td>
<td>8.45</td>
<td>1</td>
<td>8.45</td>
<td>1.34</td>
<td>.2501</td>
</tr>
<tr>
<td>Condition X Sex of S</td>
<td>5.00</td>
<td>1</td>
<td>5.00</td>
<td>.79</td>
<td>.6196</td>
</tr>
<tr>
<td>Confidence X Sex of S</td>
<td>4.05</td>
<td>1</td>
<td>4.05</td>
<td>.64</td>
<td>.5682</td>
</tr>
<tr>
<td>Condition X Confidence X Sex of S</td>
<td>5.00</td>
<td>1</td>
<td>5.00</td>
<td>.79</td>
<td>.6196</td>
</tr>
<tr>
<td>Error</td>
<td>455.20</td>
<td>72</td>
<td>6.32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total                        | 512.80         | 79 |             |     |                   |
Realism Ratings of Expert Testimony by First Psychologist

Subjects in the Expert Testimony Only and Expert Plus Opposing Expert Testimony conditions were asked to indicate on a ten-point Likert scale their agreement with the following statement: "The film presented a realistic and believable example of a psychologist (Dr. Walters) giving testimony on research in the area of eyewitness testimony" (10 = strongly agree, 1 = strongly disagree). Mean realism ratings of all groups were adequately high (Overall mean = 6.58, n = 80) and are presented in Table 28. A 2 X 2 X 2 analysis of variance of subjects' ratings of realism revealed no significant differences among any of the cells, although the Condition effect (p = .0500) approached significance. See Table 29 for the ANOVA.

Table 28: Means for each group on subjects' ten-point Likert scale ratings of their agreement with the statement that the film presented a realistic example of a psychologist giving expert testimony (10 = strongly agree, 1 = strongly disagree)

<table>
<thead>
<tr>
<th></th>
<th>Low Confidence Eyewitness</th>
<th>High Confidence Eyewitness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>No Expert Testimony</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Expert Testimony Only</td>
<td>7.3</td>
<td>7.1</td>
</tr>
<tr>
<td>Expert Plus Opposing Expert Testimony</td>
<td>6.0</td>
<td>5.4</td>
</tr>
</tbody>
</table>
### Table 29: 2 X 2 X 2 analysis of variance of expert testimony realism ratings for individual groups

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>22.05</td>
<td>1</td>
<td>22.05</td>
<td>3.87</td>
<td>.0500</td>
</tr>
<tr>
<td>Confidence</td>
<td>1.25</td>
<td>1</td>
<td>1.25</td>
<td>.22</td>
<td>.6459</td>
</tr>
<tr>
<td>Condition X Confidence</td>
<td>4.05</td>
<td>1</td>
<td>4.05</td>
<td>.71</td>
<td>.5934</td>
</tr>
<tr>
<td>Sex of Subject</td>
<td>1.25</td>
<td>1</td>
<td>1.25</td>
<td>.22</td>
<td>.6459</td>
</tr>
<tr>
<td>Condition X Sex of S</td>
<td>8.45</td>
<td>1</td>
<td>8.45</td>
<td>1.48</td>
<td>.2250</td>
</tr>
<tr>
<td>Confidence X Sex of S</td>
<td>.45</td>
<td>1</td>
<td>.45</td>
<td>.08</td>
<td>.7762</td>
</tr>
<tr>
<td>Condition X Confidence X Sex of Subject</td>
<td>4.05</td>
<td>1</td>
<td>4.05</td>
<td>.71</td>
<td>.5934</td>
</tr>
<tr>
<td>Error</td>
<td>410.00</td>
<td>72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>451.55</td>
<td>79</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Realism Ratings of Expert Testimony by Second Psychologist

Subjects in the Expert Plus Opposing Expert Testimony condition were asked to indicate on a ten-point Likert scale their agreement with the following statement: "The film presented a realistic and believable example of a psychologist (Dr. Watkins) giving testimony on research in the area of eyewitness testimony" (1 = strongly disagree, 10 = strongly agree). Mean realism ratings of all groups were acceptably high and are displayed in Table 30. A 2 X 2 analysis of variance revealed no significant differences among any of the cells. See Table 31 for the ANOVA.

Table 30: Means for each group on subjects' ten-point Likert scale ratings of their agreement with the statement that the film presented a realistic example of a psychologist giving expert testimony (10 = strongly agree, 1 = strongly disagree)

<table>
<thead>
<tr>
<th></th>
<th>Low Confidence Eyewitness</th>
<th>High Confidence Eyewitness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>No Expert Testimony</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Expert Testimony Only</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Expert Plus Opposing</td>
<td>6.1</td>
<td>5.8</td>
</tr>
<tr>
<td>Expert Testimony</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Overall mean = 5.48, n = 40
Table 31: 2 X 2 analysis of variance of expert testimony realism ratings for individual groups

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidence</td>
<td>9.025</td>
<td>1</td>
<td>9.025</td>
<td>1.367</td>
<td>.2487</td>
</tr>
<tr>
<td>Sex of Subject</td>
<td>1.225</td>
<td>1</td>
<td>1.225</td>
<td>0.186</td>
<td>.6728</td>
</tr>
<tr>
<td>Confidence X Sex of S</td>
<td>.250</td>
<td>1</td>
<td>.250</td>
<td>.004</td>
<td>.9499</td>
</tr>
<tr>
<td>Error</td>
<td>237.700</td>
<td>36</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Total</td>
<td>247.975</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Effect of Opposing Psychologist on Gunman/Innocent Person Decision

Subjects were asked to indicate on a ten-point Likert scale the extent to which the opposing (second) psychologist's (Dr. Watkins) testimony affected their decision concerning whether they thought the eyewitness had identified the gunman or an innocent person (1 = did not based decision on the second psychologist's expert testimony at all, 10 = based decision largely upon the second psychologist's expert testimony). In the Low Confidence conditions, subjects gave a mean rating of 4.60, compared to 4.05 in the High Confidence conditions. Males provided higher mean ratings ($\bar{X} = 4.90$) than did Females ($\bar{X} = 3.75$). Means for the individual groups are portrayed in Table 32. A 2 X 2 analysis of variance revealed no significant differences among the groups. The ANOVA is displayed in Table 33.

Table 32: Means for each group on subjects' ten-point Likert Scale ratings of the effect of the opposing psychologist on their gunman vs. innocent person decision (10 = based decision largely on the second psychologist's expert testimony)

<table>
<thead>
<tr>
<th>Low Confidence Eyewitness</th>
<th>High Confidence Eyewitness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Expert Testimony Plus Opposing Expert Testimony</td>
<td>5.6</td>
</tr>
</tbody>
</table>

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Table 33: 2 x 2 analysis of variance of effect of opposing psychologist on subjects' gunman versus innocent person decision

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance of F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidence</td>
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<td>1</td>
<td>3.025</td>
<td>0.541</td>
<td>.5266</td>
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<tr>
<td>Sex of Subject</td>
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<td>13.225</td>
<td>2.365</td>
<td>.1292</td>
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<tr>
<td>Confidence X Sex of S</td>
<td>7.225</td>
<td>1</td>
<td>7.225</td>
<td>1.292</td>
<td>.2623</td>
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<tr>
<td>Error</td>
<td>201.300</td>
<td>36</td>
<td>5.592</td>
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<tr>
<td>Total</td>
<td>224.775</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Familiarity with Experts Giving Testimony on Eyewitness Research

