CANADIAN THESES

THÈSES CANADIENNES

NOTICE

The quality of this microfiche is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us an inferior photocopy.

Previously copyrighted materials (journal articles, published tests, etc.) are not filmed.

Reproduction in full or in part of this film is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30.

AVIS

La qualité de cette microfiche dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de qualité inférieure.

Les documents qui font déjà l'objet d'un droit d'auteur (articles de revue, examens publiés, etc.) ne sont pas microfilmés.

La reproduction, même partielle, de ce microfilm est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30.

THIS DISSERTATION HAS BEEN MICROFILMED EXACTLY AS RECEIVED

LA THÈSE A ÉTÉ MICROFILMÉE TELLE QUE NOUS L'AVONS REÇUE

THE UNIVERSITY OF ALBERTA

SOCIAL INFLUENCES ON EYEWITNESS TESTIMONY: DOES MISLEADING POSTEVENT INFORMATION REALLY DISTORT EYEWITNESS MEMORY?

BY

JOHN W. TURTLE

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF ARTS

DEPARTMENT OF PSYCHOLOGY

EDMONTON, ALBERTA

FALL, 1986

ISBN 0-315-32360-4

THE UNIVERSITY OF ALBERTA

RELEASE FORM

NAME OF AUTHOR: John W. Turtle

TITLE OF THESIS: Social Influences on Eyewitness Testimony

DEGREE: Master of Arts

YEAR THIS DEGREE GRANTED: 1986

Permission is hereby granted to THE UNIVERSITY OF ALBERTA LIBRARY to reproduce single copies of this thesis and to lend or sell such copies for private, scholarly or scientific research purposes only.

The author reserves other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

John Turtle

#401, 10745-79 Avenue

Edmonton, Alberta

Date: June 13, 1986

THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled SOCIAL INFLUENCES ON EYEWITNESS TESTIMONY: DOES MISLEADING POSTEVENT INFORMATION REALLY DISTORT EYEWITNESS MEMORY? submitted by John W. Turtle in partial fulfillment of the requirements for the degree of Master of Arts.

.....
(Supervisor)

.....

.....

Date: JUNE 13, 1986

ABSTRACT

There are many studies that demonstrate the deleterious effect of misleading information encountered by eyewitnesses after an event has occurred on the accuracy of the witnesses' subsequent testimony about the event. The fact that witnesses are apparently influenced by fallacious postevent information has been described as the misleading information effect. When the information is provided in the form of questions asked of the witness about the event, the phenomenon is termed the misleading question effect. The most popular interpretations to date have been some variation of a "memory-impairment hypothesis": Either the original memory for the event is erased by the new information so that the new information is reported during retrieval, or the original memory and the new information coexist, but the probability of one or the other being reported is dependent upon the match between the encoding and retrieval contexts. Another interpretation is that the witness' memory for the original event remains intact despite the new information, but that various social factors influence the witness' decision regarding which version of the event he or she will report. The present paper reports two studies in which the questioner's alleged familiarity with the event and the witness' perceived position in the ordering of witness interviews were manipulated to determine the effect of these social manipulations on eyewitness testimony.

In Study 1, it was predicted that witnesses who believed that the questioner was confused regarding details of the event would be less likely to incorporate any misleading information provided by that experimenter into their testimony than would witnesses who received the same information from an experimenter who apparently was very familiar with the event. In Study 2, it was predicted that increased resistance to reporting the misleading postevent information would be demonstrated by witnesses who believed that they were the first to be interviewed, as opposed to the witnesses who thought they were the last. The results in Study 1 were consistent with the hypothesis, but Study 2 failed to support the prediction. The findings suggest that future research should focus on determining which of many possible interpretations best describes the apparent effectiveness of the familiarity manipulation for inducing resistance to misleading postevent information. Does leading witnesses to believe that the questioner is very familiar with the details of an event encourage witnesses to comply with their perceptions of the experimenter's wishes? Or do the witnesses merely believe that information provided by the experimenter is more likely to be correct than their own memory? Or does the manipulation cause witnesses in the confused-experimenter condition to be especially alert to the possibility of discrepant information and therefore more likely to detect and resist any misleading suppositions? Future studies are planned to investigate these possibilities.

[redacted]LEDGEMENTS

I would like to thank most of all my supervisor, [redacted]y Wells, for his assistance, support, and commitment to my interests throughout this project. I would also like to thank Mike Enzle for his comments and helpful advice. Finally, I would like to thank Tom Maguire for his comments and for serving on my committee.

In addition to the scholarly assistance from those mentioned above, Cathy McFee deserves my appreciation for collecting much of the data. Cathy's diligence, patience, and procedural suggestions were responsible for our being able to finish the project on time.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

I. INTRODUCTION

People's recollections of something they have witnessed for a short time seldom are exact replicas of what actually transpired. Although most people are well aware of the many threats to their memory's integrity, and a number of these possible sources of memory error have been investigated in eyewitness-testimony research, more needs to be learned about how various factors can distort people's reports from memory. The fact that people's testimony regarding an event can be influenced to contain inaccurate reports has obvious implications for the justice system. The present thesis was designed to investigate one of these sources of error with a more ecologically valid approach than has been utilized to date.

The construction of a useful memory can be considered a three-stage process: An event must first be encoded, then it must be stored, and finally it must be retrieved. Studies have been conducted to determine the effect of various factors on memory at each of these three stages (see Loftus, 1979, for a review). A short exposure to the to-be-remebered detail or person in the encoding phase, for example, is likely to impose an upper limit on the accuracy of a witness' memory for that detail, as compared to a witness who had a longer time to view the event. During the storage phase, a lengthy delay between encoding and retrieval is the most obvious cause of forgetting. Most modern accounts of memory, however, do not consider the length of the interval

per se to be the most important factor in forgetting; rather, many investigators regard the information to which a person is exposed during that interval as the most likely candidate for causing a person to report a fallacious account of a witnessed event. During retrieval, the interview technique or the quality and appropriateness of recognition tasks are examples of factors that are crucial to obtaining accurate and complete testimony. The studies reported in the present paper were designed to investigate the effect of misleading, or fallacious, postevent information on the second of these three stages of memory in an eyewitness context.

Elizabeth Loftus and her colleagues have reported a series of studies demonstrating the effect of misleading postevent information on witnesses' subsequent testimony about an event (e.g., Loftus, 1979; Loftus, Miller, & Burns, 1978; Greene, Flynn, & Loftus, 1982). The typical experimental procedure is exemplified by the Loftus et al. (1978) study: Participants were presented with a sequence of slides depicting an auto-pedestrian accident, in which half of of the participants saw a red car halted at a STOP sign and the other half saw the same car stopped at a YIELD sign. Following the presentation, the witnesses who saw the STOP sign read a question that implied that the car had been stopped at a YIELD sign. Similarly, half of those who saw a YIELD sign read a question that implied the presence of a STOP sign. The other participants read a question that implied the presence of the sign they had actually seen. Following an unrelated filler activity, the witnesses engaged in a forced-choice recognition task. Two slides were presented: the one that was originally seen and one that was consistent with the misleading information contained in the questionnaire. The results indicated that

only 41% of the witnesses who read the question containing misleading information (i.e., a sign other than the one they actually viewed) accurately chose the slide that depicted what they had originally seen. In contrast, 75% of those who read the question that was consistent with the original slide were able to accurately select that slide in the test. Loftus and her colleagues contend that results of this type support their view that the original memory for an event can be replaced by misleading postevent information.

The postevent-information phenonemon has been well documented in the literature and researchers have gone on to investigate the conditions in which people might be likely to resist the incorporation of misleading information into their memories. Bekerian and Bowers (1983; Bowers & Bekerian, 1984), for example, have demonstrated that the order in which the misleading questions and test items are presented (relative to the sequence in the original event) significantly affects the degree to which postevent information will be incorporated. They argue that the typical Loftus procedure facilitates the incorporation of postevent information because the test items are presented in random order, thus rendering the retrieval process much different from the order in which the original memory was constructed. In this situation, Bekerian and Bowers contend that many people are likely to access their memory for the postevent information because it is more recent and not because the misleading postevent information has erased the original memory. Bekerian and Bowers pursued their predictions by presenting witnesses with the test items in the same order as they were viewed originally. The results indicated that the incorporation of misleading postevent information was virtually eliminated, thus lending support to Bekerian's and Bower's

notion of co-existing memories versus Loftus' hypothesis that the original memory is lost.

The apparent discrepancy between the Loftus (1979) and the Bekerian and Bowers (1983) positions regarding the incorporation of postevent information has major implications for theories dealing with the nature of the representation of information in memory. Bekerian and Bowers propose that postevent information resides in a separate memory store from the original and whether or not the original memory will be accessed at retrieval depends on the degree to which the conditions present during retrieval resemble those operating during encoding. This interpretation is consistent with the "encoding specificity" hypothesis proposed by Tulving and Thompson (1973). Loftus, on the other hand, holds that postevent information actually replaces the original memory so that the original memory is not available at all during retrieval. One of the purposes for conducting the studies reported in the present paper, then, was to produce evidence that will contribute to the resolution of this memory-representation controversy.

Research on Extramemorial Influences

The discussion thus far has centered on a memory/cognition interpretation of the misleading question effect. Other research in this area has investigated the effect of extramemorial factors on the likelihood that witnesses will incorporate misleading postevent information. This distinction between memorial and extramemorial factors on postevent information incorporation is a reflection of a more global distinction between eyewitness memory and eyewitness testimony. When a person is asked to report on some event, the report is testimony; testimony can include lies, inferences, guesses, and a host of other social psychological factors that influence the accuracy of the report. Eyewitness memory, on the other hand, refers to a more abstract notion of the person's recollection of an event, independent of the retrieval task or other conditions that might affect the relationship between what the person remembers and what he or she reports. This distinction has important implications for investigations concerned with the misleading question effect. Most researchers in the area assume that results from a postevent information study represent a measure of eyewitness memory. This assumption implies that manipulations related to social psychological processes, but apparently unrelated to memory processes, should not affect the postevent information phenomenon. In contrast, if a social psychological manipulation, like the credibility of a postevent information source, affects the likelihood that witnesses will incorporate the postevent information into their testimony, then it is difficult to conclude that the responses recorded in such a study reflect eyewitness memory per se. In fact, the title of the

present paper purposely contrasts the notion of eyewitness memory-distortion with testimony-distortion.

