

4-30-2010

Age trends and suggestibility : the effects of social influence

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DOI: 10.25148/etd.FI14052581

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FLORIDA INTERNATIONAL UNIVERSITY

Miami, Florida

AGE TRENDS AND SUGGESTIBILITY: THE EFFECTS OF SOCIAL INFLUENCE

A thesis submitted in partial fulfillment of the

requirements for the degree of

MASTER OF SCIENCE

in

PSYCHOLOGY

by

Rolando N. Carol

2010

To: Dean Kenneth Furton
College of Arts and Sciences

This thesis, written by Rolando N. Carol, and entitled Age Trends and Suggestibility: The effects of Social Influence, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this thesis and recommend that it be approved.

Janat Fraser Parker

Daniel B. Wright

Nadja Schreiber Compo, Major Professor

Date of Defense: April 30, 2010

The thesis of Rolando N. Carol is approved.

Dean Kenneth Furton
College of Arts and Sciences

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University Graduate School

Florida International University, 2010

DEDICATION

I dedicate this thesis to my parents, Mibrian Carol and Orlando Carol. Without their patience and support, none of this would have been possible.

ACKNOWLEDGMENTS

I would like to thank all of the schools that were kind enough to participate in this research project: Miami Shores Presbyterian Elementary School, King's Christian Elementary School, South Miami Middle School, G. Holmes Braddock Senior High School, and Christopher Columbus Senior High School. I would also like to thank all of my hard-working research assistants for their diligence and flexibility: Amanda Lee, Carmen Rodriguez, Klaudia Pereira, Frances Ernst, Taylor Lynch, Jessica Sardinias, Andrew Quinn, Christian Mendez, Dainelys Linares, and Manuela Rodriguez.

I would like to thank my committee members, Dr. Janat Fraser Parker and Dr. Daniel B. Wright, for their feedback and support. It is greatly appreciated. Finally, I would like to thank my major advisor, Dr. Nadja Schreiber Compo, for her unwavering guidance, advice, and support. This project was a huge undertaking and it would have been impossible without her.

ABSTRACT OF THE THESIS

AGE TRENDS AND SUGGESTIBILITY: THE EFFECTS OF SOCIAL INFLUENCE

by

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Florida International University, 2010

Miami, Florida

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The present study explored how the source of suggestive information affected children's memory for a witnessed event as a function of age. Children and adolescents ranging from 7 to 17 years of age watched a 10-minute video and were then interviewed twice about the witnessed event: once immediately after watching the video and again 1 week later. During the second interview the source of social influence (peer vs. adult) and suggestive information accuracy (correct-leading vs. incorrect-leading) were manipulated. Findings indicate that adults were the most influential source and peers were the least influential source, regardless of age. The data also suggest an age trend in suggestibility such that younger children are more influenced by incorrect information attributed to an adult source than older children.

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I. INTRODUCTION

Age Trends and Suggestibility: The effects of Social Influence

A vast body of research on investigative interviewing has shown how and to what extent children's recollections are susceptible to misinformation (e.g., Bruck & Ceci, 1997; Principe & Ceci, 2002). In general, child witness research shows that as age increases memory suggestibility decreases (Ceci & Bruck, 1993; Quas et al., 1999). However, much research in this area has focused on pre-school and elementary school children while neglecting a possibly critical stage of development: adolescence. In addition to recent counterintuitive findings that suggest false memories can increase with age (e.g., Brainerd, Reyna & Ceci, 2008), there is reason to assume that adolescents may also present additional unique vulnerabilities as witnesses with regard to memory suggestibility. Specifically, during adolescence, peer contact increases, parental contact decreases, and there is an increased likelihood that children will conform to the opinions of their peers. With respect to eyewitness memory, it remains unclear how this shift in social influence with age might affect children's susceptibility to misinformation provided by others (i.e., peer versus adult). The present study explored how the source of suggestive information affected children's memory for a witnessed event as a function of age.

II. LITERATURE REVIEW

After the McMartin and Kelly Michaels daycare abuse cases of the 1980s, how child witnesses should and should not be interviewed became a major research focus. Both anecdotal and quantitative analyses of interview transcripts from abuse cases revealed the frequent use of various potentially suggestive interviewing techniques (Ceci

& Bruck, 1995; Poole & Lamb, 1998; Schreiber et al., 2006). One of the techniques used was Suggestive Questioning, which is when new information that the child has not yet provided is introduced into an interview. For example, asking the child “Did your father touch you?” would be a suggestive question if the child had not mentioned the father’s involvement or having been touched at all. Another suggestive interviewing technique identified in child witness interviews is Asked-and-Answered, whereby the interviewer asks the child a question that he or she has already unambiguously answered. The interviewing technique Positive/Negative Consequences is when an interviewer gives or implies approval when the child provides a desired response and criticizes or disagrees with a child when he or she provides an undesired response. One last interviewing technique identified in child witness interviews is Other People (OP), where the interviewer informs the witness of what another witness (supposedly) said regarding the current interview topic, introducing outside information into the interview.