Subjects in the Expert Testimony Only and Expert Plus Opposing Expert Testimony conditions were asked if they had ever seen the expert(s) depicted in the videotape(s) before (yes or no) and, if so, in what capacity (open-ended question). In the Expert Only conditions, only two (2) out of forty (40) subjects had seen Dr. Walters before. In the Expert Plus Opposing Expert Testimony conditions, zero (0) out of forty (40) subjects had seen Dr. Walters previously, and only two (2) out of forty (40) subjects were familiar with Dr. Watkins. Chi square tests suggest support for the null hypothesis that both psychologists would be equally well known to subjects in both conditions ($\chi^2 < (1)$, $p > .05$).
CHAPTER IV
DISCUSSION

As hypothesized, significant differences were found among the groups in regard to whether subjects believed that the eyewitness giving testimony had identified the gunman who committed the crime or an innocent person. Expert Testimony Only subjects showed a significant reduction in their belief that the eyewitness accurately chose the gunman compared to Control Group subjects, who did not hear any expert testimony. Subjects who were exposed to both Expert and Opposing Expert Testimony had reduced belief in the eyewitness when compared to Control subjects, but believed that the eyewitness had accurately identified the gunman more often than those exposed to only the Expert Testimony. These findings follow logically from those of Fox (Note 1), but fail to replicate Weisser's (Note 2) results; Fox (Note 1) found similar expert testimony effects while Weisser (Note 2) did not. As Kazdin (1980) has pointed out, the importance of replication in scientific research cannot be overemphasized. This study is the second attempt to replicate Fox (Note 1),

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a sort of "tie-breaker" in this series of eyewitness testimony studies. Also, the results lend support to the notion that Weisser's (Note 2) results may have been related to sampling variability rather than the fact that jurors already possess the knowledge about eyewitness testimony that is usually provided by the expert psychologist. Perhaps more importantly, such results suggest that opposing expert testimony may be used successfully by the prosecution to mitigate the impact of the use of expert testimony by the defense counsel.

A factor which has not yet been researched extensively in the eyewitness testimony/expert witness area, sex of subject, was found to not be related to subjects' belief in whether the eyewitness identified the gunman or an innocent person. This result provides some elucidation to one of the questions which have not yet been answered as to which subject-juror variables effect decision making, such as age, sex, education, religion, etc. Certainly, subject-juror variables warrant further, detailed examination to enhance jury selection and create a juror profile. The evidence provided herein in this regard is somewhat circumscribed in that it is relevant only to the
specific circumstances surrounding the instant case.

As expected, Expert Testimony alone significantly reduced guilt ratings and the belief that the eyewitness had correctly identified the gunman. In addition, subjects in the Expert Testimony Only condition reported the highest mean decision confidence ratings, although these results did not attain statistical significance. Together, these findings suggest that the Expert Testimony by itself did significantly affect subjects; that is, subjects were more confident in their decision that the eyewitness identified an innocent person and they were less likely to believe the eyewitness had identified the gunman. Thus, there is strong support for the impact of psychological expert testimony on subjects' belief in an eyewitness.

Subjects who viewed Expert Testimony Only tapes had significantly lower estimates of the percentage of people who would make a correct identification under the circumstances described than subjects in the Control conditions, who were not exposed to expert testimony, but only in the Low Confidence groups. This implies that subjects found the expert's information useful in their appraisal of a low confidence
eyewitness; they found the eyewitness less credible as a result of the expert testimony, and apparently felt that eyewitnesses exposed to similar circumstances would be inaccurate. In the High Confidence conditions, subjects who viewed both Expert and Opposing Expert Testimony tapes had significantly higher ratings of the percentage of people who would make a correct identification under the circumstances described than those who viewed only the Expert Testimony videotape. Apparently a high confidence eyewitness retains credibility despite expert testimony both supporting and discounting the reliability of eyewitness testimony.

Similarly, subjects in the Expert Only conditions gave significantly lower estimated general percentages of accurate eyewitness testimony than subjects in the Control and Expert Plus Opposing Expert Testimony conditions. This supports the efficacy of utilizing expert testimony to reduce jurors' belief in the guilt of a defendant when those beliefs are dependent on eyewitness testimony. In estimating percentages of accurate eyewitness testimony, males gave significantly higher percentage estimates than did females; implying that males found the eyewitness' testimony more credible and were affected less by the expert's testimony. Groups, however, did not differ significantly
on ratings of how much they based their gunman versus innocent person decision on the eyewitness' description of the crime.

The manipulation check showed that subjects perceived the high confidence eyewitness as significantly more confident than the low confidence eyewitness, as expected. However, the near-significant interaction of Confidence with Condition suggests that subjects in the Control Conditions were affected more by the confidence of the eyewitness than subjects in the other two conditions. In addition, the interaction of Confidence and Sex of Subject also closely approached significance, suggesting that males were affected more by the confidence of the eyewitness than were females. Realism ratings showed that both types of expert testimony and both eyewitness videotape segments were viewed by subjects as believable, increasing the generalizability of the results. Both the manipulation check results and realism ratings are consistent with findings obtained in the Fox (Note 1) and Weisser (Note 2) studies, which utilized several of the same videotapes.

In regard to the effects of the confidence variable, the hypothesis that expert testimony would have more influence on the subjects' belief in whether the eyewitness had identified the gunman or an innocent person
in the high eyewitness confidence condition than in the low confidence condition was not supported. This result replicates the Fox (Note 1) findings. Subjects in the Expert Testimony Only groups had the lowest ratings of belief in eyewitness confidence as an indicator of accuracy, although this difference was not significant. In addition, Expert Testimony alone was effective in significantly reducing subjects' reported reliance on eyewitness confidence as a basis of their gunman versus innocent person decision. Thus, subjects were markedly influenced by the compelling arguments presented by the first expert against overreliance on expert testimony. These effects, however, were mitigated when subjects were exposed to the strong arguments of the opposing expert in favor of eyewitness testimony; that is, mean ratings in the Expert Plus Opposing Expert conditions returned to similar levels to those given by Control subjects not exposed to expert testimony at all in regard to confidence variables.

Subjects in the Expert Testimony Only conditions based their gunman versus innocent person decision on the Expert Testimony more than subjects in the Expert Plus Opposing Expert Testimony conditions (nearly
significant). In the latter conditions, subjects gave only moderate mean ratings of the extent to which the opposing psychologist's testimony affected their gunman versus innocent person decision. One might hypothesize that in the Expert Only conditions, subjects received clear and directional messages about the unreliability of eyewitness testimony, making their gunman versus innocent person decision much simpler. However, in the Expert Plus Opposing Expert conditions, subjects received opposing messages from equally credible experts, creating a situation of dissonance for the subject-jurors. Also, order effects may have been partially responsible for the differences. Perhaps the latter subjects had to rely on other factors more to make their final decision; and such subjects may have fallen back on eyewitness confidence as a deciding factor. In fact, responses to the open-ended question regarding how the subjects made their gunman versus innocent person decision provide some support for these hypotheses. For example, several subjects who believed the eyewitness had identified the gunman had relied upon their own impression that it would be very difficult to forget the criminal's face under the circumstances described, and that they would remember the criminal's face for over a month (consistent with the Wells and Lindsay (1983) metamemory theory, specifically conditional information or acting on "self-based judgments");
some mentioned that the eyewitness had remembered the rest of the crime so clearly that he would also remember the criminal's face; and others noted that the lighting would be good in a convenience store such as the one described in the videotape. On the other hand, subjects in the Expert Plus Opposing Expert conditions who believed that the eyewitness had identified an innocent person relied on the lack of corroborating evidence, the fact that the eyewitness had never actually witnessed the shooting, and that a reasonable doubt remained as to the defendant's guilt. Confidence was cited as a factor both by subjects who believed the eyewitness had identified an innocent person, and by those who believed he had identified the gunman.