Researchers in Loftus's laboratory have attempted to induce resistance to misleading postevent information by warning participants that a written account of a witnessed event might contain some discrepant information (Greene, Flynn, & Loftus, 1982). The gist of the findings from the four studies reported in the Greene et al. article is that a warning presented immediately prior to misleading postevent information serves to reduce the incorporation of postevent information into memory. These results do not suggest that a warning is an effective guard against the incorporation of misleading information, however, because even people who received information that was consistent with the original event were more likely to choose the slide in the forced-choice test that differed from what they had viewed originally. In other words, the warning served to reduce the likelihood that witnesses would choose the slide corresponding to the postevent information, regardless of whether that information was accurate or misleading. Such an overall decrement in performance does not help to describe the influence of a warning on the likelihood that witnesses can detect and resist misleading information.

Recently, Loftus and her colleagues (Hall, Loftus, & Tousignant, 1984; Tousignant, Hall, & Loftus, in press) have presented two general principles relating to the conditions in which misleading information will distort a person's testimony. The first principle states that, "For a change to occur [i.e., testimony distortion], the subject must not notice discrepancies between an original event and the misinformation that follows" (Hall et al., p.135). They suggest that if a discrepancy is

detected, the faulty information will be either stored separately from the correct information or ignored altogether. The Greene et al. (1982) study, in which a warning served to reduce the incorporation of inconsistent postevent information, is cited as an example of making people aware of discrepant information and thus allowing them to access the correct information during retrieval. The warning procedure does not provide a convincing demonstration of an increase in detectability per se, however, because it does not rule out the possiblity that participants merely shifted their responses as a result of being told to expect some inconsistencies, regardless of whether or not they actually detected the discrepant information.

In another series of studies, Tousignant et al. investigated the effect of the time taken for witnesses to read the postevent account. In Experiments 1 and 2, naturally occurring differences in reading speed were tested for their relationship to accuracy and to the detection of discrepancies between the original event and the postevent information, respectively. The results indicated that the longer witnesses took to read the account, the better able they were to resist incorporating misleading information into memory and the more likely they were to detect discrepancies between the two information sources. Tousignant et al. point out, however, that these correlational measures do not directly address the relationship between reading time and accuracy or detection; it may be that the type of people who read the account more slowly are also the type of people who are more naturally suspicious of the possiblity that the account contains misleading information.

In Experiments 3 and 4, therefore, the time taken to read the account of the event was exerimentally manipulated, so that participants were

randomly assigned to either slow or fast reading conditions. Experiment 3 demonstrated that witnesses instructed to read the account of the event slowly were more likely than those who read the account quickly to detect the discrepancy between the original event and the postevent information. The results from Experiment 4 indicated that witnesses in the slow-reading condition were better able than the those in the fast-reading condition to resist the misleading postevent information on a subsequent memory test. Although these are interesting findings, the time manipulation is not very representative of the types of "detectability" factors that a witness is likely to encounter in an actual case and that are likely to vary systematically from one case to another. Much of the postevent information to which a witness is exposed is inadvertantly supplied by various agents throughout the legal process. In addition, the time manipulation does not deal with the possiblity that instructing participants to read the account slowly might imply to them that there is something (like a discrepancy) to notice in the passage. Because a written account of an event is not likely to be the prime source of misleading information in a real case, manipulations concerned with written accounts are likely to be low in ecological validity. In addition, the differential effects between social influences and other detectabilty factors (like time) have not been teased apart to this point. Therefore, the studies reported in the present paper were designed to investigate the effects of potential social factors that witnesses are more likely to encounter in an actual case.

Other researchers besides Loftus have conducted studies in an effort to further investigate possible social influences that might account for Loftus's findings regarding the apparent distortion of eyewitness

memory (e. g., Dodd & Bradshaw, 1980; Wienberg, Wadsworth, & Baron, 1983). In the Dodd and Bradshaw experiment, witnesses were given a written account of a traffic accident and were told that it was composed either by the lawyer for the party charged with the mishap or by the innocent victim-driver. Dodd and Bradshaw demonstrated that if people believed that the source of the misleading information might have had some motive to mislead them (i.e., the defendant's lawyer), information thus presented was not incorporated into the people's memories for the event.

Weinberg et al. (1983) attempted to reduce any demand characteristics that might be operating in the typical postevent information procedure by including an item in the forced-choice test that was neither presented originally nor implied in the questionnaire, in addition to the correct slide. Weinberg et al. felt that if the misleading information was not represented by a slide in the memory test, the witnesses would be encouraged to accurately select the slide originally presented. Weinberg et al. concluded that misleading postevent information still resulted in less accurate testimony from the witnesses who received it, in comparison to those who received consistent information.

Methodological problems, described by McCloskey and Zaragoza (1985a), render the Weinberg et al. (1983) conclusions suspect, however. McCloskey and Zaragoza utilized the same procedural modifications attempted by Weinberg et al. and found no apparent memory distortion. McCloskey and Zaragoza point out that a poor choice of stimuli confounded the Weinberg et al. results and claim that the concept behind the modified procedure is valid, namely that the presentation of

misleading postevent information does not affect the probability that the original information will be forgotten or rendered inaccesible. McCloskey and Zaragoza argue instead that witnesses who receive misleading postevent information are no more likely to forget the original information than are those who were not misled. It then follows that those witnesses who forgot the original information, but who remember the postevent information because it is more recent, will be more likely than control witnesses to access the postevent information during retrieval. Witnesses who received misleading postevent information, then, will provide a false report and will thus appear to have had their original memory impaired by the misleading information.

The debate between supporters of different versions of a memory impairment hypothesis (e.g., Loftus, Miller, & Burns, 1978; Bekerian & Bowers, 1983) and those who do not believe that misleading postevent information affects a person's original memory for an event (e.g., McCloskey & Zaragoza) is far from settled. A paper by Loftus, Schooler, & Wagner (1985) outlines a number of responses to the modifications suggested by McCloskey and Zaragoza (1985a). In that paper, Loftus et al. suggest that that McCloskey's and Zaragoza's modified procedure is not sufficiently sensitive to assess the effect of misleading postevent information and argue that research on "blend" memories is inconsistent with the no-impairment hypothesis. Blend memories have been demonstrated by Loftus (e.g., 1977) using people's estimates of color. A typical study involves presenting participants with a picture of, say, a green car in a series of slides. The participants are then presented with a written account of the event depicted in the slides. The account implies that the car in the slides was actually blue. The blend memory

phenomenon occurs at retrieval: Participants identify the color of the car as being a compromise between the original and implied colors (bluish-green, in this case). Loftus argues that the blend memory phenomenon supports her view that postevent information impairs people's original memories. In turn, McCloskey and Zaragoza (1985b) have countered these arguments and still contend that their modified procedure is the best way to assess the effect of misleading postevent information on memory.

An Approach to Studying More Ecological and Social Influences

A major source of contention with the basic Loftus procedure for assessing the effect of misleading postevent information is that participants are forced to accept inconsistent postevent information because it is presented on a formal, typed questionnaire, leaving very little room for doubt that the information must be factual. Loftus has admitted that there might be some demand characteristics influencing the participants' responses (Loftus et al., 1978, Experiment 2). Her attempt to test for demand characteristics, however, consisted only of a "debriefing questionnaire" (p. 22) that allowed participants to admit if they had merely complied with the inconsistent postevent information because they wanted to oblige the researcher. Participants' responses to the questionnaire did not indicate that they were influenced by what they perceived to be the purpose of the experiment. Unfortunately, this procedure is not a compelling test of the demand characteristic hypothesis because it is unlikely that people will voluntarily admit to having conformed to the experimenter's wishes.

The thesis of this paper argues that the participants in a typical Loftus experiment are persuaded by social factors to infer that incorrect postevent information is accurate and that the participants then access the inaccurate inference during the retrieval task. The exact nature of this influence is difficult to determine, however. In a classic study, Asch (1951) demonstrated that the pressure to conform to the opinions of others is extremely powerful. Knowing this, it is logical to suspect that many of the participants in Loftus's studies felt that, because other "witnesses" had not corrected the misleading information as it appeared

on the questionnaire, they might have felt that it was not their place to bring the discrepancy to the experimenter's attention. On the other hand, the participants might have reasoned that any information provided by the experimenter is more likely to be accurate than is their own memory for the event because they assume that the experimenter is intimately familiar with the details in the slides. To illustrate this second possibility, consider how an experienced multiple-choice test-taker uses the information contained in a test to his or her fullest advantage: If Question 10 asserts a certain relationship between two things (e.g., "Festinger's cognitive dissonance theory proposed that . . ."), and Question 21 asks if that relationship exisits (e.g., "Who proposed the cognitive dissonance theory?") the intelligent test-taker will use the information previously provided and be assured of giving the correct answer. All that the test-taker must assume is that the examiner is knowledgable and trustworthy in constructing test questions. In fact, even if the asserted information is incorrect, the examiner is bound to accept an answer consistent with that information or stand accused of constructing an invalid test. The similarity to the witness' predicament in a Loftus-style study is clear. A witness faced with credible information from a source who has no apparent motive to deceive might likely infer that that information is correct and, therefore, access that information when the witness' memory is tested later. The original memory might remain intact, though fuzzy, while the inference gained from the presented information dominates subsequent testimony.

Most researchers would agree that our investigative efforts are best aimed at eyewitness-memory distortion as it is most likely to occur in an actual crime setting. My argument to this point is that the typical

Loftus procedure is not representative of a real criminal investigation. The problem of people conforming to inconsistent postevent information even when they know it to be false, however, has significant implications for actual eyewitness interviews. Afterall, in an actual crime setting the police officer is known by the eyewitness to be ignorant of the event and therefore dependent upon the eyewitness reports to determine what transpired. On the other hand, there are certain circumstances in which a witness might reasonably believe that the police officer possesses some information about the event and that, therefore, there is some pressure on the witness to appear consistent with this information. Consider this scenario: Four people witness an auto accident at a large urban intersection. They remain at the scene, waiting for the police to arrive so that they can relate their version of the accident. The cars involved in the accident are towed away as they are blocking traffic. Upon arrival of the police, the witnesses are separated and each is asked to wait on one of the corners of the intersection. (This is the standard procedure recommended by most eyewitness researchers and by most police departments.) Consider Witness Number 4: He or she watches the police constable interview each of the other three witnesses on the other street corners, unable to hear the other people's stories, all the while rehearsing his or her own version of the accident. Witness Number 4 is sure that the blue car was speeding when it collided with the pick-up truck in the intersection. When the police officer finally gets to our witness, he asks: "How fast do you think the pick-up truck was going when it ran into the blue car?" Our witness flushes, believing that the other witnesses must have said that the pick-up truck was at fault in the accident, contrary to Witness

Number 4's own belief. Our witness responds, "Oh, about 60 or 65 kilometers an hour, I suppose." Obviously, this is a worst-case scenario. Witness Number 4 was the last to be interviewed and the constable's implication of who was at fault was directly opposed to our witness' belief. The point, however, is clear: Thinking that the constable had received a consensus from the other witnesses that was inconsistent with our witness' own belief, Witness Number 4 felt pressured to respond in accordance with that consensus.