Various research studies have since examined the effect of these techniques empirically, with some testing the combined effects and others investigating the effects of the various techniques individually. Garven, Wood, Malpass, and Shaw (1998) investigated the effects of a battery of suggestive interviewing techniques from the McMartin Preschool case compared to suggestive questioning alone. They found that the combination of suggestive techniques, such as Positive/Negative Consequences and Asked-and-Answered led preschoolers to make significantly more false allegations against a research confederate than Suggestive Questions alone. Other studies investigating the effects of multiple suggestive influences (e.g., naturally occurring peer

interactions and suggestive questioning) have produced similar findings (Principe & Ceci, 2002).

Other child witness studies have focused on testing the effects of individual suggestive interviewing techniques and on isolating their respective suggestive influences. For example, Garven, Wood, and Malpass (2000) investigated the effects of Reinforcement (i.e., Positive/Negative Consequences) and OP (e.g., “Some of the other kids from your class told me that your teacher said a bad word. Is that true?”) on school-aged children’s statements. They found that reinforcement significantly increased the rate of children’s false allegations against a research confederate, while OP had a smaller yet significant effect. Although Garven et al. (2000) found a small effect of OP on witness veracity in children, various other studies have shown that informing adult participants of what co-witnesses have said has a powerful influence on the accuracy of information subsequently reported. Hoffman, Granhag, See, and Loftus (2001) investigated adults’ memories for old versus new items while informing participants of what a previous subject had allegedly reported. Memory for new items was influenced by erroneous reports from a supposed co-witness, showing that reality monitoring decisions (i.e., the process by which people distinguish between memories of real and imagined events) can be subject to social influence. Similarly, Skagerberg and Wright (2008) showed through a series of experiments that people’s identification choices and testimony-relevant judgments were affected by both outcome feedback (e.g., telling a subject that he or she “picked the right guy” after making an identification from a lineup) and co-witness feedback. However, the co-witness feedback effect was observed only when the co-

witness' responses were attributed to a highly credible source, such as a police officer, compared to a low credibility source, like a child.

Other studies have explored variations of OP by having adult participants receive information directly from a co-witness, instead of implying what a co-witness had allegedly said, showing various decreases in memory accuracy after witnesses have been exposed to co-witness information (Garry, French, Kinzett, & Mori, 2008; Roediger, Meade, & Bergman, 2001; Skagerberg & Wright, 2008). Merckelbach, Van Roermund, and Candel (2007) found that having a confederate deny true information was just as powerful as providing misinformation during a collaborative recall study. Studies investigating the effect of the number of co-witnesses on memory show that the more co-witnesses there are providing misinformation, the more accuracy suffers (Ost, Ghonouie, Cook, & Vrij, 2008). Gabbert, Memon, Allan, and Wright (2004) compared the respective influences of face-to-face co-witness interaction (i.e., social interaction) and being informed of what a co-witness allegedly said (i.e., non-social) and found that indeed, misinformation encountered socially was significantly more influential than when obtained via non-social means.

Although most of these findings are more robust compared to what Garven, Wood, and Malpass (2000) found regarding the effect of OP, some differences between the studies might help clarify the discrepancy. For one, most studies using OP as a suggestive technique have included adults as participants, whereas Garven et al. (2000) investigated its effects on preschool children. Since the studies on adults had adult co-witnesses and the studies on children had children as co-witnesses, this difference may imply that the effectiveness of OP varies depending on the characteristics of not only the

co-witnesses, but the witnesses themselves. Thus, one goal of the present study was to investigate the effect of OP source (peer vs. adult) on children's subsequent eyewitness reports.

The effect of OP on individuals' memory reports is the result of conformity, as opposed to compliance. Compliance is defined as acquiescence to a request; the request may be explicit or implicit, but in either case the target is aware that he or she is being urged to respond in a particular way (Cialdini & Trost, 1998; Cialdini & Goldstein, 2004). Conformity, on the other hand, refers to an individual changing his or her behaviors to match those of others. In other words, conformity is "movement from one's own position to a contradictory position" (Cialdini & Trost, 1998). Thus, when a witness' memory report is influenced by OP, he or she is changing the information provided simply to match that of the co-witness. There are two reasons why a witness may feel motivated to conform: informational influence or normative influence. Informational influence describes conformity to others' reports when the witness' goal is to make an accurate and valid judgment. So, although a witness disagrees with the co-witness' report, the motivation to be accurate will drive the witness to conform because of a belief that the co-witness is accurate. Normative influence represents conformity when the goal is to seek and obtain social approval from others (Cialdini & Trost, 1998). For example, a witness may conform to the report of a co-witness simply because he or she does not want to produce a contradiction in the information being provided. In both cases, witnesses are conforming in spite of disagreeing with the information they are reporting. As very little research has explored memory conformity in child witnesses, a second

purpose of the present study was to investigate memory conformity in child and adolescent witnesses while isolating OP as the sole suggestive interviewing technique.