Limitations of the present study include the brevity of both eyewitness and expert testimony, the lack of portrayal of cross-examination, the fact that subjects were aware that the events were simulated, and that only one type of crime with only one eyewitness and certain experts were included in the investigation. Future research is needed to explore such variables as the order of presentation of the experts, the demographic factors associated with both the eyewitness and the experts (e.g., age, sex, appearance, etc.), effects of type of crime portrayed (e.g., violent, non-violent, sexual), and how each of these factors and others interact with each other and with specific juror characteristics.
Reference Notes


References


Lichtenstein, S., and Fischhoff, B. Do those who know more also know more about how much they know? *Organizational Behavior and Human Performance*, 1977, 20, 159-183.


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APPENDICES
APPENDIX 1

LOW CONFIDENCE EYEWITNESS TRANSCRIPT
Introduction - (read to subjects by blind experimental assistant) - "At the beginning of this portion of the videotape of the trial, the prosecuting attorney asked the eyewitness to state his name and occupation."

Prosecution

Witness: My name is, ah, Roy Wilkins. Ah - I'm the manager of the 7-11 store.

Prosecutor: Describe in your own words what happened the night of November 14, 1981.

W: Well, I was - I was in the back of the store, ah, um, working. Larry, that's Larry Gelbart, was out front at - at the register. Ah, business was slow that night and I'd gone back to get some stock for the shelves, ah, just to keep busy, you see.

P: And what time was this?

W: Ummm... let's see, oh, it must have been pretty close to 11:30, I'd say.

P: And what happened then?

W: Well, I - first I thought I heard somebody talking - talking kind of loud out front, it ah - it sounded to me as if maybe Larry was in an argument with somebody, and so I - I decided to go out and - and see what was - what was going on. About the time I thought I should go on out, ah, it seems that - well there was a loud noise. Ah, at first I thought maybe it was a gunshot, ah - ah, I wasn't - I wasn't sure. But anyway, I - I quick ran to the - to the front of the sotre, ah, and ah, and I saw, I saw two men at the - at the counter, and it seemed to me that - that they were - that they were emptying - emptying the till. And ah, there was - there was another man, I was pretty sure he was holding a gun. Um, I looked around and - and there was Larry, Larry was lying on the floor. Ah, ah, I don't recall, I think maybe he - he wasn't moving. Ah, ah- anyway the whole scene, ah - startled me. I um, I- I guess, and - and when this man that I - I thought was holding the gun saw me, he ah- he called to the other two fellows to get out of the store. And ah- and then he took a shot at me. And it must have - it must have gone into the wall behind me.

P: And how long did all this take?

W: Oh, I - I don't know, I - I suppose a - maybe about a minute.
P: How did they get away?

W: Well... let's see. If I'm not mistaken ah- ah, the two - the two with the money ran off first. Yes, they - they, they ran off first. Ah, this man that was, ah, holding the gun, ah, he must - he must have left last. I noticed - I believe he stumbled as he went through the door. I saw him - I saw him get up, and then he ran on down the street, ah, with the other two. And, ah, a little while later, it was, oh I suppose a matter of a few seconds I - I saw - ah, I heard a car squeal out.

P: Did you see this car?

W: No, ah - no, I - I guess - I guess it must have been around the corner. Ah, yes it was around the corner, out of sight.

P: And what did you do then?

W: Well... when I um, ah, when I saw them run down the street um, I - I hurried back to check on Larry, to see if he was um, if he was all right. And ah, um- well, I- I realized he was dead. I- I must have, I must have called the police next. And then when they came down I, I called the ambulance, the ambulance came and - and, ah, took Larry away. And ah - I guess I gave them a description at that time of what had happened - what I saw.

P: How old would you say they were?

W: Well, they were probably, ah, probably pretty young, ah...I'd say, oh, nineteen, maybe 24 years old, maybe.

P: And what were they wearing?

W: Well, if I recall right, um... the one, um, the one with the gun, um, I think he was wearing a long, brown, sort of a heavy coat. One of the others had on a jacket, um, it must have been a blue ski jacket. And, um, the other was - was wearing a green coat. Yes, that...he was wearing a green coat, I - I think they all had - had jeans...jeans on.

P: Did you get a good look at their faces?

W: Well, I - I guess so. At least, um, I got a good look at the face, um, of the man with the gun. Um, the other two, they seemed to have their backs to me much - much of the time.

P: What were the lighting conditions like, was there enough light to see them?

W: Well, um, probably, I - I, I think so...we had the... we had the regular store lights on.
P: Have you positively identified a suspect as being
the person with the gun who committed armed robbery
and first degree murder that night?
W: Well, I - I believe so.
P: Describe this identification for the court.
W: Well, um, you see when the police called me, ah,
they said I should come down. That they, ah, they had
a suspect, that, ah, fitted the description, ah, that
I had, that I had given them. And so I went down, um... they had him in a cell, um, he was all by himself. And
ah- ah, I looked at the man, ah, for a while and, and
I was pretty sure he was the man. And so I - I told
the police that ah- he must be the right man.
P: And was that man the defendant?
W: Yes, sir.

Introduction (read to subjects by experimental assistant
blind to the experimental hypotheses) - "At the beginning
of this portion of videotape of the trial, the defending
attorney noted that the eyewitness stated earlier that
all of what he saw happened in about a minute. He then
asked the eyewitness how much of this time the eyewitness
estimated that he spent looking at the gunman's face."

Defense

Defense Attorney: You stated earlier that all of what
you saw happened in "about a minute". How much of this
time would you estimate that you spent looking at the
gunman's face?
Witness: Well, I- I would say, um, I- I would say about
thirty seconds. Um... yes- yes it was about 30 seconds.
D: Are you saying you managed to look at his face for a
half minute while he fired a shot at you?
W: Well, um... I guess I was so amazed at what way hap­
pening, um... just like I said I - um... I just stopped
dead in my tracks. And ah... I guess he missed me be­
cause, he must have been moving, I think he was moving,
trying to get out of the store all the time, see?
D: When he raised the gun to take a shot at you did you
try to move out of the way?
W: Well, he raised it so quickly I- I guess I didn't
have time to react, I - I didn't have time to get out of
the way, um...I did jump, I must have jumped when he -
when he shot the gun. It - it scared the life out of me.
Why, I've just never been in anything like that before.
D: Was he moving all the while you saw him?
W: Yes...umm...well, I- I think he was, I- I'm pretty sure and- and I guess that's when I got a- a pretty good look at his face.

D: Where were you looking during the other thirty seconds, when you weren't looking at the gunman's face?
W: Well, ah...at Larry...Um, he was in bad shape there, lying on the floor.

D: Well, are you sure that you didn't spend more than half the time looking at Larry?
W: Ah...let me think, ah... you see, when I- when I first came out from the back of the store I, I guess I was looking mainly at Larry. But then when I realized what was happening, I spent most of the rest of the time looking at the robbers, you see. And, ah... when this- when this one man raised the gun to shoot at me, that really drew my attention and, I must have looked at him the rest of the time.