Within the context of the Greene, Flynn, and Loftus (1982) article, in which a warning served to reduce the incorporation of inconsistent postevent information, believing that the experimenter is unfamiliar with an event might act as a warning of sorts, in that the witness should now be alerted to the possibility that the information contained in the experimenter's interview is more susceptible to error. Similarly, believing oneself to be the first of several witnesses to be interviewed might also be construed as a type of warning, alerting the first witness to the fact that none of the other witnesses in his or her group have been questionned about the event and that the accuracy of his or her answers might set the trend for further questioning. These two situations represent a more ecologically valid investigation of the possible resistance to misleading postevent information than does an explicit warning to witnesses to be alert to possible false information. These two situations were operationalized in the current thesis as a means to further understand the importance of witnesses' perceptions of the context in which his or her memory might be at odds with other sources of information. It was hypothesized that, although misleading information might result in an overall decrement in accuracy compared

to people who receive leading or neutral information, those who receive the misleading information from a source who apparently is not very familiar with the details of the event (much like a police officer or attorney) will be more likely to resist the misleading information. The ability of people in these situations to resist the postevent information should be evidenced in their accuracy scores, which should be more similar to the people who receive the leading or neutral information than to those who receive the misleading information from the familiar experimenter or those in the unstated familiarity condition. In addition, it is expected that witnesses in the familiar-experimenter or unstated-familiarity conditions who receive misleading information should indicate that they have less confidence in their choices than do witnesses in the other seven conditions.

One of the assumptions associated with the hypothesis is that some people who receive misleading postevent information, but who remember which of the two slides in the forced-choice task is correct, will choose the incorrect slide consistent with the postevent information because of the alleged social pressure. McCloskey and Zaragoza (1985) have provided some examples in which the proportion of witnesses who actually knew the correct response is distinguished from those who happened merely to guess correctly. If, for example, 75% of the witnesses choose the correct slide, McCloskey and Zaragoza suggest that only 50% of the people really know the correct response and that the other 50% resort to guessing ; because it is a two-alternative choice, those people who guess have a 50% chance of being correct so they constitute 25% of the "accurate" witnesses (i.e., 75% CORRECT = 50% KNEW + 25% GUESSED CORRECTLY). In general, the percentage of people

who actually knew the original detail (K) can be calculated by:

$$K = 2 (C - 50)$$, where C = percentage correct overall

and the percentage of people who guessed correctly (GC) can, in turn, be calculated by:

$$GC = \frac{(100 - K)}{2}$$

A t-test will be conducted to test the prediction that the familiar experimenter might influence participants who really know the correct answer to respond incorrectly. If the accuracy score in the familiar experimenter/misleading information condition is significantly below the estimate of witnesses who really knew the correct response in the control condition, then it could be concluded that witnesses who really knew the correct response did not select the correct slide because of the social influences present in the familiar-experimenter condition.

II. STUDY 1

Method

Participants and design. The participants in Study 1 were 158 introductory psychology students, participating for partial fulfillment of a course requirement. The participants arrived at the laboratory in groups of four, but each person viewed the to-be-remembered event individually. The study used a 3 (experimenter type) x 3 (postevent information type) factorial design. Participants were led to believe that the experimenter was very familiar with the to-be-remembered event, was confused regarding many of the details in the event, or they were given no information about the experimenter's familiarity or unfamiliarity with the event (control). The postevent information presented to the participants was either leading (i.e., consistent with the original information), neutral, or misleading. Participants were randomly assigned to one of the nine conditions. The versions of the to-be-remembered detail in each of the four critical slides was counterbalanced; that is, half of the participants in each condition were presented with one version of the event (e.g., a BLUE backpack) and the other half were presented with the other version (e.g., a BROWN backpack). In addition, the left-right position of the originally-presented slide in the test phase was counterbalanced so that half of the participants saw the correct slide on the left side of the screen and the other half saw the correct slide on the right side of the screen.

Materials. The 24 slides depicting the to-be-remembered event were photographed with a 35mm SLR camera on Kodachrome film. The slides were subsequently recorded onto 18.75mm videotape. Each slide was visible for 5 seconds on a 50mm color television. The event involved a realistic portrayal of a purse snatching, in which a bearded thief grabbed a young woman's purse in a hallway while she was waiting for an elevator. The perpetrator then fled down the hallway, through a door, and into a staircase area. He then removed some money from the purse, left the purse behind, and nonchalantly exited the building onto the street. Among the 24 slides, 4 were "critical" slides for which there was an alternative slide that differed slightly from the original. The critical details were the color of a backpack (blue vs. brown), the type of soft drink container (Pepsi bottle vs. Pepsi can), a chair vs. a desk in a hallway, and a STOP sign vs. a YIELD sign on street corner. The four critical slides were interspersed among five other slides from the original event, for a total of nine slides in the test phase.

Procedure. Upon entering the laboratory, the participants were led to believe that the study was concerned with assessing their preferences for moving-picture versus still-picture video presentations and that they would be viewing a sample of each medium after the experimenter provided them with a few initial instructions. In the confused researcher condition, the participants were told that the experimenter would be viewing the videotapes for the first time. The participants were then escorted to individual rooms (cubicles), each of which was equipped with a television monitor and a pair of headphones. Participants were asked to seat themselves comfortably and put the headphones in place. The door to each cubicle was closed and the

experimenter delivered the remaining instructions over an intercom system.

Participants were told that the first videotape they would see was a series of still slides for which they would be no accompanying audio, in case the experimenter needed to provide the participants with more instructions during the presentation. The experimenter then switched on the VCR and the slides began to appear. In the confused researcher condition, the experimenter left the intercom microphone on and activated an electric bell very similar to a telephone.[1] All participants could clearly hear the bell and the experimenter was heard to mutter, "Oh, oh" just before he or she switched off the microphone. The series of 24 slides lasted approximately 2 minutes. After the slides were presented, the participants were instructed over the headphones to complete a "Video Habits Inventory" that was on the table in front of them (see Appendix 1).

---

[1]Note that the first critical slide did not occur in the series until 15 seconds into the presentation, so that the telephone manipulation did not distract the participants' attention from any important details. If anything, any distraction caused by the manipulation would have been likely to cause a decrement in performance for participants in the confused condition, which runs counter to the hypothesis; therefore, the manipulation should not be considered a confounding variable just because it was encountered only by participants in the confused condition.

The questionnaire consisted of 10 items that were intended to convince the participants that the cover story (i.e., people's preferences for still- versus moving-picture video presentations) was indeed valid. They were given 1 1/2 minutes to complete the questionnaire. When everyone was finished, the experimenter instructed the participants to watch the moving-picture presentation that followed. The film was a clip from a fairly recent commercial motion picture ("The Outsiders"). The film served as a seemingly relevant activity, yet actually was an unrelated filler task.

After the film had played for 8 1/2 minutes, the experimenter randomly determined which of the four participants was to be interviewed first. The participant was escorted to the main room in which the group of four were greeted initially and asked to take a seat across the table from the experimenter. In the familiar-researcher condition, participants were told the following:

> I'm supposed to get you to answer some questions about the slides that you saw at the beginning of our session. Ya know, I must've seen these slides about a hundred times so it was pretty easy for me to come up with these questions about them for you to answer, and I'm supposed to get you to answer them for me now. I know that they're not the most exciting slides in the world, but we'll have to go through with this anyway. If you can't remember what you think is the exact answer, just give me your best guess; one or two words will do for all of them. O.K.?

The experimenter then asked the participant nine questions relating to the slides, apparently recording the participant's responses (see Appendix 2). The interview required only 2 minutes to administer.

In the unstated-familiarity condition, the instructions to the participant were nearly the same except that instead of indicating that he or she was very familiar with the slides, the experimenter asked the participant if the headphones were bothersome ". . . as some people found them to be too tight". The participant gave an appropriate reply and the interview continued.

In the confused researcher condition, the story was quite different. Recall that the participants in this condition heard the "telephone ring" and heard a surprised response from the experimenter over the intercom. Just prior to the interview, the participant was told that the experimenter had to answer the telephone (which was visible during the interview) and that he or she therefore did not get a really good look at many of the slides. However, the experimenter told the participant that he or she had managed to construct the nine-item questionnaire anyway. From there, the interview continued as before.

After all of the participants had been interviewed, the film continued for 5 minutes. The film was then stopped and the participants were told that the next phase of the study was upcoming. The experimenter delivered a response sheet (see Appendix 3) to each participant in exchange for the completed "video questionnaire". Participants were then instructed over the intercom to expect a series of nine pairs of slides to appear on their television monitors in 5 seconds. They were told that one of the slides was the same as one of the slides they had viewed in the original presentation and that the other had not been presented before. They were asked to indicate which of the slides they had seen earlier and to indicate the confidence they had that their choice was accurate (from 1=very confident to 7= not at all confident).

The left/right position of the slides was counterbalanced and each pair of slides was presented for 10 seconds.

After the test phase, the participants were asked to leave their cubicles and to meet the experimenter back in the main room where they began. At that point, the participants were probed for their suspicions as to the ". . . real nature of the study, above and beyond what you were told at the outset of the session". A complete debriefing was then delivered (see Appendix 4) and the participants were thanked for their assistance.