Finally, the present study examined age trends in the susceptibility to OP. Until recently, one of the most consistent findings in the child witness literature was the decrease of memory suggestibility with age (e.g., Ceci & Bruck, 1993; Poole & Lamb, 1998; Quas et al., 1999). Various studies looking at preschool and school-aged children show consistently that younger children (e.g., 4- to 5-year-olds) are more suggestible than older children (e.g., 9- to 10-year-olds) (e.g., Finnila, Mahlberg, Santtila, Sandnabba, & Niemi, 2003; Roebbers, Schwarz, & Neuman, 2005; Schwarz & Roebbers, 2006). Studies investigating the adoption of false memories, even for fantastic claims (e.g., being abducted by a UFO), find that the younger children are more likely to develop false memories than older children (e.g., Pezdek, Finger, & Hodge, 1997; Otgaar, Candel, & Merckelbach, 2008; Otgaar, Candel, Merckelbach, & Wade, 2008). However, more recent studies show no or reverse developmental trends (e.g., Poole & Lindsay, 2001; Brainerd, Reyna, & Forrest, 2002; Schreiber & Parker, 2004). A recent review by Brainerd, Reyna, and Ceci (2008) explained these reverse age trends in light of fuzzy-trace theory, emphasizing that the nature of original information and misinformation may determine predictions about developmental trends in false memory reports. People's cognitive systems consist of either verbatim or gist memories; verbatim memories are episodic memories involving specific details of experiences and gist memories are semantic memories, involving the general meanings of experiences (Brainerd & Reyna, 2002; Metzger, Warren, Shelton, Price, Reed, & Williams, 2008). With age comes experience, so older children have more gist traces, more semantic knowledge, and

consequently better developed semantic networks than younger children, making it easier for older children to associate, and consequently confuse two items that are semantically associated (e.g., semantically related misinformation and original information). The authors therefore argue that under conditions where older children are better able to form semantic connections between target items than younger children, false memory reports can actually increase with age, revealing a reverse age trend in cognitive vulnerability to suggestion.

Another cognitive factor relevant to potential age trends in suggestibility is source monitoring, which refers to the process of making source attributions for one's memories, knowledge, and beliefs (Roberts & Blades, 2000). For example, when eyewitnesses are asked to distinguish between their memory for details of the event in question and details that may have been introduced by the interviewer, they are engaging in source monitoring. There are many different types of source monitoring tasks that an individual can engage in, such as distinguishing between memories of actions performed by the self versus actions performed by others, memories of actions performed by one outsider versus another outsider, memories of performed versus imagined actions, and memories of one event versus another event, just to name a few. The extent to which individuals make accurate source monitoring decisions depends on multiple factors, both external (i.e., relating to the nature of the particular event itself) and internal (i.e., factors related to the individual making the source monitoring decisions). The similarity between events, for example, can affect an individual's ability to make correct source attributions. Lindsay, Allen, Chan, and Dahl (2003) presented eyewitnesses with an initial visual event and then exposed them to audible narratives that were either similar or dissimilar to

the visual event. During subsequent interviews about the witnessed events, participants were more likely to make inaccurate source attributions when they heard the similar narratives than when they heard the dissimilar narratives; that is, if participants heard the similar narrative, they were more likely to report a detail from the narrative and (inaccurately) attribute its source to having been from the visual event, as opposed to those who heard the dissimilar narrative. In general, the more similarities two events share, the more difficult it will be to distinguish between the two memories.

The ability to make accurate source monitoring decision also depends on an individual's age. Substantial improvements in source monitoring ability occur in the 3- to 8-year-old age range (Roberts, 2002). Development of source monitoring skills is gradual and not necessarily linear, meaning that children get better at some source distinctions (e.g., self-performed actions versus other-performed actions) earlier than other source distinctions (e.g., performed versus imagined actions). For example, Foley and Johnson (1985) demonstrated that 6-year-olds were just as competent as adults when making accurate source attributions for actions that they had performed versus actions that were performed by an adult confederate. In her review of children's source monitoring, Roberts (2000) noted that children below the age of 5 can use different sources of knowledge appropriately, but they cannot explicitly verbalize the specific sources of knowledge they have acquired.

Several different theories predict how source monitoring decisions are made and under which circumstances source attribution errors may occur. For example, source-monitoring theory suggests that source attributions result from an examination of the characteristics of memories and through strategic decision making (Roberts, 2002). So,

according to this theory, source is not assigned at the encoding of the memory but instead is inferred at the time of recollection. Memories of actually-perceived events are rich in perceptual, sensory, and affective information, whereas memories of nonperceived events lack these characteristics but instead are rich in information related to the cognitive operations that took place during the imagined event. Thus, it is the qualitative characteristics of the retrieved memory that guide the generally automatic source attribution process, and they are what aid an individual in deciding on an ultimate source. A second theory, fuzzy-trace theory, also makes predictions related to source-monitoring decisions. According to this theory, the memory source is encoded as a verbatim detail that is associated to the encoded gist (i.e., semantic) memory. Consequently, a source attribution error can occur in one of two ways: (1) the verbatim source representation is not retrieved with the gist memory at recall, or (2) a different (i.e., incorrect) verbatim source is retrieved.