D: You say it was the gun that drew your attention?
W: Well, yes, I ah...I- I really couldn't believe what was happening. I just couldn't believe what was happening. And when he raised the gun, I was so stunned I- well, I could hardly take my eyes off of it.

D: How far away was he standing from you?
W: Hmm...I'd say, ah...oh, just about thirty feet.

D: Are you sure it wasn't 35 feet, let's say, or 40 feet?
W: Well, um...Well, I...I don't know, um...I think it was about thirty feet.

D: When you made the identification at the police station, how long was that after the crime?
W: About a month.

D: Do you feel that you had a good enough look at the criminal's face during all the excitement to be able to identify him a month later?
W: Well, I- I- I think so.

D: When you went down to the police station to make the identification, did the police say anything to you before showing you the suspect?
W: Well, let's see, um... the sergeant told me that, they had a- a suspect that fitted the description that I gave them. And, um, he said that they were pretty sure that this was the man they were looking for.
D: Did he say anything else to you?

W: Well... let me...he did say that, ah, this had been a tough case for them, and that, um, they were going to be mighty glad to have it closed and off the books.

D: Was there anything distinctive or unusual about the defendant's face that helped you identify him?

W: No...I...I just remembered what he looked like.

D: Well, what would you say were the features you relied upon to identify him?

W: Oh, probably his brown hair, and his average build, and - and height, and ah, well, just the- just the look on his face, I guess.

D: Well, how sure are you that the defendant is the criminal rather than merely resembling the criminal?

W: Well, I...I'm pretty certain.

D: Mr. Wilkins, did you hear the defendant testify earlier that he shopped in your store two or three times during the two or three months previous to the crime?

W: Yes, yes I did, that.

D: Well, is it possible that you identified the defendant because you remembered seeing him in your store before and he just happens to resemble the actual criminal?

W: No, I...I probably wouldn't do that, I...Um...I don't think so, no, I... I probably wouldn't do that.
Introduction - (read to subjects by experimental assistant blind to the experimental hypotheses) - "At the beginning of this portion of the videotape of the trial, the prosecuting attorney asked the eyewitness to state his name and occupation."

Prosecution

Witness: My name is Roy Wilkins, W-I-L-K-I-N-S. I'm the manager of the 7-11 store.

Prosecutor: Describe in your own words what happened the night of November 14, 1981.

W: Well, I was in the back of the store working. Larry, Larry Gelbart, was out front at the register. Business was slow that night and I'd gone back to get some stock for the shelves, just to keep busy.

P: What time was this?
W: It was ah, it was 11:30 at night.

P: And what happened then?
W: Well, I heard someone talking loud out front. Sounded as if Larry was having an argument with somebody. So I decided to go out and see what was going on. Well, as soon as I decided to go out, I heard a shot, a gun-shot. Well, I quick ran to the front of the store, I saw two robbers at the counter emptying the till. There was a third one standing there holding a gun. Larry was over here (gestures) lying on the floor, he wasn't moving. Well, I was so scared I - I stopped dead in my tracks. And when the one holding the gun saw me, he yelled to the other two to get out of the store right away. And he raised the gun, took a shot at me, it went into the wall.

P: And how long did all this take?
W: Just about a minute.

P: How did they get away?
W: Well, the two with the money, ran out first - the one with the gun left last, he stumbled just as he went out the door. He got up and ran out into the street with the other two. And a couple of seconds later I heard a car squeal out.

P: Did you see the car?
W: No, it was around the corner, it was out of sight.

P: And what did you do then?
W: Well, when I saw them run down the street I hurried back to check on Larry, to see that he - to see if he was still alive. He was dead. And so I - I called the police, they came down, the ambulance took Larry away. I gave them a complete description of what I saw.

P: Now how old would you say they are?
W: Well, they were young, 19, 24 years of age.

P: And what were they wearing?
W: Well, the one holding the gun was wearing a long brown heavy coat. And one of the others had on a blue ski jacket. The other, a green coat. All of them were wearing jeans.

P: Did you get a good look at their faces?
W: I got a good look at the face of the one with the gun. The other two had their backs to me most of the time.

P: What were the lighting conditions like - was there enough light to see?
W: Oh, yes, we had the regular store lights on.

P: Have you positively identified a suspect as being the person with the gun who committed armed robbery and first degree murder that night?
W: Yes, yes.

P: Describe this identification for the court.
W: Well, the police called me, asked me to come down, they said they had a suspect. So I went down, and they had him in a cell, all by himself. And as soon as I saw him, I knew he was the man. I told the police they had the right man.

P: Was that the defendant?
W: Yes.

P: Thank you, Mr. Wilkins, I have no other questions.

Defense

Introduction - (read to subjects by experimental assistant blind to the experimental hypotheses) - "At the beginning of this portion of videotape of the trial, the defending attorney noted that the eyewitness stated earlier that all of what he saw happened in about a minute. He then asked the eyewitness how much of this time the eyewitness estimated that he spent looking at the gunman's face."
Defense Attorney: How much of this time would you estimate that you spent looking at the gunman's face?

Witness: About thirty seconds.

D: Are you saying that you managed to look at his face for a half minute while he fired a shot at you?

W: I was so amazed at what was going on, just like I said, I stopped dead in my tracks. And he missed me because he was moving trying to get out of the store as soon as he could.

D: When he raised the gun to take a shot at you, did you try to move out of the way?

W: He raised it so quickly I didn't have time to react, to get out of the way. I did jump when he shot the gun -- I've never been in anything like that before.

D: Was he moving all the while you saw him?

W: Yes - he paused when he took the shot at me, and that's when I got a good look at his face.

D: Where were you looking during the other thirty seconds when you weren't looking at the gunman's face?

W: At Larry. He was in bad shape lying there on the floor.

D: Are you sure you didn't spend more than half the time looking at Larry?

W: Oh, no. When I first came out from the back of the store, I looked mainly at Larry. But when I realized what had happened, I was looking mainly at the robbers. Like when the one raised the gun to take a shot at me, that really drew my attention. I spent at least half time - half of the rest of the time looking at him.

D: You say the gun drew your attention?

W: Well, of course, I couldn't believe what was happening. And when he raised the gun, I was so stunned I could hardly take my eyes off it.

D: How far away were you standing from him?

W: Just about thirty feet.

D: Are you sure it wasn't 35 feet, let's say, or 40 feet?

W: No, it was thirty feet.

D: When you made the identification at the police station, how long was that after the crime?

W: About a month.
D: Do you feel that you had a good enough look at the criminal's face during all that excitement to be able to identify him a month later?

W: Oh, yes. Yes.

D: Let me ask you this. When you went down to the police station to make the identification, did the police say anything to you before showing you the suspect?

W: Oh, the sergeant said that they had a suspect that fitted the description that I had given them. He said he was pretty sure that, ah, he was the right man.

D: Did he say anything else to you?

W: He mentioned what a tough case this had been for them and how glad they were going to be to have it closed and off the books.

D: Was there anything distinctive or unusual about the defendant's face that helped you identify him?

W: No, I just remembered what he looked like.

D: What would you say were the features you relied upon to identify him?

W: Oh, his brown hair, his average build and height, and that look on his face.

D: Well, how sure are you that the defendant is the criminal rather than merely resembling the criminal?

W: Oh, I'm certain.

D: Mr. Wilkins, did you hear the defendant testify that he shopped in your store two or three times during the two or three months prior to the crime?

W: Oh, yes. Yes.