Results

Four of the nine pairs of slides presented to the participants in the test phase of the study were critical pairs; one slide had been presented to the participant in the original slide sequence, the other had not, and the participant may or may not have received misleading information in the intereview consistent with the novel slide. A participant's accuracy score consisted of the number of original slides chosen from among the four critical pairs. The accuracy scores for three types of information as a function of the experimenter's apparent knowledge of the event are illustrated in Figure 1.

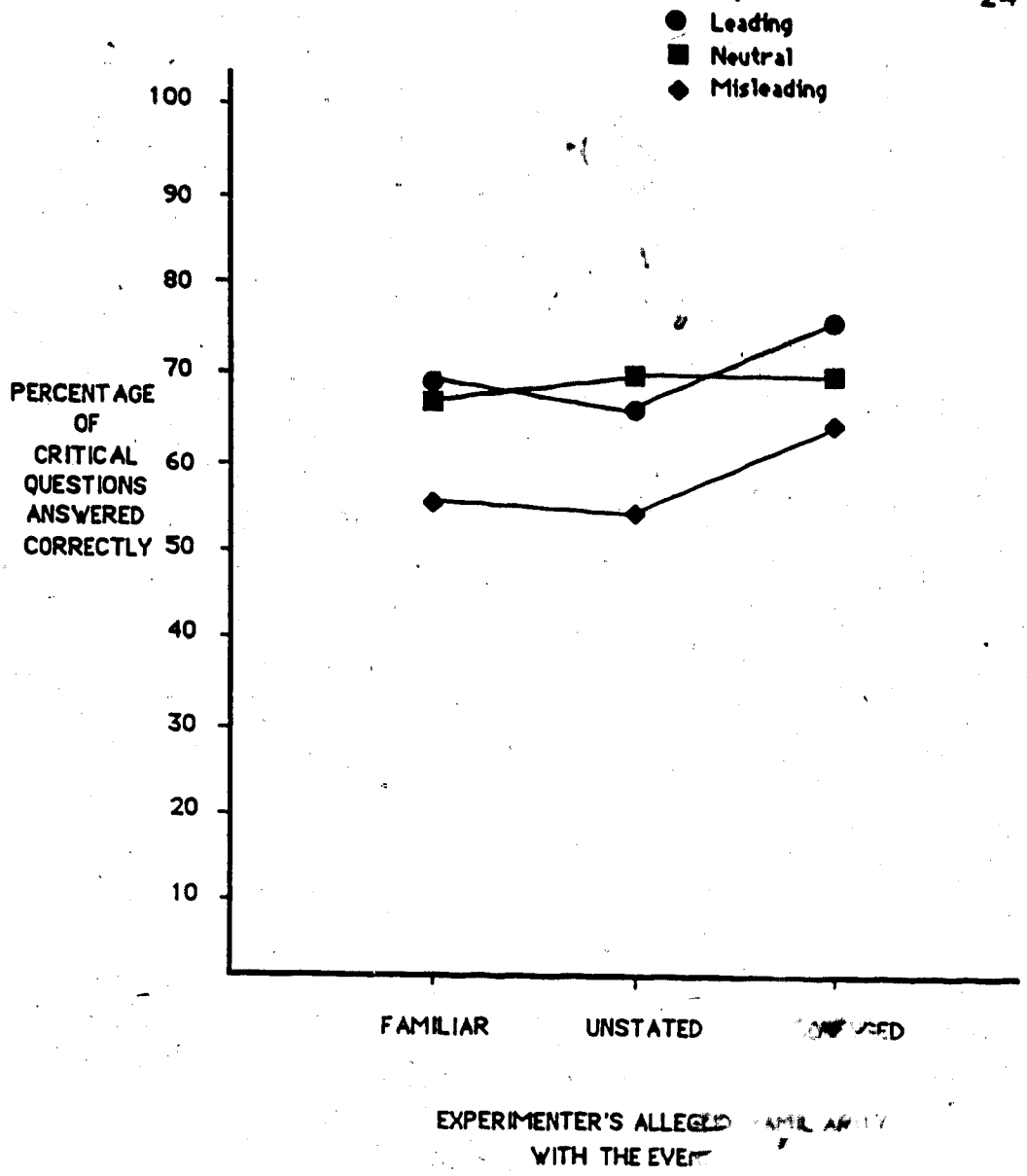

FIGURE 1. The percentage of critical questions answered correctly for the three types of postevent information as a function of the experimenter's alleged familiarity with the event.

A two-way analysis of variance (ANOVA) revealed a significant main effect for the information variable; that is, participants who received misleading information in the interview were less accurate overall than those who received either leading or neutral information, $F(2, 149) = 3.596$, $p < 0.01$. No main effect for the experimenter variable was evident and there was no interaction between the two variables (both F's < 1). Recall, however, that an experimenter-type main effect was not predicted. Also, the lack of an overall interaction between experimenter-type and information-type does not indicate that the hypothesis was not supported. Instead, the hypothesis predicted a particular configuration of the data--an interaction between the variables such that only participants who received the misleading information from the familiar experimenter or in the unstated familiarity condition were expected to be significantly less accurate than participants in the remaining seven conditions. Therefore, a planned contrast to test for this pattern in the accuracy scores was conducted (see Figure 2 for the contrast coefficients assigned to each condition and the hypothesized configuration of the data). The contrast indicated that this prediction accounted for a large proportion of the total between-condition variance, $F(1, 149) = 10.353$, $p < 0.005$. In other words, those participants who received the misleading information from either the familiar-experimenter or were in the unstated-familiarity condition scored significantly lower than those in the remaining conditions. Importantly, however, participants who also received misleading information, but from an experimenter who apparently was

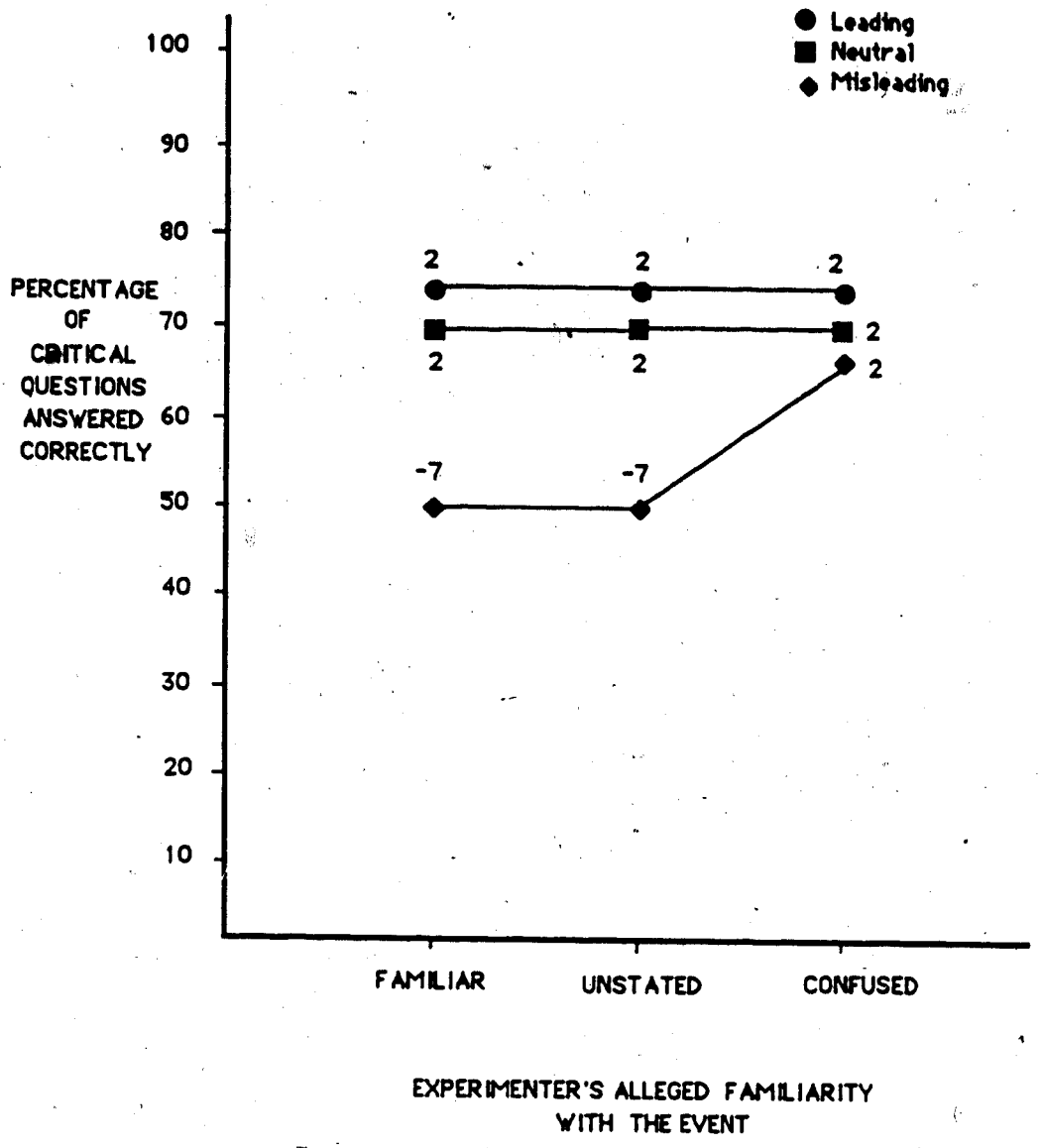

FIGURE 2. The hypothesized configuration of the data, including the contrast coefficients assigned to each condition. Note: The percentage values were arbitrarily chosen.

not familiar with the event, achieved accuracy scores that were not significantly different from those achieved by participants who did not receive misleading information at all. A test on the remaining between-condition variance not accounted for by the contrast indicated that the residual sum of squares was not significant, $F < 1$.

The participants' responses to each of the four pairs of critical slides were analysed by a 2-way, multivariate analyses of variance (MANOVA). In this case, the responses were dichotomous; a participant could score either a 1 for an incorrect choice or a 2 if he of she chose the slide that had been presented in the original series. These data are illustrated in Figure 3. The MANOVA revealed that the predicted configuration of the data again accounted for a significant amount of the variation among the group means when all four questions are considered simultaneously, Wilk's Lamda = 0.841 and the corresponding $F(4, 146) = 6.907$, $p < 0.001$. Again, this result indicates that the responses from participants who received the misleading information from the confused experimenter were more similar to those who received both leading and neutral information from any experimenter-type than to those who received misleading information in the familiar or unstated familiarity groups.