Taken together, theories on source monitoring predict under which circumstances children of various ages are more or less likely to make certain types of source monitoring errors. When source monitoring performance is measured, source monitoring errors further suggest that false answers were not due to the social demand characteristics of the investigative interview (i.e., the child remembered the correct response, but decided to report the false one anyway), but rather, that the false response was attributed to an incorrect origin/source. In the context of the present study, source monitoring further predicts that a child's ability to distinguish accurately between memories of a witnessed event and memories of suggestive information introduced by an interviewer may depend greatly on his or her age. Put simply, younger child witnesses may be more

likely than older child witnesses to falsely attribute misinformation implanted by an interviewer to having originated from the event in question.

As most child witness studies tend to include participants ranging from 3 to 10 years of age (Ceci & Huffman, 1997; Roebbers, Schwarz, & Neumann, 2005; Schwarz & Roebbers, 2006), one missing piece to the child witness puzzle lies in the lack of data on a rather lengthy stage in a child's life, namely adolescence (ranging between the ages of 12 and 18). Specifically, it may be the case that this witness age group is particularly vulnerable when faced with suggestive interviewing techniques that involve social or peer pressure (Constanzo & Shaw, 1966). Developmental research on children indicates that during adolescence, there is a sharp increase in the amount of time individuals spend with their peers, relative to the time spent with adults and parents. According to Steinberg and Silverberg (1986), adolescents, compared to younger children, are becoming more emotionally autonomous from parents but more dependent on their friends, while trying to establish a general sense of self-reliance. Similarly, adolescents are more likely than younger children to conform to peers' opinions in short-term, day-to-day, and social matters (Brittain, 1963; Young & Ferguson, 1979). For long-term questions concerning educational or occupational plans, values, religious beliefs, or ethics, adolescents are primarily influenced by parents. When seeking objective information, rather than opinion, they are likely to turn to outside experts, such as teachers (Brittain, 1963; Young & Ferguson, 1979). Emmerich (1978) found that the influence of parents versus peers on teenagers depended on the situation in question. For example, ninth-grade females were more influenced by peers when deciding on a theme for a party, but were more influenced by parents when considering whether to report a thief. So, the peer-parent

conformity relationship appears to vary as a function of the situational context in which the child or adolescent seeks guidance. Various studies have even found a developmentally-related peak (e.g., Costanzo & Shaw, 1966; Berndt, 1979), with conformity to peers reaching its height around early/middle adolescence (between 11 and 14 years of age) and declining steadily afterward; this pattern of conformity is particularly fitting for peer pressure to perform anti-social behaviors compared to pro-social behaviors (Larson & Richards, 1991; Jacobs, Vernon, & Eccles, 2004; Steinberg & Monahan, 2007). Brown, Clasen, and Eicher (1986) found that in comparison to younger teenagers, older ones perceived more social pressure from peers to conform and reported more involvement in behavioral misconduct. Thus, although teenagers may be aware of the intense social pressure from peers to misbehave, they may still engage willingly in behaviors they know are wrong as a result.

Therefore, in addition to specific increases in cognitive vulnerability to suggestion with age, certain types of social pressure might also predict a reverse age trend. If adolescents' opinions are more dependent on their peers than younger children's opinions, this could disproportionately increase their vulnerability to "social" misinformation. More specifically, depending on whether the source of OP is a classmate or an adult, adolescents may be more or less likely to conform and report misinformation compared to younger children.

The purpose of the present study was to investigate possible age trends among children and adolescents in the effect of OP source (peer vs. adult) on susceptibility to misinformation. Children ages 7 to 17 watched a 10-minute video clip and were subsequently interviewed about the details of the witnessed event. When interviewing

participants some questions contained misinformation allegedly provided by either a peer or an adult. It was predicted that participants were more likely to agree with questions that had an OP source compared to suggestive questions alone, regardless of age. It was also predicted that older children would be more susceptible than younger children to misinformation provided by a peer compared to misinformation provided by an adult. A subsequent source monitoring task aimed at disentangling the different cognitive and social processes responsible for the possible effect.

III. METHOD

Participants

Ninety-eight children (54 males and 44 females, 81% Hispanic, 10% White, 3% Black, 1% Asian, 5% Other) between the ages of 7 and 17 ($M = 13.3$, $SD = 3.9$) from the Miami-Dade county area were recruited from local elementary, middle, and high schools (both public and private), as well as from summer camps.

Design

The present study manipulated 3 independent variables: “Other People” source: (peer vs. adult vs. no source), suggestive information: (correct-leading vs. incorrect-leading), and age (from 7 to 17). OP source and suggestive information veracity were manipulated within subjects. One-fourth of the participants (23 of 98) were randomly assigned to a baseline control group to assess possible carry-over effects; participants in the control group were asked only leading questions without an OP source.