D: Well, is it possible that you identified the defendant because you remembered seeing him in your store before and he just happens to resemble the actual criminal?

W: No- no, no, I'm sure he's the man. I could never forget that look on his face.
APPENDIX 3

RELEVANT FACTORS EXPERT TESTIMONY

BY A PSYCHOLOGIST TRANSCRIPT
Introduction - (read to subjects by experimental assistant blind to the experimental hypotheses) - "At the beginning of this portion of the videotape of the trial, the defending attorney asked Dr. Walters how accurate, in general, the average eyewitness is."

Relevant Factors Expert Testimony

Defense Attorney: ...how accurate would you say the average eyewitness is?

Dr. Walters: Research using staged crimes has shown that, depending on the conditions, anywhere from 15% to 85% of eyewitnesses may choose a wrong person from a lineup or group of pictures. That is, depending upon the conditions, 15% to 85% of eyewitnesses choose a person from the lineup that they believe is the criminal but who, in reality, is not the criminal but rather is an innocent suspect.

D: Could you elaborate for us how these researchers stage crimes for the eyewitnesses to observe?

W: Many have the subjects view films of crimes, other studies use crimes staged by the experimenter. After the subjects see the crime, they are asked at a later time to identify the criminal from a lineup of people or from a group of pictures.

D: So then the eyewitnesses in this research do sometimes see an actual event?

W: Yes. In some of the experiments that have been done, the subjects do see actual live events. Often a theft or assault is staged for the subjects, so it's relatively common to use a live event, but not as common as films because the psychologists want to have some control of the materials so you know every time you are presenting it to a new group of people you are presenting exactly the same thing, whereas a live event might change a little bit each time it's presented.

D: Could you give us an example of one of these staged crimes?

W: A situation that's used fairly often is to have someone attack or assault a professor while he's lecturing in front of a college classroom. The criminal is actually staging the attack and the professor knows the attack is going to happen, but to the audience it looks like a real assault is taking place. The people in the class are then asked to pick the attacker out of a lineup of people
or out of a set of pictures. In this type of experiment, the people in the audience, the eyewitnesses to this crime, are often unreliable and inaccurate in their identifications.

D: What are some of the factors that affect eyewitness' memory and ability to make an accurate identification?

W: There are several physical factors that affect eyewitness reliability. The lighting conditions, the distance of the eyewitness from the criminal, are factors. There should be adequate light - the eyewitness should be close enough to make an identification. Also, whether the criminal was moving or not may be important - fast movement may lower the likelihood of an accurate identification.

D: What about time and its effects on memory?

W: Generally, the shorter the time span the eyewitness has seen the criminal, the more likely it is that the identification may be in error. The length of time from seeing the crime to identifying the criminal is also important - research has generally shown that parts of memory are lost over time.

D: What are some of the other factors that affect an eyewitness' ability to make an accurate identification?

W: One of the major factors is stress. Research indicates that people under stress are more likely to make certain types of errors.

D: What are some of these errors?

W: Stress often causes people to overestimate the amount of time the event or crime took. That is, what may only have taken 10 to 15 seconds may seem like it took much longer, say a minute, or even five minutes. So the amount of time that an eyewitness views the criminal's face may be an overestimation if the person is under a lot of stress. There are factors related to stress such as violence and the presence of a weapon that also reduce eyewitness' ability to make a correct identification.

D: How does the presence of violence influence eyewitnesses?

W: Research supports the idea that people viewing a violent, emotional event or crime are less likely to be able to accurately report what they saw than people who see a nonviolent event. Researchers explain this effect as being due to the emotionality or stress associated with the violent event. You see, there is research which supports stress having a number of general effects upon the way a person sees an event or crime. I mentioned before
the tendency for people under stress to overestimate the amount of time the crime took. Stress can also have a restricting effect on attention - people just don't pay as much attention to what's going on - particularly if there is a weapon, such as a gun or knife, present at the scene of the crime.

D: How does the presence of a gun affect the way a person perceives or sees a crime.

W: Dr. Loftus, one of the leading researchers and authorities in the field of eyewitness testimony, talks about a factor called "weapon focus." What happens when a weapon is present is it tends to capture some of the witness' processing time and capacity, leaving less time available for other details and for other aspects of the incident. Weapon focus may have the effect of reducing ability to describe and remember other aspects of the situation, such as remembering the person who was holding the weapon. However, people often have a very good ability to describe the weapon. That's what is meant by weapon focus.

D: What about the number of criminals committing a crime, would that affect the ability of an eyewitness to accurately perceive a crime?

W: Yes. Research has found that the more criminals present, the less accurate eyewitnesses report of the crime is. Again, during a brief period of time, having more than one criminal present requires more processing time. There's only so many details a person can process in a short period of time.

D: Are there any kinds or types of faces that are more likely to be remembered by an eyewitness?

W: Yes, people usually remember really unusual or distinctive faces easier; research has shown, that they do this better than remembering faces with no distinctive features. For instance, someone with an unusual nose, or someone with a noticeable scar on his face is more likely to be remembered by the eyewitness than someone who has no unusual features or an "average" looking face that's similar to a lot of other persons.

D: Is it possible that an eyewitness might misidentify someone as the criminal because his face looks familiar because of a contact sometime before the crime?
W: Yes, the term for this is "unconscious transference". This happens when an eyewitness confuses a person seen in one situation with a person that was seen in a different situation or in a different context. People will look at faces that they have seen at a different time - in different contexts - and mistakenly relate those faces back to an incorrect situation.

Introduction - (read to subjects by experimental assistant blind to the experimental hypotheses) - "At the beginning of this portion of videotape of the trial, the prosecuting attorney asked Dr. Walters to give an example of unconscious transference."

Prosecution
Prosecutor: Could you give an example of unconscious transference?

Dr. Walters: Patrick Wall has given a classic example of a train clerk who was robbed at gunpoint. The train clerk subsequently went to a lineup and picked a sailor out of the lineup. The sailor did not commit the robbery, had a very good alibi, but had purchased tickets from this train clerk on three prior occasions. What is happening in this situation is the train clerk, the witness, goes to the lineup. In fact, there is face in the lineup that looks familiar and that familiarity is mistakenly related back to the crime, rather than back to the purchasing of the tickets. That's a classic example of unconscious transference.

P: Are there factors which can affect an eyewitness' identification of a suspect, let's say, when he's asked to do so by the police?

W: It's very important that the eyewitness have the opportunity to pick the suspect out of a "fair" lineup. The chances of misidentification are reduced if the eyewitness chooses a person out of a group of persons who bear a reasonable resemblance to each other, who look at least somewhat alike. For instance, people in the lineup are of the same race, same sex, no gross height or weight differences. If that is done, the chance of misidentification is reduced. It is generally agreed that the worst method to use and the method with the greatest likelihood of a wrong person being identified as the criminal is what's called a "showup". In a showup, the police simply show the eyewitness a suspect by himself and ask the eyewitness if that's the person who committed the crime.
P: What are some of the factors that make showing only one person to the eyewitness a poor procedure?

W: The eyewitness often believes that the police have a good reason for showing them the suspect, that they have some incriminating evidence against the suspect, something like this. There are often subtle but powerful psychological pressures on the eyewitness to identify the suspect as the criminal. This effect will be especially increased if the police put pressure on the eyewitness to identify the suspect, for example, they might tell the eyewitness that they think they have the right man, or by indicating that they'll be pleased if the eyewitness can identify the suspect. People are often especially likely to be influenced by someone in authority, such as the police. Showing only one suspect to the eyewitness is likely to increase psychological factors influencing the witness to identify the suspect as the criminal.