The confidence ratings for the participants' choices on each of the four critical slide-pairs were also analysed using a MANOVA procedure (see Figure 4 for the confidence data). The hypothesis predicted that participants who received the misleading information in the familiar or unstated familiarity conditions should be less confident than the

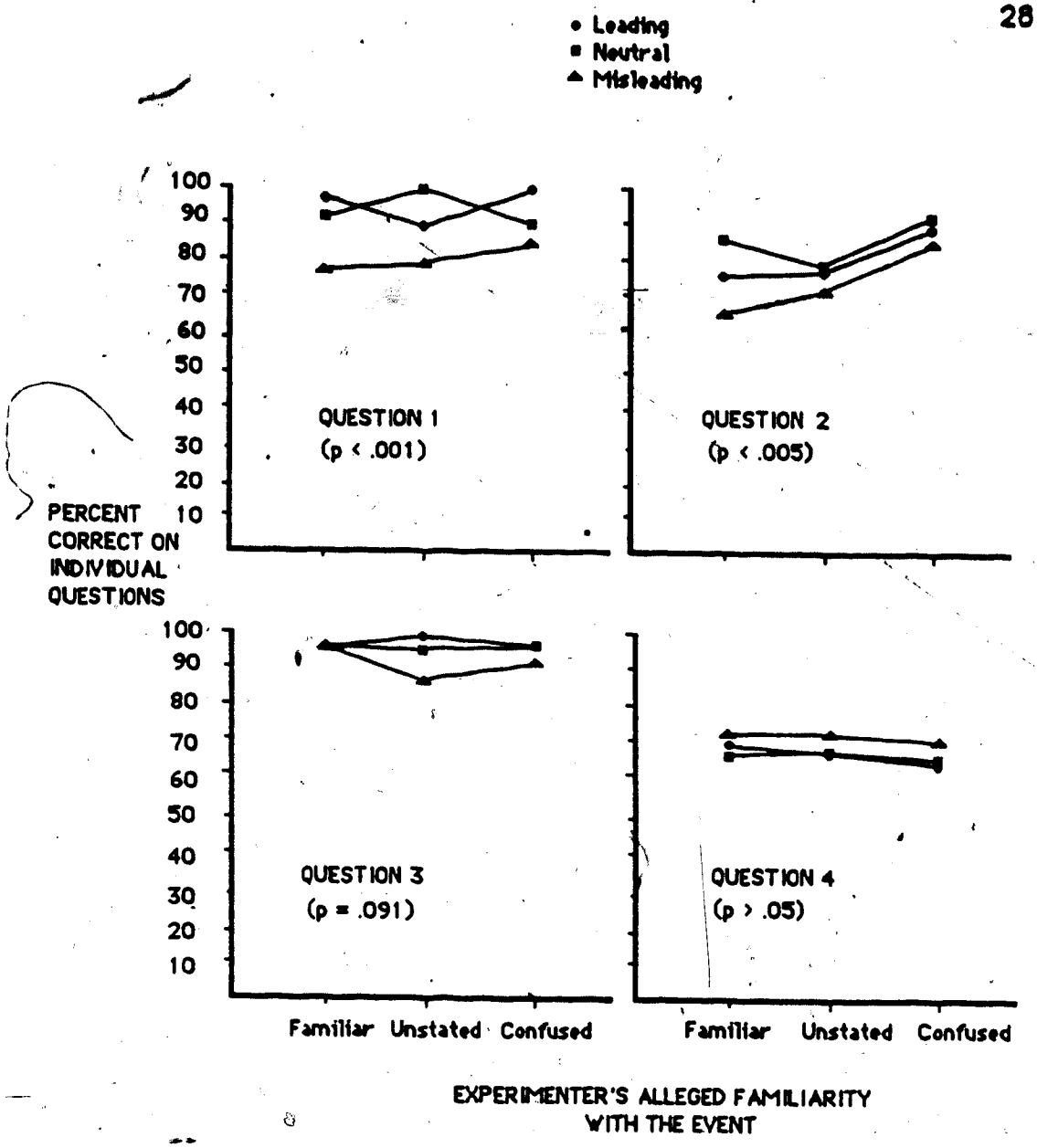

Figure 3. The mean percent correct for the three types of information as a function of the experimenter's alleged familiarity with the event for each critical question. The "p-values" represent the probabilities associated with the univariate F-tests for each critical question.

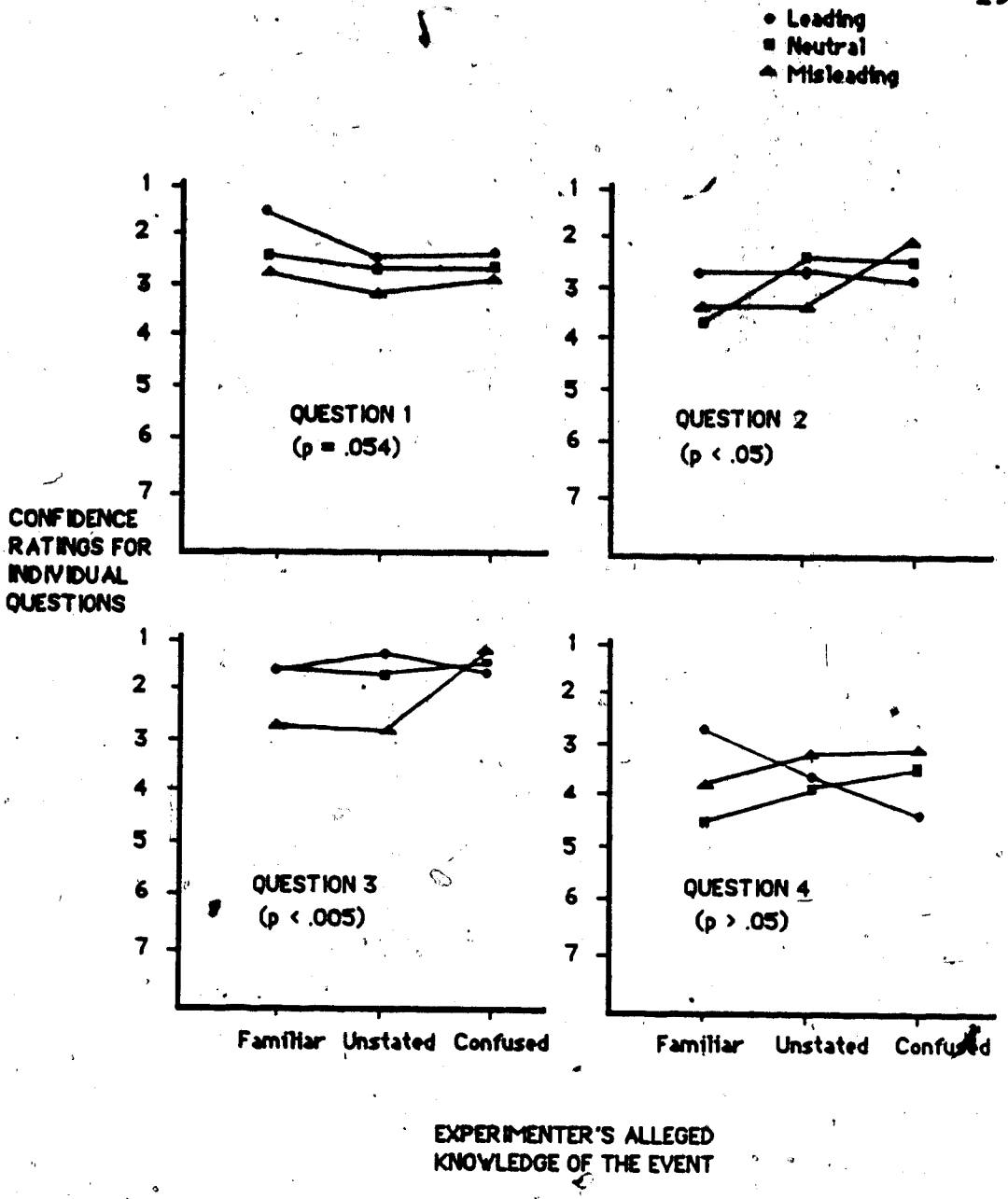

Figure 4. The mean confidence ratings for the three types of informations as a function of the experimenter's alleged knowledge of the event for each critical question. The "p-values" represent the probabilities associated with the univariate F-tests for each critical question.

participants in the other seven conditions. Again, the data supported this hypothesis, Wilk's Lambda = 0.901 and the corresponding $F(4, 146) = 3.996$, $p < 0.005$.

Recall that another of the predictions involved estimating the number of participants who really knew the correct response as compared to those who merely guessed correctly. Did the misled witnesses in the familiar-experimenter conditions respond at a rate that suggests that some of them who knew the correct answer responded incorrectly so as to conform to the experimenter's expectations, or because they inferred that the experimenter possessed more accurate information? The proportion of witnesses who knew the correct response for each question was estimated from the accuracy scores in the unstated familiarity/neutral information condition (controls). Table 1 shows these estimates compared with the accuracy score from the familiar experimenter/misleading information condition for each critical question. The comparisons did not indicate that the number of misled witnesses who selected the correct slide was lower than the number who were estimated as knowing the correct response; that is, the data are consistent with the idea that those people who knew the correct response gave it and that only those who did not know the correct response were influenced by the misleading postevent information.

A Pearson Product Moment Correlation was also computed to determine the relationship between the participants' confidence and accuracy. The analysis indicated low to moderate correlations, none of which was signficant at the 0.05 level.

CRITICAL QUESTION	ESTIMATED PERCENTAGE OF PEOPLE WHO ACTUALLY KNEW THE CORRECT RESPONSE IN THE CONTROL CONDITION	OVERALL PERCENTAGE CORRECT IN THE MISLED CONDITION
1.	100	78
2.	58	67
3.	90	97
4.	36	72

Table 1. Comparisons between the estimated percentage of people who actually knew the correct response in the control condition against the overall percentage who gave the correct response in the Familiar Experimenter/Misleading Information Condition.

Discussion

The results from Study 1 provide support for the hypothesis that people comply with misleading information provided by an experimenter when he or she appears to be highly familiar with the event to which the information pertains. The configuration of the data indicated that only those people who received misleading information in the familiar-experimenter condition, or when the experimenter's familiarity was not stated, were significantly less accurate than those who did not receive misleading information; those who received the misleading information from the confused researcher responded more like they had received either leading or neutral information.