Pilot Study

To identify details in the stimulus material (see next paragraph) that were memorable and likely to be reported by children of varying ages in subsequent witness

reports, a 10-minute video clip from the television movie “Looking for Miracles” (1991) was presented to twenty-four children between the ages of 7 and 13 ($M = 10.3$, $SD = 1.9$, 58% Black, 17% Hispanic, 17% White, 8% Other). After viewing the video clip, participants were interviewed in a free recall format encouraging them to report as many details as possible about the witnessed event. Interviews were recorded and transcribed. The frequencies with which video details were mentioned were calculated and details were sorted from most frequently mentioned to least frequently mentioned, resulting in a list of critical items mentioned in at least one of the reports. The 24 most frequently mentioned critical items were the basis for the video questionnaire. The reason for constructing a questionnaire with 24 items was to ensure that enough data points were collected per participant, given the manipulations in the within-subjects experimental design.

Materials

Stimulus video. Participants watched a 10-minute clip from the television movie “Looking for Miracles” (1991). This video has been used in past research studies investigating child witness memory (Zaragoza, Payment, Ackil, Drivdahl, & Beck, 2001). Using this particular video clip had three main advantages: (1) participants were presented with a substantial number of memorable details in a relatively short amount of time, (2) participants witnessed an age-appropriate event suitable for their level of attention/cognition and (3) it ensured that all participants witnessed the exact same event. The clip portrays young males engaging in various camping activities, such as riding in a canoe, setting up a campsite, and playing sports.

Video questionnaire. A 24-item questionnaire (see Appendix A) was developed based on pilot data. The questionnaire consisted of an equal number of OP items (i.e., items with an outside source of information) and control items (i.e., items with no outside source), as well as an equal number of correct-leading and incorrect-leading items. The OP items consisted of an equal number of peer-OP (i.e., items with a “peer” source of information) and adult-OP items (i.e., items with an “adult” source of information). All 24 video details were counterbalanced such that each detail served as a peer-OP, adult-OP, or control item, and as a correct-leading or incorrect-leading item, approximately an equal number of times across all participants. Also, all questionnaires were counterbalanced for order of item presentation, resulting in 16 different questionnaire versions (12 experimental questionnaires and 4 control questionnaires). For both the experimental group and control groups, items were phrased in a yes/no question format (e.g., “Was the lady’s bathing suit red?”).

Procedure

In a classroom or auditorium, groups of students (12 to 30 at a time) and adults (2 to 3 at a time) were presented with the stimulus video clip, exactly 10 minutes and 24 seconds in length. After viewing the video, participants were interviewed twice. The first interview occurred immediately after viewing the video. All participants, children and adults, were interviewed individually by a research assistant (RA) in a separate location free from distractions. Participants were told that the purpose of the first interview was to assess what they could remember about the event they had just witnessed. During this interview participants were questioned using three free recall probes (e.g., “Please tell me everything you can remember about the video you just saw.”) to encourage them to report

as many details as possible. All verbal accounts were recorded via digital video recorders (Flip MiMos). The purpose of the first interview was to provide justification for the second interview; namely, the information obtained during the first interview served as the alleged source of information for the second interview when telling participants what others supposedly said.

Exactly 1 week later, all participants (i.e., children and adolescents, but not adults) were interviewed a second time about the video by a different RA. Participants were informed that the purpose of this interview was to assess what they remembered about the event they witnessed 1 week ago. The interviewer made it clear that he or she was not present to watch the video, so the participant was being asked to help recall the details of the event. The interview consisted of two separate questionnaires: the video questionnaire and the source-monitoring questionnaire.

Of the video questionnaire's 24 items, 12 were prefaced with an OP statement (e.g., "One of the adults/peers said that the lady's bathing suit was red. Is that true?") and the other 12 had no OP statement (e.g., "Was the lady's bathing suit red?"), with all questions being in a suggestive Yes/No question format. All OP questions implied that another witness (either a peer or an adult) had already provided this information during the first interview. Out of all OP items, half suggested peers as the source (e.g., "One of your peers said that the lady's bathing suit was red. Is that true?") and the other half suggested adults as the source (e.g., "One of the adults said that the lady's bathing suit was red. Is that true?"). For all OP items, if the participant asked the interviewer to identify the specific source of the information, the interviewer was instructed to say that he or she did not know the specific source of the information- he or she just knew that it

was one of the peers or one of the adults present when watching the video last week. No-OP items included suggestive information but did not provide an outside source (e.g., “Was the lady’s bathing suit red?”). For both OP and No-OP questions, half of the items were correct-leading (e.g., suggesting the lady’s bathing suit was red when it was red) and the other half were incorrect-leading (e.g., suggesting the lady’s bathing suit was black when it was red). For the incorrect-leading items, the false suggestions were chosen from the incorrect details recalled during the pilot study to provide participants with age group-appropriate plausible false suggestions. For participants in the control condition, all video questionnaire items were leading questions without an OP source (e.g., “Was the lady’s bathing suit red?”).

During the latter half of the second interview, each participant was administered the source monitoring questionnaire: a multiple-choice forced-response questionnaire about the event they witnessed (see Appendix B). Participants were questioned again about each of the 24 details in the video questionnaire (e.g., ‘What color was the lady’s bathing suit?’), only this time each item had 3 response options: (1) the correct information (“a. red”), (2) the misinformation (“b. black”), and (3) a novel false option (“c. blue”). When participants received the correct-leading version of a particular item on the video questionnaire, they were never exposed to the misinformation for that item. Consequently, on the source monitoring questionnaire the misinformation response was considered to be the more plausible false option and the novel response was considered to be the less plausible false option. The interviewer asked each question aloud followed by the 3 response options. Item and response option orders were counterbalanced across participants, resulting in four different versions of the source monitoring questionnaire.