P: Would the eyewitness' confidence in the identification by any indication of how accurate the identification is?

W: There is considerable research evidence showing that the confidence of an eyewitness may have little or no relationship to the accuracy of the eyewitness. The confidence of the eyewitness in his identification is not a good indicator of how accurate his identification is likely to be.

P: What if the eyewitness is so confident that he identified the right person as the criminal that he says, "I'd never forget that face, I'm sure that's the man" after making an identification. Would a statement like that increase the likelihood that the witness made an accurate identification?

W: Again, the relationship of confidence to accuracy has generally been found to be weak to nonexistent. It would not be uncommon for a highly confident witness to be wrong, to be entirely in error, even if he made a statement like that.

P: Dr. Walters, could you summarize for the court how a person might best judge the accuracy of an eyewitness identification?

W: As I mentioned earlier, depending on the conditions, anywhere from 15% to 85% of eyewitnesses may choose a wrong person from a lineup. It is important that they pay attention to conditions or circumstances which may distort or influence the eyewitness' testimony. Specifically, one should pay attention to the conditions under
which the crime occurred. Such factors as lighting and how far the witness was from the criminal are important. One should note whether the situation was a dynamic and changing one - whether there was a lot of rapid, quick movement. Eyewitnesses often do worse under these conditions. Stress is a major factor - if the eyewitness was threatened, if there was violence involved - if a weapon was present, there is a greater likelihood of misidentification. It is important to consider that stress may lead to the eyewitness overestimating the amount of time the crime took, which may involve an overestimation of the amount of time the eyewitness had to view the criminal's face. The number of criminals is important, as the number of criminals may reduce accuracy since it may cut down on the amount of time the eyewitness has available to process other variables. Time has important effects upon memory - the time the eyewitness actually had to view the criminal, the time between the crime and the identification by the eyewitness may have major bearing on whether an accurate identification has been made. The circumstances of the identification should be considered. One should consider whether a "fair" lineup was conducted, remembering that a "showup" or one-person lineup is the poorest condition under which the identification can take place. One should also pay attention to possible indications that the eyewitness was put under pressure from the police or from authorities to identify the suspect as the criminal. Generally, witnesses are more likely to correctly identify unusual or distinctive faces. One should also be aware that if the eyewitness has seen the suspect previously in some other context, that the eyewitness may have identified the person not because he was identified with the crime, but because the suspect's face is familiar - mistakenly related back to the crime. A person attempting to judge whether an eyewitness has identified the criminal or an innocent suspect should avoid placing any faith in the eyewitness' confidence. In short, in order to tell if an eyewitness is accurate, one should place little stock in how confident the eyewitness is about the identification and should instead focus on situational factors, including those I have mentioned, that may have facilitated or inhibited the accuracy of the eyewitness.
APPENDIX 4

OPPOSING EXPERT TESTIMONY

BY A PSYCHOLOGIST TRANSCRIPT
Introduction - (read to subjects by experimental assistant blind to the experimental hypotheses) -
"At the beginning of this portion of the videotape of the trial, the prosecuting attorney asked Dr. Watkins how accurate and reliable the average eyewitness is."

Opposing Psychologist Expert Testimony

Prosecuting Attorney: Are eyewitnesses really as inaccurate and unreliable as Dr. Walters would have us believe?

Dr. Watkins: It depends upon the viewing conditions, of course. But there is no reason to doubt eyewitnesses who had a good view of the criminal. Generally, most laboratory face recognition studies have found that 70% or more of persons viewing faces under good conditions will make an accurate identification.

P: What about eyewitness confidence - is eyewitness confidence related to how accurate the eyewitness is?

W: Again, it depends on the conditions, but research has found significant and positive correlations between eyewitness confidence and accuracy when the viewing conditions were good. In the studies I mentioned before, in which subjects saw the faces under good viewing conditions, it was generally found that eyewitness confidence was significantly and positively related to how accurate the eyewitness is.

P: Dr. Walters discussed some of the methods this research uses. Are there any problems with the methodology of this research area?

W: Yes. Basically the problem is one of generalization. In simple language, it is difficult to know how much this research, if any, actually applies to the real world situation. You see, many of the conditions that subjects experience in an experimental situation may be significantly different from the conditions faced by the victim or observer of an actual crime.

P: How is the situation different for subjects than for people who have experienced or have seen a real crime?

W: Well, for instance, much of the research studies had subjects watch a videotape or film of a crime simulated by actors. Watching something that has been recorded is not the same as being there, and it is debatable in any given case as to how closely the actors are able to simulate a crime. Even the so-called "staged" crimes deviate significantly from the average eyewitness' real world experience.
P: How are staged crimes different from what an eyewitness in the real world observes?

W: To give an example, some of the experimental paradigms or situations use the theft of a calculator as the crime. This is not the sort of real world crime that would usually involve and lead up to having an eyewitness identify a criminal from a police lineup. The crime simply is not as serious as a major robbery and it's a far cry from a heinous crime such as murder. Other experiments have often used the situation where a professor is attacked while lecturing in a college classroom. The assault, for obvious reasons, is not injurious to the professor and happens in front of a classroom of college students who later make an identification.

P: Is the identification procedure used in these studies different from what happens in a police station?

W: Yes, the identification procedure employed in many of these studies is much different from what actually happens in a police lineup. Many times, an actual lineup isn't even held - the subjects don't identify the fake assailant from a lineup, but rather they may be asked to pick the assailant from an array of pictures.

P: But doesn't having them pick the criminal from a group of pictures tell them that the attack on the professor wasn't real?

W: Yes, in fact because of this, in many of these experiments, the experimenters tell the subjects before they make an identification that the attack was staged and that they are in fact participating in an experiment.

P: Did you say that some of these studies use college students as subjects?

W: By far the large majority of such studies, as much as 80 - 90% of them, use college students exclusively.

P: Are there potential problems in basing a lot of this research on the perceptions of university students?

W: The main problem is the one I referred to earlier - one of generalization. How much these studies apply to people of different ages, occupations, and educational levels is unknown. There may be significant differences in how, for example, a 19 year old freshman responds to these experiments than how a 60 year old businessman would. To make matters worse, we do not know what differences, if any, exist. But it is a point of concern that the large majority of these studies are based upon
such a narrow population, students in their early 20's for the most part.

P: Dr. Watkins, based upon this research, can we predict how reliable a certain individual in a certain eyewitness situation will be?

W: No.

P: Why not?

W: All of this research is based on statistical methods which focus on how groups of people respond within a particular experiment. The focus is on the average response of the group, not the individual. Within any particular group, there may be persons who responded very differently or even directly opposite to the way the group as a whole responded. These experiments tell us how a groups of individuals generally responded, but don't allow us to make predictions about a certain individual. All we can say, if you believe the research, is what might be likely to happen among people in general or on the average if a certain factor is operating. The problem is that different individuals respond differently to different situations and different viewing conditions.

P: Is it possible that there may be factors that facilitate or inhibit eyewitness reliability that have not been investigated?

W: It's not only possible, it's highly likely. Much of the research Dr. Walters talked about has been done in the last twenty years, so it's a relatively new research area. It is likely that there are many additional factors that affect eyewitness performance of which we are unaware. Of the factors affecting eyewitness accuracy that we do know exist, additional research is needed concerning under what specific kinds of conditions and with what types of individuals they operate. For example, take the phenomenon of unconscious transference - we know that it can occur, but we are not able to specify in a particular case whether it has or has not occurred. All we know at this point is that it exists.