It is not clear which of the familiar-experimenter or unstated-familiarity conditions more closely resembles the status of an experimenter in a typical Loftus-type study. Some participants might have assumed that the experimenter was familiar with the event; the experimenter might have unwittingly implied that that was the case by the ease and confidence with which the procedure was executed. On the other hand, a good experimenter would strive to avoid providing cues to imply such familiarity on purpose, but subtle, unconscious cues are apt to be detected by some people . Regardless of the degree of familiarity inferred by the participants in these other studies, participants who received the misleading information from the confused experimenter in the present study were less likely to incorporate the misleading postevent information than were participants in either of the other two familiarity conditions.

These results stand in contrast to findings from the study by Greene,

Flynn, and Loftus (1982), in which an overall decrement in performance was exhibited by participants who received a warning to be alert for possible discrepant information, but who actually were not presented with such information. In the present study, the ability to resist misleading information was demonstrated by those participants who received it from a confused experimenter, but those who received leading or neutral information from the same experimenter-type did not show any ill effects of the manipulation. In other words, in the leading and unstated information conditions, being led to believe that the experimenter was confused regarding some of the details of the event in question did not result in participants scoring significantly different from those who were led either to believe that the experimenter was familiar with the event or those who were given no information regarding the experimenter's familiarity.

Study 2 was conducted to investigate the effect of the witness' perceived position in the ordering of multiple witnesses to the same event. It was predicted that those people who were led to believe that they were the first to be interviewed would be more likely to resist incorporating misleading information into their testimony, than would those who were led to believe either that they were the last to be interviewed or those who received no information as to where they belonged in the order. In addition, it was expected that witnesses in the last- or no-position-information conditions who received misleading information would indicate that they had less confidence in their choices compared to witnesses in the other conditions.

III. STUDY 2

Method

Participants and design. The participants in Study 2 were 92 introductory psychology students, participating for partial fulfillment of a course requirement. As in Study 1, the participants arrived at the laboratory in groups of four, but each person viewed the event individually. The study used a 3 (perceived position) x 2 (PEI type) factorial design. Participants were led to believe that they were either the first or the last witness in the group to be interviewed, or they were given no information regarding t[redacted]alleged position. Only two types of PEI were used for Study 2, leading and misleading; the neutral information condition was dropped because it appeared to have exactly the same effect as leading information in Study 1.

Materials. The same slide-event was used for Study 2. The only difference between the two studies relevant to this section is a change in the filler activity; a clip from a different commercial motion-picture was used ("Time After Time").

Procedure. The same cover story that was used for Study 1 was used in Study 2; namely, that the purpose of the experiment was to assess people's preferences for moving-picture versus still-picture video presentations. In Study 2, however, more of an effort was made to lead the participants to believe that the experimenter was unfamiliar with many of the details related to the video presentations about which he or she would be asking the participants questions later in the session. The experimenter told the participants that the usual experimenter for the

current study had called in sick for that day, but that he or she had been involved in a very similar study last year, so the questions that he or she had used then should be adequate to collect most of the information now. The experimenter admitted that many of the details in the slides had been changed over the year and that many different versions of the event now existed, but that the version he or she would be showing today was not necessarily different from the original. As in Study 1, after the participants received these intial instructions, they were then led down the hallway to the individual cubicles to view the video presentations.

The same subsequent instructions used in Study 1 were given in Study 2, except that there were no special actions taken by the experimenter like those used in the confused experimenter condition for Study 1. The participants viewed the slide presentation, completed the video questionnaire, and watched the filler film. The delay between the end of the slide presentation and the beginning of the first interview was again 10 minutes. The experimenter randomly determined which of the four pariticpants would be the first to be interviewed and asked that person to accompany the experimenter to the main room. All participants were reminded that the experimenter had not viewed the slides during the session, that he or she had not seen the slides for about a year before that, and that the version used in that session might be slightly different from the one with which the experimenter was familiar at that time. Note that this is very similar to the warning delivered in the Greene et al. (1982) study, but that it was not a manipulation in the current study -- all participants received the same story.

In the first-witness condition, the participant was told that he or she was the first to be interviewed so the experimenter ". . . hope[d] that the questions made sense and that [he or she] could ask them with as little

stuttering as possible [laugh, laugh]". At the end of the interview, the experimenter explained that he or she had better hurry so that the remaining three people in the group could be interviewed before the session was over. In the last-witness condition, the participant was told that the other three people in the group had already provided their responses. Three completed interview sheets were visible to the participant, though they were turned upside down and face-down and in fact contained unintelligible responses. The experimenter also mentioned that he or she was now fairly well practised at asking the questions so the interview was expected to go quite smoothly. At the conclusion of the interview, the experimenter explained that everyone in the group was now at the same point in the required procedure. In the unstated-position condition, participants were again asked an innocuous question regarding their headphones so that the experimenter conversed with each participant for about the same length of time regardless of the position condition. From here on in the session, the procedure was the same as that used in Study 1. The debriefing for Study 2 was the same as for Study 1 (see Appendix 4), except that the explanation of the independent variables was consistent with the what actually took place in Study 2.

Results

The data for Study 2 are presented in Figure 4. An initial ANOVA did not reveal any main effects or an interaction for the information and position variables. In other words, those participants who received misleading information did not score significantly different from those who received the leading information, a witness' perceived position in the interviews did not affect his or her accuracy score, and the difference between the levels of one of the factors was not dependent upon the level of the other factor (all F's < 1).

Recall that the hypothesis predicted that last- and unstated-position witnesses who received the misleading information would score significantly lower than those who thought that they were the first to be interviewed. In addition, it was predicted that first-witnesses who received misleading information would score more like witnesses who received leading information in all position levels (see Figure 5 for the contrast coefficients and the predicted configuration of the data). The planned contrast indicated that the prediction was not supported by the data overall, F < 1. In addition, when all four questions were analysed simultaneously (MANOVA), the contrast also failed to indicate a significant fit between the predicton and the data, Wilk's Lambda = .960 and the corresponding F < 1. With respect to the confidence measure, there was a non-significant trend toward supporting the prediction that participants in the last- and unstated-position conditions who received misleading information would be less confident than participants in the

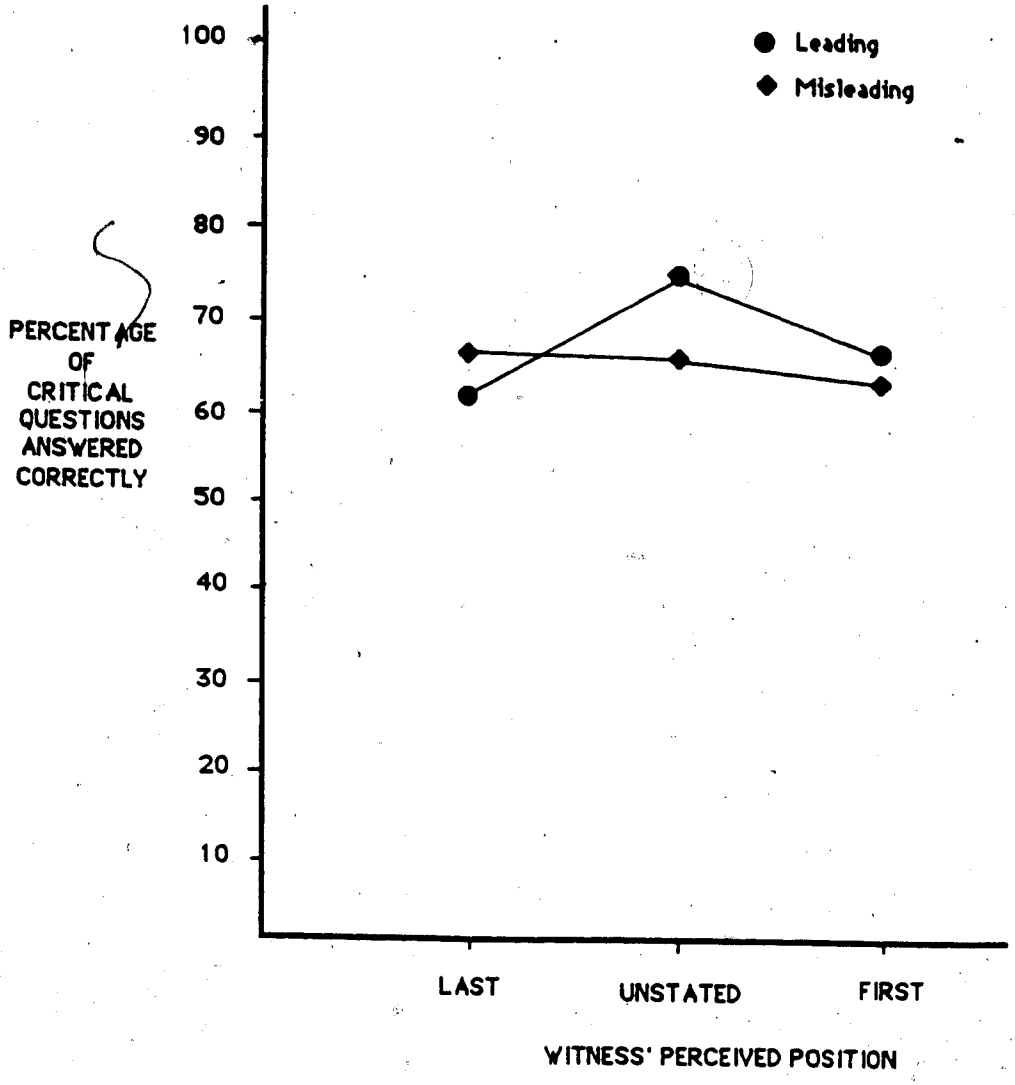

FIGURE 5. The percentage of critical questions answered correctly for the three types of postevent information as a function of the witness' perceived position in Study 2.