After the participant chose an option, the interviewer then asked where he or she remembered this information from: (a) the video, (b) the interview, (c) both the video and the interview, or (d) it “just felt right”.

IV. RESULTS

The main dependent variable was response accuracy (i.e., correct assents and/or correct rejections) reported as either number or proportion. Response accuracy as a proportion was calculated for two reasons. First, experimental and control participants were presented with an unequal number of control (i.e., No-OP) items; That is, experimental participants were presented with 12 control items while control participants were presented with 24 control items. Second, experimental participants were presented with an unequal number of OP source items; Specifically, half of all items were control (i.e., No-OP) items, one-fourth were peer-OP items, and one-fourth were adult-OP items. Two types of response accuracy were calculated. Response accuracy for correct-leading items was calculated as either the total number of correct assents or the proportion of correct assents out of all correct-leading items asked. Similarly, response accuracy for incorrect-leading items was reported as the total number of correct rejections or the proportion of correct rejections out of all incorrect-leading items.

Manipulation Checks

Assessing for carry-over effects. Two independent-sample t-tests were conducted to evaluate possible carry-over effects in the within-participants design. Specifically, accuracy on both correct-leading and incorrect-leading control items (no OP source) from the experimental group was compared with accuracy for the same items in the control group. There was no difference in accuracy for correct-leading control items

between the experimental group ($M = .72$, $SD = .19$) and the control group ($M = .74$, $SD = .10$), $t(96) = -.65$, $p = .52$. There was also no difference in accuracy for incorrect-leading control items between the experimental group ($M = .66$, $SD = .23$) and the control group ($M = .68$, $SD = .16$), $t(96) = -.38$, $p = .71$. Both findings indicate that there was no carry-over effect of the OP Source manipulation from experimental to control items in the experimental group.

Suggestive questioning. A paired-sample t-test was conducted to determine whether there was a significant difference between the number of correct assents to correct-leading items and correct rejections to incorrect-leading questions (i.e., a misinformation effect). The t-test revealed that participants assented correctly to correct-leading questions ($M = 8.4$, $SD = 1.6$) significantly more often than they correctly rejected incorrect-leading questions ($M = 7.8$, $SD = 2.2$), $t(74) = 2.59$, $p = .011$, confirming an overall misinformation effect.

Primary Analyses

Main effects. To test for a main effect of OP on response accuracy, a paired-sample t-test compared proportion accuracy between all OP items and control items, collapsing across correct-leading and incorrect-leading items. There was no main effect of OP; That is, response accuracy for experimental items ($M = .70$, $SD = .13$) did not differ from accuracy for control items ($M = .68$, $SD = .15$), $t(74) = 1.05$, $p = .30$. To test for a main effect of OP source (peer vs. adult vs. control) on response accuracy for both correct-leading and incorrect-leading items, a repeated-measures Multivariate Analysis of Variance (MANOVA) was conducted with participants' age as a covariate. There was a main effect of OP source, $F(2,72) = 5.35$, $p = .007$, $\eta_p^2 = .129$. Follow-up pairwise

comparisons revealed that proportion accuracy for adult OP items ($M = .67, SE = .02$) was significantly lower than proportion accuracy for peer OP items ($M = .74, SE = .02$), $t(74) = 2.84, p = .006$. Similarly, collapsing across correct-leading and incorrect-leading items, proportion accuracy for control items ($M = .69, SE = .02$) was significantly lower than proportion accuracy for peer OP items ($M = .74, SE = .02$), $t(74) = 2.51, p = .014$.

Age trends. Linear regressions were conducted for each of the six OP source (peer vs. adult vs. control) by information accuracy (correct-leading vs. incorrect-leading) combinations with participant age as a continuous independent (i.e., predictor) variable and proportion accuracy as the criterion variable. Analyses revealed a Source by Age interaction for incorrect-leading questions only. Specifically, age was a significant predictor of accuracy only when adults were the source of the incorrect information suggested to participants: As age increased, accuracy for adult OP incorrect-leading items increased, Pearson's $r = .31, r^2 = .09, \beta = .022, F(1,73) = 7.47, p = .008$. Age was not a significant predictor of accuracy for peer OP incorrect-leading items, Pearson's $r = .074, r^2 = .005, \beta = .005, F(1,73) = .40, ns$, or for control incorrect-leading items, Pearson's $r = .12, r^2 = .014, \beta = .006, F(1,73) = 1.32, ns$, (see Graph 1).