P: Is it possible that some eyewitnesses who view a crime under poor conditions, that is under conditions where they have a number of factors operating against them making an accurate identification, could nevertheless make an accurate identification despite those factors?

W: Yes, it is entirely possible.

P: Could you explain how this can happen?
W: It goes back to what I said about the statistical design of these studies. They reflect how the average individual responds to a factor that inhibits accuracy. Many people may not react at all the way the statistical average estimates that they will. The fact is that there are individual differences in person's perceptual and memory abilities. We know that people differ in intellectual abilities, and in their abilities to make judgments concerning time, distance, facial recognition, etc. There are many people who because of certain characteristics or abilities may not react at all the way these studies predict.

P: What about people's reactions to stress? Does stress always have a negative effect on performance?

W: No. The manner in which stress affects people is embodied in a psychological principle called the Yerkes-Dodson Law. This law states that the relationship between stress and performance is curvilinear. That is, up to a certain optimal point, increasing stress actually aids performance. It is only after the stress is increased above this ideal point for the individual that it begins to have negative effects.

P: Is there any way of knowing whether the stress in a real life crime situation was beyond the eyewitness's optimal point?

W: No - and that is a problem because it is usually simply assumed that the stress was great enough upon the eyewitness that it had negative effects. Once again, people differ in their abilities to handle stress and the level of stress in one stress situation that causes poor performance in one person may actually facilitate the performance of another person in the same situation who has a higher stress threshold.

P: Suppose stress did have a negative effect on a given eyewitness to a crime - are there other factors which could reduce or counteract the negative impact of the stress on the eyewitness?

W: One of the difficulties of this research is that we have some general ideas about how a single factor, in isolation, such as stress, affects the average person. However, we know very little about how a number of factors acting simultaneously affect one another and the eyewitness. It is possible and even likely that the effect of a given factor that affects eyewitness accuracy in isolation is different when combined with a number of other viewing factors. It is difficult to know how the factors interact with one another since this research
usually studies only one or at most two factors at one time. The real world crime situation is usually a good deal more complex than that. To answer your question, it is reasonable to believe that there are factors, such as the significance of the event and the eyewitness' motivation to commit the criminal's face to memory, which may mitigate some of the negative effects of stress. As I said earlier, additional research is needed, especially since there may be additional factors which affect eyewitness performance of which we are unaware.

P: Dr. Walters talked about "weapon focus" as a factor which decreases eyewitness accuracy, the idea being that the eyewitness focuses on the weapon in a violent crime, rather than spending the time observing the criminal's face. Is this a real phenomenon and could you talk about the research it's based upon?

W: The studies which support the existence of weapon focus fall largely into two categories: (1) perceptual research in the area of experimental psychology, and (2) naturalistic field studies and observations. Many of the experimental studies are thought to generalize or apply to an eyewitness situation even though most of the studies are laboratory research which are not directly concerned with, and are often far removed from, an actual eyewitness situation. The naturalistic and field studies, the second group I mentioned, represent uncontrolled studies from which it isn't possible to determine if the conclusions are accurate. There is one eyewitness study which supports the phenomenon of weapon focus, but its methodology was flawed. It involved having subjects identify someone who they previously saw either with a weapon or without a weapon. The methodology was flawed because the two experimental conditions differed in more ways than whether the weapon was present or absent. The assailant in the weapon condition also had blood on his hands, was more hostile, and made different types of statements than the assailant in the no weapon condition. In this one study directly related to weapon focus, one cannot separate out whether subjects' decreased accuracy in identification in the weapon condition was due to the presence of the weapon or to the other differences. In short, while we have some support for such a phenomenon, there is no direct proof for the existence of weapon focus.
P: Dr. Watkins, has there been any research on how expert psychological testimony on the unreliability of eyewitness identification, such as that given by Dr. Walters, effects jurors?

W: Yes, there have been four studies on the effects of expert psychological testimony upon juror's decisions.

P: And what have these studies found?

W: They have found that having a psychologist testify on the various factors affecting eyewitness accuracy, like Dr. Walters did, reduces jurors' belief in the accuracy of the eyewitness.

P: You mean that these studies found that jurors who have heard an expert psychologist testify in the manner Dr. Walters did were more likely to not believe the eyewitness and to conclude that the alleged criminal was innocent?

W: That is correct. Expert testimony invariably reduced belief in eyewitness accuracy.

P: Dr. Watkins, could you summarize for the court the difficulties with the current eyewitness research?

W: Yes. While the accuracy of eyewitness depends upon the viewing conditions, under good conditions, there is no reason to doubt eyewitnesses, as 70% or more of persons are able to make a correct identification under good conditions. It has been found that eyewitness confidence is significantly and positively related to eyewitness accuracy under such conditions. The applicability and generalizability of the results of many studies used to support conclusions in this area are often questionable because of the use of largely college age samples, the use of films, photographs and videotapes, different identification procedures, and the use of staged or simulated crimes by actors which make the experimental situation considerably different from that of an actual crime situation. Further, some of the studies are methodologically flawed and experimental laboratory research used to support conclusions are often far removed from the real world eyewitness situation. There is much that we simply do not know in this area - additional work is needed on additional factors that may facilitate or inhibit eyewitness performance. The real world situation is usually much more complex than these experiments - more work is needed on how various combinations of facts affect one another and the eyewitness. There is good reason to be skeptical as there is much that isn't known and considerable difficulties exist in
generalizing from these studies to "real" eyewitnesses. There are four separate studies which indicate that persons exposed to expert psychological testimony similar to Dr. Walters' testimony tend to doubt the eyewitness more and believe the defendant is not guilty. The current state of affairs is that we cannot predict how reliable a single individual in a given situation is. More work needs to be done on how the unique characteristics of an individual affects his ability as an eyewitness, as we know different persons respond differently to different situations. It is possible that a person will respond completely different from the way the current research predicts he or she will respond.
APPENDIX 5

DEPENDENT MEASURES AND COVER SHEET
Please provide your age, sex, year in college, and college major on the lines below. All information will be kept strictly confidential.

Age: ___
Sex: M F (circle one)
Year on College: 1 2 3 4 graduate student (circle one)
College Major: _______________________________
Have you ever served on a jury before? Yes No (circle one)
Do you believe the eyewitness identified the gunman or an innocent person? Circle one of the choices below:

Gunman        Innocent Person

How confident are you about your decision in the above question? Indicate your answer by circling a number on the scale provided below:

1----2----3----4----5----6----7----8----9----10
not at all confident

Based on the testimony and evidence presented, rate the probability of the defendant's guilt by circling one of the numbers on the scale below:

1----2----3----4----5----6----7----8----9----10
Definitely Not Guilty

Not Guilty

Definitely Guilty

How confident was the eyewitness in the videotape in his ability to identify the gunman? Indicate your answer by circling a number on the scale provided below:

1----2----3----4----5----6----7----8----9----10
Not at all Confident

Confident

Estimate the percentage of people who would make a correct identification under the circumstances described by the eyewitness by circling one of the percentages provided below:

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

To what extent do you believe that you can generally tell from an eyewitness' confidence in his testimony whether or not the eyewitness made an accurate identification? Indicate your answer by circling a number on the scale provided below:

1----2----3----4----5----6----7----8----9----10
Can almost never tell if eyewitness
Can almost always tell if eyewitness
is accurate
is accurate
What percentage of eyewitness testimony, in general, do you believe is accurate? Circle one of the percentages below:

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

In deciding upon whether you thought the eyewitness identified the gunman or an innocent person, how much did you base your decision upon the eyewitness' description of the crime? Circle one of the numbers on the scale below:

1 - - - - - - - - - - - - 2 - - - - - - - - - - - - 3 - - - - - - - - - - - - 4 - - - - - - - - - - - - 5 - - - - - - - - - - - - 6 - - - - - - - - - - - - 7 - - - - - - - - - - - - 8 - - - - - - - - - - - - 9 - - - - - - - - - - - - 10

Did not base decision on eyewitness' description of crime
Based decision largely on eyewitness' description of the crime

In deciding upon whether you thought the eyewitness identified the gunman or an innocent person, how much did you base your decision upon the eyewitness' confidence in his testimony? Circle one of the numbers on the scale below:

1 - - - - - - - - - - - - 2 - - - - - - - - - - - - 3 - - - - - - - - - - - - 4 - - - - - - - - - - - - 5 - - - - - - - - - - - - 6 - - - - - - - - - - - - 7 - - - - - - - - - - - - 8 - - - - - - - - - - - - 9 - - - - - - - - - - - - 10

Did not base decision on the eyewitness' confidence at all
Based decision largely on the eyewitness' confidence

Rate your agreement or disagreement with the following statement on the scale provided below: The film presented a realistic example of an eyewitness testimony.

1 - - - - - - - - - - - - 2 - - - - - - - - - - - - 3 - - - - - - - - - - - - 4 - - - - - - - - - - - - 5 - - - - - - - - - - - - 6 - - - - - - - - - - - - 7 - - - - - - - - - - - - 8 - - - - - - - - - - - - 9 - - - - - - - - - - - - 10

Strongly Disagree
Strongly Agree
(control conditions)

Please describe in your own words in the space below how you decided that the eyewitness had identified the gunman or an innocent person:
How much did the psychologist's expert testimony affect your decision concerning whether you thought the eyewitness identified the gunman or an innocent person? Circle one of the numbers below:

1----2----3----4----5----6----7----8----9----10

Did not base decision on the psychologist's expert testimony at all

Based decision largely upon the psychologist's expert testimony

Rate your agreement or disagreement with the following statement on the scale provided below: The film presented a realistic and believable example of a psychologist giving testimony on research in the area of eyewitness testimony.

1----2----3----4----5----6----7----8----9----10

Strongly Disagree

Strongly Agree

Have you ever seen the expert depicted in the videotape before? If so, in what capacity?

Please describe in your own words in the space below how you decided that the eyewitness had identified the gunman or an innocent person:
(expert plus opposing expert conditions)

How much did the first expert psychologist's (Dr. Walters) testimony affect your decision concerning whether you thought the eyewitness identified the gunman or an innocent person? Circle one of the numbers below:

1 - - - - - - - - - - - - -2 - - - - - - - - - - -3 - - - - - - - - - - - - - -4 - - - - - - - - - - - - - -5 - - - - - - - - - - -6 - - - - - - - - - - - - - - -7 - - - - - - - - - - - - -8 - - - - - - - - - - -9 - - - - - - -10

Did not base decision Based decision largely on the first psychologist's upon the first psych- expert testimony at all ologist's expert testimony

Rate your agreement or disagreement with the following statement on the scale provided below: The film presented a realistic and believable example of a psychologist (Dr. Walters) giving testimony on research in the area of eyewitness testimony.

1 - - - - - - - - - - - - -2 - - - - - - - - - - -3 - - - - - - - - - - - - -4 - - - - - - - - - - - - -5 - - - - - - - - - - -6 - - - - - - - - - - - - - - -7 - - - - - - - - - - - - -8 - - - - - - - - - - -9 - - - - - - -10

Strongly Strongly Disagree Agree

How much did the opposing (second) psychologist's (Dr. Watkins) testimony affect your decision concerning whether you thought the eyewitness identified the gunman or an innocent person? Circle one of the numbers below:

1 - - - - - - - - - - - - -2 - - - - - - - - - - -3 - - - - - - - - - - - - - -4 - - - - - - - - - - - - - -5 - - - - - - - - - - - - -6 - - - - - - - - - - - - - - -7 - - - - - - - - - - - - -8 - - - - - - - - - - -9 - - - - - - -10

Did not base decision Based decision largely on the second psycholo- upon the second psych- gist's expert testimony ologist's expert testimony at all testimony

Have you ever seen the first expert (Dr. Walters) depicted in the videotape before? If so, in what capacity?

Have you ever seen the second expert (Dr. Watkins) depicted in the videotape before? If so, in what capacity?
Rate your agreement or disagreement with the following statement on the scale provided below: The film presented a realistic and believable example of a psychologist (Dr. Watkins) giving testimony on research in the area of eyewitness testimony.

1----2----3----4----5----6----7----8----9----10
Strongly Disagree Strongly Agree

Please describe in your own words in the space below how you decided that the eyewitness had identified the gunman or an innocent person:
APPENDIX 6

INTRODUCTION TO EYEWITNESS VIDEOTAPES
The purpose of the present investigation is to determine the nature of decision making among jurors. Please read the following description of a crime, after which you will be viewing portions of a trial via videotape. You will then be asked to render a verdict as well as answer several other questions on the basis of the evidence presented. Obviously, this is only a summary to the actual court proceedings. However, please imagine yourself to be in a courtroom situation and assume that you are an actual member of the jury. If you feel that you cannot do this, please indicate this immediately.

You will shortly be viewing portions of a trial via videotape concerning the robbery and murder which took place in a large town in Montana on November 14, 1981. Previous to the portions of the trial you are viewing, the defendant had testified and stated the following point:

(1) that he did not commit the crime;
(2) that he had been in town for only three months and had not had the opportunity to develop close friends or ties in the town;
(3) that he was at home in his apartment sleeping the night of the crime; and
(4) that he had shopped at the 7-11 convenience store in question two or three times in the three months since moving to the town three months ago.

Please pay close attention to the videotape.
APPENDIX 7

INTRODUCTION TO EXPERT TESTIMONY BY
A PSYCHOLOGIST VIDEOTAPE
Dr. Al Walters is a Ph.D. Clinical Psychologist who has been asked by the defense to testify as an expert on eyewitness testimony and memory. Dr. Walters has 18 years of forensic and courtroom experience, and has testified in numerous criminal cases. He is also a Clinical Psychology professor who teaches graduate forensic psychology courses. Additionally, he actively conducts, studies, and publishes research in the area of eyewitness testimony and memory.

Please pay close attention to the videotape.
APPENDIX 8

INTRODUCTION TO OPPOSING EXPERT TESTIMONY

BY A PSYCHOLOGIST VIDEOTAPE
Dr. Watkins is a Ph.D. Clinical Psychologist who was asked by the prosecution to testify concerning eyewitness research. Dr. Watkins has many years of forensic experience, and has served as a forensic consultant to the courts in a multitude of cases. In his role as Clinical Psychology professor, he teaches seminars and workshops related to forensic methods. He also regularly authors research which is published in legal and psychological journals. Dr. Watkins prepared his testimony in advance in response to Dr. Walters' testimony, and referred to his notes during the courtroom session.

Please pay close attention to the videotape.