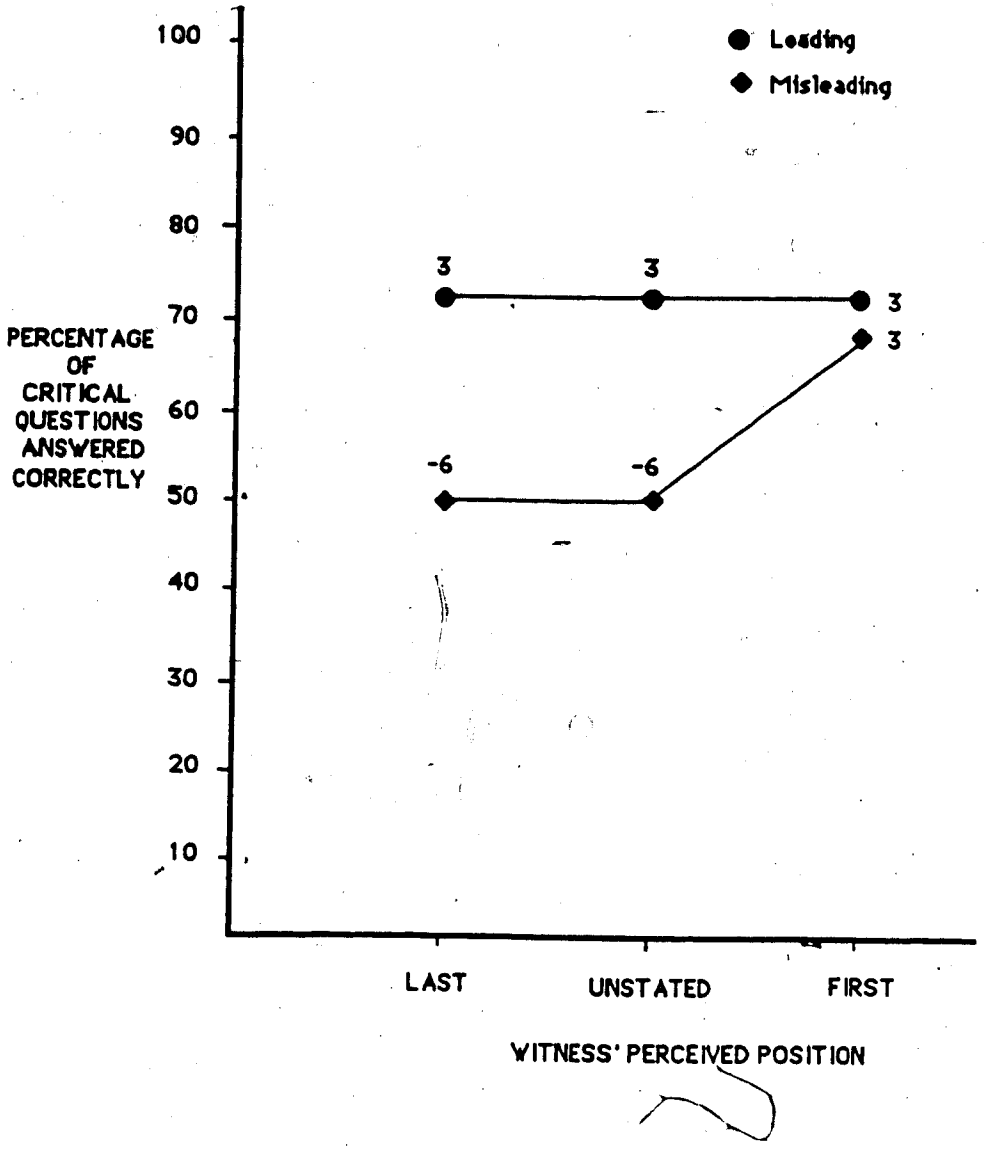

FIGURE 6. The predicted configuration of the data for Study 2, including the contrast coefficients assigned to each condition.

other conditions, Wilks Lambda = .909 and the corresponding F (4, 83) = 2.070, p = 0.092.

Discussion

The position and information manipulations in Study 2 did not result in the expected differences in accuracy scores. It is interesting to note, however, that the lack of a significant difference between witnesses who received leading and misleading information can be interpreted in light of the findings from Study 1. The familiarity manipulation in Study 1 was achieved by leading some witnesses to believe that the experimenter was confused regarding some details of the event depicted in the slide presentation, while other witnesses were led to believe either that the experimenter was very familiar with the event or they were given no information regarding the experimenter's alleged familiarity. The results in Study 1 indicated that witnesses in the confused experimenter condition who received misleading information scored more like witnesses who had received leading information. In Study 2, on the other hand, it was emphasized for all witnesses that the experimenter apparently was not familiar with the event; the position manipulation was expected to produce differences among witnesses above the new baseline accuracy-score produced by having an apparently confused experimenter in all conditions. The fact that the accuracy scores for witnesses in the leading and misleading conditions were not significantly different in Study 2, therefore, is consistent with the conclusion reached in Study 1 that witnesses who believe that the experimenter is not familiar with the event are able to resist the incorporation of misleading postevent information.

In retrospect, the failure of the position manipulation in Study 2 to

produce the expected differences can be accounted for if one considers the assumptions that experienced research-participants might draw in the situation they faced in the present study. It was expected that the last witnesses would infer that if a discrepancy in a question still existed, despite the fact that the other three people in the group had already had the question put to them, then those three people must have agreed that the question was accurate. Put another way, the hypothesis predicted that the last witnesses would assume that if the other three people had detected the discrepancy, they would have informed the experimenter and he or she would have altered the wording of the question to bring it in line with what actually transpired in the event. Unfortunately, many research participants were perhaps too sophisticated to assume that an experimenter would alter the procedure of an experiment merely on the basis of the comments from three participants. It is part of an introductory psychology education to know that an experimental procedure should not be changed midstream and that adhering to the design and procedure protocol is one of the basic tenets of good experimental research. Therefore, perhaps it is not suprising that the last witnesses were not significantly more likely to incorporate the misleading information into their testimony than were the first witnesses.

IV. GENERAL DISCUSSION

Many aspects of the results from the studies reported here must be considered to draw an appropriate conclusion regarding the impact of social influences on eyewitness testimony. The relatively small effect-size in Study 1, along with the failure of that study to influence people who probably had an accurate memory of the original event in the first place, do not allow for a sweeping revision of the conclusions drawn by earlier misleading question studies. The significant fit of the predicted pattern to the data, however, does allow for the possibility that some proportion of the witnesses who provided inaccurate testimony in those studies did so either because they assumed that the information provided by the experimenter was more likely to be correct than were their own original memories, or because they did not want to upset the flow of the experiment on the basis of what they assumed to be a minor inconsistency in an otherwise complicated and involved procedure. The possibility also exists that witnesses in the confused experimenter condition were especially alert to detect any discrepancy between the interview and the original presentation. This possibility will be discussed more fully later in this section.

Although the position manipulation in Study 2 did not produce the expected differences, the lack of significant difference between witnesses who received leading and misleading information further supports the notion that much of the misleading question effect might be

due to social influences. In Study 2, all witnesses were led to believe that the experimenter was unfamiliar with the event, and as a result misled witnesses were not susceptible to incorporating the false information. These results suggest that witnesses in a typical misleading information study might appear as having been misled, but were actually influenced by the experimenter's apparent familiarity with the event to choose the incorrect slide.

In spite of the failure of Study 2 to reveal an effect for the position variable, it is possible that the rationale behind the experiment is still valid, but that the procedure would require major changes to detect any tendency for people to alter their testimony so that it is consistent with what they believe to be the testimony provided by other witnesses to the same event. As mentioned above, it is likely that participants did not expect the experimenter to alter the procedure of the experiment based on the comments of three participants, so they probably did not assume that these three people necessarily agreed with, or were the source of, the discrepant information. Future studies designed to investigate the possibility of such an effect would be best conducted with an interviewer who would not be expected by the participants to adhere to rigorous experimental procedure. An experiment that uses a confederate security guard or police officer to interview witnesses about a staged crime that the witnesses believe to be real, would perhaps have a better chance at detecting an effect.

Overall, a more engaging event would probably result in bigger effect-sizes as well. Many participants indicated that they suspected the filler activity to be just that - - not a part of a study designed to assess people's preferences for video media. In future studies, motion picture

presentations should be the standard stimulus event; "Crimestopper"-like scenarios involve much more complex action and many more complex details about which witnesses could be questioned. It is possible that slide presentations simply do not arouse the interest of people enough to alter their testimony as a result of the social influence manipulations performed in the present studies.

The results of the present studies are ambiguous regarding whether the improvement in performance evidenced by witnesses who received misleading information from a confused experimenter, as compared to their cohorts who experienced a familiar experimenter, was a function of the perceived lack of social influences to comply with the experimenter or was the result of increased attention to the possibility of discrepancies between the original event and the interview when the experimenter had admitted to being unfamiliar with the material. In other words, it might be that all participants who received misleading information were aware of the discrepancy, but only those in the confused experimenter condition were confident enough to stick with what they thought they saw in the original presentation when asked to indicate which slide was presented initially. On the other hand, being told that the experimenter is unfamiliar with the event might have led participants in that condition to become more alert to the possibility that the interview might contain some discrepant information. Therefore, participants in the confused experimenter condition might have detected the discrepancy more often than participants in the familiar experimenter condition and, in turn, selected the originally presented slide more often. These possibilities represent two plausible explanations for resolving the controversy between the

memory-impairment hypothesis forwarded by Loftus and the memory-coexistence position argued by Bekerian and Bowers. Future studies are planned to tease apart the effects of cues that might influence participants to comply with the experimenter, or to assume that information supplied by the experimenter is correct, from cues that might increase the detectability of discrepancies between an initial event and misleading postevent information. If Bekerian and Bowers are correct, then studies that demonstrate that social factors influence the likelihood that either the original memory or the postevent information will be reported during retrieval, independent of detectability differences, should lend support to the memory-coexistence hypothesis.

The difference between eyewitness memory and eyewitness testimony discussed earlier in the present paper reflects the distinction made by Wells (1978) between estimator variables and system variables that might affect eyewitness accuracy. Estimator variables are those over which the justice system has no control, like the length of the witness' exposure to the event, the viewing conditions during that exposure, and so on. System variables, on the other hand, are controllable within the justice system (e.g., the quality of a suspect lineup or photospread from which a witness is to select the alleged perpetrator of a crime, or the types of questions allowed in a witness interview). Wells has suggested that system variable research is likely to yield the most useful information regarding eyewitness behavior. The factors investigated in this paper fall into the category of system variables, in that determining the effect of social influences on eyewitness testimony could help to guide the construction of police interviews and the policy that governs the treatment of witnesses in

general.