In order to explore this Source by Age interaction for incorrect-leading questions from a different angle, proportion accuracy scores were calculated for three different age groups of interest: elementary-aged ($M_{age} = 8.8, SD_{age} = 1.1$), middle-school-aged ($M_{age} = 12.2, SD_{age} = 0.92$), and high-school-aged ($M_{age} = 16.8, SD_{age} = 0.9$) children (see Table 1). When accuracy scores were mean-centered around age 9, accuracy for adult OP items ($M = .59, S.E. = .031$) was significantly worse than accuracy for both peer OP items ($M = .74, S.E. = .03$) and control items ($M = .67, S.E. = .02$), both $ps < .05$. When accuracy

scores were mean-centered around age 12, accuracy for both adult OP items ($M = .65$, $S.E. = .02$) and control items ($M = .68$, $S.E. = .02$) were significantly worse than accuracy for peer OP items ($M = .74$, $S.E. = .02$), $p = .002$ and $p = .022$, respectively, without differing significantly from each other, $p = .17$. Lastly, when accuracy scores were mean-centered around age 17, accuracy scores for peer OP items ($M = .75$, $S.E. = .03$), adult OP items ($M = .73$, $S.E. = .03$), and control items ($M = .70$, $S.E. = .02$) did not differ from each other.

Source Monitoring

The present study aimed to answer three important questions regarding participants' source monitoring decisions that were dictated by the main findings in the primary analyses. First, was there a difference in the proportion of accurate source monitoring decisions made for prior correct-leading versus incorrect-leading questions? Second, was there a difference in the proportion of accurate source monitoring decisions made for prior peer OP, adult OP, and control questions, collapsing across correct-leading and incorrect-leading items? Third, was there a difference in the proportion of accurate source monitoring decisions made for prior peer OP, adult OP, and control questions for incorrect-leading questions only?

To answer these questions, the main dependent variable calculated was the proportion of accurate source monitoring decisions made for each question type (e.g., the proportion of correct source monitoring decisions made for correct-leading questions when peers were the source across all peer OP correct-leading questions asked). Whether a source attribution was considered correct in the source-monitoring questionnaire depended on the question asked in the video questionnaire. For example, if a participant

was asked a correct-leading question in the video questionnaire (“Was the lady’s bathing suit red?”) and he or she chose the correct option in the source-monitoring questionnaire (“The lady’s bathing suit was red”), then an accurate source attribution would have been either remembering this particular detail “from the video,” “from the interview,” or “from the video and the interview.” Conversely, if a participant was asked an incorrect-leading question in the video questionnaire (“Was the lady’s bathing suit black?”) and he or she chose the incorrect option in the source-monitoring questionnaire (“The lady’s bathing suit was black”), then the only accurate source attribution would have been remembering this particular detail from “the interview” (because the lady’s bathing suit was actually red).

A paired-sample t-test compared the proportion of accurate source monitoring decisions made for correct-leading items and incorrect-leading items. The t-test revealed that participants made accurate source attributions to correct-leading items ($M = .74$, $SD = .15$) significantly more often than they did to incorrect-leading items ($M = .63$, $SD = .18$), $t(97) = 4.78$, $p < .001$. To test for a main effect of OP source (peer vs. adult vs. control) on proportion of accurate source monitoring decisions collapsed across correct-leading and incorrect-leading items, a repeated-measures Multivariate Analysis of Variance (MANOVA) was conducted with participants’ age as a covariate. There was a main effect of OP source, $F(2,72) = 5.00$, $p = .009$, $\eta_p^2 = .122$. Follow-up pairwise comparisons revealed that the proportion of accurate source attributions for adult OP items ($M = .62$, $SE = .02$) was significantly lower than the proportion of accurate source attributions for peer OP items ($M = .71$, $SE = .02$), $t(74) = 2.88$, $p = .005$. Similarly, the proportion of accurate source attributions to adult OP items was significantly lower than

the proportion of accurate source attributions for control items ($M = .69$, $SE = .02$), $t(74) = -2.75$, $p = .008$.

When looking at OP incorrect-leading questions only, the same repeated-measures MANOVA revealed a marginally significant difference between accurate source monitoring decisions for adult OP incorrect-leading questions ($M = .59$, $SD = .29$) and peer OP incorrect-leading questions ($M = .66$, $SD = .28$), $p = .07$.

V. DISCUSSION

The purpose of the present study was to investigate possible age trends in the effect of the suggestive interviewing technique “Other People” on susceptibility to misinformation among child and adolescent witnesses. While exploring OP in isolation, the present findings suggest that OP as a suggestive technique is not any more influential than asking leading questions alone. These findings stand in contrast to Garven, Wood, and Malpass (2000), who found a small, yet significant effect of OP over and above the suggestive effects of leading questions.

While seemingly contradictory on the surface, this discrepancy may be explained by the difference in methodologies. Garven and colleagues (2000) did not vary the outside source of the information (i.e., peers were always the co-witnesses), while the present study manipulated the source of the outside information (peers vs. adults). Also, the present study controlled for the number of OP sources whereas Garven et al. (2000) did not. Specifically, interviewers in the present study told child witnesses what *one* of their peers had allegedly said, while Garven et al. (2000) told witnesses what “the other children” had said without specifying who and how many. So, their suggestive influence

of OP may have simply been a function of the number of sources and not the source itself.