In conclusion, it remains to be seen whether or not witnesses' perceptions of the social factors present in an interview or some other testimony-related task influence the degree to which the witnessses will distort their testimony to make it more consistent with the expectations created by these social factors. Such factors, along with a host of other extramemorial influences, are considered to be a potential major influence on testimony accuracy (Turtle & Wells, in press; Zaragoza, in press), but the present studies represent just the beginning of the investigation into their effect. Future research should be directed toward distinguishing between actual memorial limitations on eyewitness accuracy imposed by the nature of the human memory system and the influence of social factors over which agents in the legal system have control.

REFERENCES

Asch, S. E. (1951). Effects of group pressure upon the modification and distortion of judgments. In Harold Guetzkow (Ed.), Groups, leadership, and men (pp.177-190). Pittsburgh, Pa.: Carnegie Press.

Bekerian, D. A. & Bowers, J. M. (1983). Eyewitness testimony: Were we misled? Journal of Experimental Psychology: Learning, Memory, and Cognition, 9, 139-145.

Bowers, J. M. & Bekerian, D. A. (1984). When will postevent information distort eyewitness testimony? Journal of Applied Psychology, 69, 466-472.

Dodd, D. H. & Bradshaw, J. M. (1980). Leading questions and memory: Pragmatic constraints. Journal of Verbal Learning and Verbal Behavior, 19, 695-704.

Greene, E., Flynn, M. S., & Loftus, E. F. (1982). Inducing resistance to misleading information. Journal of Verbal Learning and Verbal Behavior, 21, 207-219.

Hall, D. F., Loftus, E. F., & Tousignant, J. P. (1984). Postevent information and changes in recollection for a natural event. In G. L. Wells and E. F. Loftus (Eds.), Eyewitness testimony: Psychological perspectives. New York: Cambridge University Press.

Loftus, E. F. (1977). Shifting human color memory. Memory and Cognition, 6, 696-699.

Loftus, E. F. (1979). Eyewitness testimony. Cambridge, Mass.: Harvard University Press.

Loftus, E. F., Miller, D. G., & Burns, H. J. (1978). Semantic integration of verbal information into a visual memory. Journal of Experimental Psychology: Human Learning and Memory, 4, 19-31.

Loftus, E. F., Schooler, J. W., & Wagenaar, W. A. (1985). The fate of memory: Comment on McCloskey and Zaragoza. Journal of Experimental Psychology: General, 114, 375-380.

McCloskey, M. & Zaragoza, M. (1985a). Misleading postevent information and memory for events: Arguments and evidence against memory impairment hypotheses. Journal of Experimental Psychology: General, 114, 1-19.

McCloskey, M. & Zaragoza, M. (1985b). Postevent information and memory: Reply to Loftus, Schooler, and Wagenaar. Journal of Experimental Psychology: General, 114, 381-387.

Tousignant, J. P., Hall, D., & Loftus, E. F. (in press). Discrepancy detection and vulnerability to misleading post-event information.

Tulving, E. & Thompson, D. M. (1973). Encoding specificity and retrieval processes in episodic memory. Psychological Review, 80, 352-373.

Turtle, J. W. & Wells, G. L. (in press). Setting the stage for psychological research on the child eyewitness. In S. J. Ceci, M. P. Toglia, & D. F. Ross (Eds.), Children's eyewitness memory. New York: Springer-Verlag.

Weinberg, H. I., Wadsworth, J. & Baron, R. S. (1983). Demand and the impact of leading questions on eyewitness testimony. Memory and Cognition, 11, 101-104.

Wells, G. L. (1978). Applied eyewitness-testimony research: System variables and estimator variables. Journal of Personality and Social Psychology, 36, 1546-1557.

Zaragoza, M. (in press). Memory, suggestibility, and eyewitness testimony in children and adults. In S. J. Ceci, M. P. Toglia, & D. F. Ross (Eds.), Children's eyewitness memory. NY: Springer-Verlag.

APPENDIX 1

VIDEO HABITS INVENTORY

Before the second videotape begins, please answer questions 1 - 5 (Page 1) and questions 6 - 10 (Page 2). Please do not mark on this question sheet; use the computer-sheet for your answers.

If you feel uneasy about any of the questions, just leave the item blank. You need NOT fill in your name and ID number.

(1) How many hours per day (on the average) do you watch television?

(a) 0
(b) 1 hour
(c) 2 hours
(d) 3 hours
(d) more than 3 hours

(2) Which of the following type of show do you most prefer to watch on TV?

(a) drama
(b) comedy
(c) documentary
(d) sports
(e) news

(3) What is your primary source of news information?

(a) television
(b) radio
(c) newspaper
(d) magazine
(e) other

(4) What is your primary reason for watching television?

(a) entertainment
(b) information
(c) distraction
(d) other
(e) I don't watch TV

(5) Do you own a color TV, black and white TV, or no TV?
- (a) color
- (b) black and white
- (c) none

(6) How much TV do you think you watch in comparison to other people your age?
- (a) more
- (b) less
- (c) the same

(7) How much TV do watch now, compared to 5 years ago?
- (a) more
- (b) less
- (c) about the same

(8) How many movies do you see in a month? (Theaters plus TV)
- (a) more than ten
- (b) between five and ten
- (c) less than five

(9) Which of the following would be your choice to watch?
- (a) an Oilers' hockey game
- (b) a PBS documentary
- (c) a horror film
- (d) Dynasty
- (e) none of the above

(10) Do you think that moving-picture videotaped presentations are more informative than the still-picture slide presentations?
- (a) yes
- (b) no
- (c) about the same
- (d) no opinion

Thank you for completing the questionnaire.

APPENDIX 2

POSTEVENT INTERVIEW FOR STUDIES 1 AND 2

1. What did Suzanne throw in the garbage can when she passed the person with the blue (brown) backpack?

2. Where did Mark leave Suzanne's handbag after he removed the money from it?

3. Which of the double doors (left or right) did Suzanne open and walk through?

4. What did Suzanne reach for on the desk that had the can (bottle) of Coke on it?

5. Which shoe (left or right) did Mark bend down to tie when he got outside the building?

6. Did Suzanne use a cup to get a drink of water, or did she drink straight from the fountain?

7. Was there a car on the road behind Mark when he walked by the yield (stop) sign?

8. Did Suzanne put her cigarettes in her pocket or in her purse?

9. In which hand did Mark carry Suzanne's handbag when he passed the chair (desk) in the hallway?

Note: The underlined items represent the critical questions in which the misleading information is presented. In the control condition, a generic term for the specific object was used (e.g., traffic sign for stop/yield sign).

APPENDIX 3

PARTICIPANT RESPONSE SHEET FOR STUDIES 1 AND 2

For Researcher's use only:

Cubicle: 1 2 3 4 **Cond:**

Date: **Session:**

Participant: For each pair of slides presented, please indicate which slide you think you saw in the original presentation by circling an 'L' for the left slide or an 'R' for the right slide in the appropriate space below, along with the confidence you have in your choice.

			very certain			neutral			not at all certain
1.	L	R	1	2	3	4	5	6	7
2.	L	R	1	2	3	4	5	6	7
3.	L	R	1	2	3	4	5	6	7
4.	L	R	1	2	3	4	5	6	7
5.	L	R	1	2	3	4	5	6	7
6.	L	R	1	2	3	4	5	6	7
7.	L	R	1	2	3	4	5	6	7
8.	L	R	1	2	3	4	5	6	7
9.	L	R	1	2	3	4	5	6	7

APPENDIX 4

DEBRIEFING FOR STUDY 1

Thank you for your participation. Before we begin, I'd like to ask you what you think the study you just completed was about. [Researcher listens to response and records instances in which the participant reports that he or she was suspicious of the cover story. In the event that the participant somehow managed to divine the purpose of the study, his or her data will be elminated from subsequent analyses.] Good, now I'd like to tell you that some aspects of the study you just completed were not really as they appeared. You should know that it is not always possible to tell participants exactly what variables are being manipulated in a study, so that the participants are most likely to behave as they would if they were to experience the same situation in everyday life. In this case, two variables were manipulated without your knowledge: First, some of the participants in this study are led to believe that the researcher who gave you the questionnaire about the slide presentation was confused as to what exactly took place in the presentation. If you were in this condition, you might remember that the reseacher told you that he or she was busy on the phone while the slides were being presented. In fact, this was not true; the researcher is actually very familiar with the event depicted in the slides. The reason for leading some participants to believe that the researcher was confused will become clear in a moment.

The second variable that we manipulated was whether or not you received subtle, misleading information in the questionnaire from the researcher. If you were in the misleading condition, you might remember that the researcher implied the presence of objects in the questionnaire that actually were not present. For example, some people who saw a slide with a STOP sign were given information that implied the presence of a YIELD sign instead. It's important to know that the differences between these slides were very subtle and that many people accept the misleading information from the researcher because they can't remember the fine detail of what they actually saw.

The hypothesis for our study predicts that people who receive the misleading information from the confused researcher will be more likely to correctly reject this information than the people who receive the same information from a very credible, apparently responsible researcher. The fact that people are more likely to go along with information from a credible source is well demonstrated in psychology, but its application to this type of information has not yet been investigated.

The dependent measure, or dependent variable, in this study was the accuracy with which participants are able to correctly select the slide in the test phase that corresponds to the slide they viewed in the original presentation. Again, it is expected that those participants who received misleading information from the credible researcher will be less accurate at selecting the correct slide because of the more

persuasive nature of the information as compared to the information received from the confused researcher.

I think you can see that it's very important for you not to mention the details of our study to anyone else. If, for example, a future participant knew that the apparently confused researcher actually was very familiar with the slide presentation, that manipulation would not be effective for that person and his or her responses would not be meaningful. Do you agree not to discuss this study until the end of the school year? [Wait for positive reply] Thank you.

The name of the reserve reading for this study is "CHESTER". Reading this article will help you to understand the issue with which our study is concerned. If you are interested in obtaining more information about this study when the data have been analysed, feel free to contact John Turtle in the Department of Psychology by phoning 432-5847. If you have any questions regarding the conduct of this study or any other study in our department, contact the Research Participation Administrative Clerk, Mrs. Pauline Grant, in room P-202A.

Thank you again for your participation.