More importantly, although OP on its own was not any more detrimental than suggestive questioning alone, the present study demonstrates that the source of outside information provided to child and adolescent witnesses matters. Contrary to the hypothesis that peers would be a greater source of influence than adults for adolescent witnesses, providing information about what an adult co-witness had said was more detrimental to witness accuracy than information about what a peer co-witness had reported, regardless of witness age. Interestingly, providing outside information without a source was also more dangerous to witness accuracy than outside information from a peer co-witness.

The fact that more source-monitoring errors occurred when adults were the source of outside information than when peers were the source or when no source was provided confirms that OP's effect on memory goes beyond mere acquiescence and social pressure; in other words, when adults were the outside source, not only were participants more likely to falsely assent to the interviewer at the time of OP, but also their subsequent abilities to make accurate source-monitoring attributions to this specific piece of information they provided were significantly impaired. This suggests that when a child or adolescent witness is informed of what an adult allegedly said, his or her ability to distinguish between the original and the falsely-suggested memory may be altered permanently, producing a decline in accurate source-monitoring decisions. Although one could argue that the immediate effect of OP could be filtered out or disregarded (e.g., in case of an actual recorded witness interview), the subsequent effects of OP on source-

monitoring abilities may not be so easy to identify or deal with: acquiescing incorrectly to what credible others have supposedly said has the potential to produce source-monitoring difficulties later on. In applied settings this type of memory error can be particularly dangerous; even when explicitly asked to identify the memory's source, children of all ages are likely to mistake the suggested misinformation from an adult for the actual original event.

Based on the present data it thus appears that peers are a particularly weak source of social influence on witness suggestibility, even weaker than suggestive questions without a specified source. Why were peers not a powerful source of social influence as one may have predicted? One reason may be that the specific source, both among peers and adults, was kept unidentified. That is, participants were told that one of their peers mentioned a particular detail, but they were never told *which* peer had mentioned it. The potential social influence from any given peer may have been contingent upon his or her status relative to the child witness, be it "friend," "acquaintance," the "smart kid," or the "jock." If OP sources had been identified, child and adolescent witnesses may have been more influenced by peers than when OP sources were kept anonymous, depending on how witnesses chose to incorporate this identifying information. The fact that adult sources were influential while remaining unidentified suggests that the status difference between child witnesses and adults is much less ambiguous, possibly due to the difference in age. Another reason why peers were less influential than expected may be due to the nature of the interview topic itself. Previous research on adolescents and peer influence (Brittain, 1963; Young & Ferguson, 1979) showed that adolescents were likely to conform to peers when discussing day-to-day social matters. In contrast, when

adolescents were seeking objective information, they were likely to turn to outside experts, such as teachers, for guidance. Taken in the context of the present study, child and adolescent witnesses may not have been influenced by peers as an outside source of information because the purpose of the interview was to obtain objective information, not subjective, social information.

This difference in social influence between adults and peers as sources also suggests that children and adolescents are assessing the credibility of the information's source before deciding whether or not to incorporate it into their memory. Adults appear to be the source perceived as most credible, thus producing the disproportionately strong effect on children's and adolescents' witness memory when compared to peers. This assumption about the assessment of source credibility may in turn be based on implicit theories that children have about cognitive development and memory in general. Specifically, younger children (e.g., 7- or 8-year-olds) may already assume that adults' cognitive abilities are superior to their own, thus rendering adults more reliable co-witnesses. Research on theory of mind focuses on this particular aspect of children's cognitive development, namely, a growing understanding of the representational nature of the mind (Bright-Paul, Jarrold, & Wright, 2008). Some examples of theory of mind are children's understanding of how they or others acquire knowledge and the understanding that knowledge may be drawn from inferences, as opposed to direct perceptual contact (Taylor, Esbensen, & Bennett, 1994; Bright-Paul et al., 2008). With regard to child and adolescent witnesses perceiving adults as reliable co-witnesses, theory of mind suggests that younger children may understand that adults acquire knowledge differently than they or their peers. With a general understanding that adults are better at acquiring knowledge

than children, child witnesses may be likely to trust an adult co-witness over a fellow child.

The fact that outside information without a source was still more detrimental to witnesses' veracity than having a peer as a source suggests that child witnesses may be doing two things. One, when no source is stated explicitly children may simply infer an adult source at least some of the time. This inference of an adult source, for example, could be attributed to either a familiar adult (e.g., a teacher or counselor) or to the interviewer him/herself. Two, while some witnesses may infer that adults provided the outside information, other witnesses may infer peers to be the source. Taken together, the absence of a specific outside source nevertheless resulted in witnesses having made implicit assumptions about the source of the information, which by chance alone was likely to have resulted in some adult source attributions. Consequently, these implicit assumptions could have led to the stronger influence of providing no source over peers as a source, thus producing the smaller yet significant effect when compared to adults as a source. On an applied level, the data indicate that investigative interviewers should avoid telling child witnesses of all ages what others have said, especially if the source of the outside information is an adult.

Interestingly, in addition to highlighting the dangers of telling child and adolescent witnesses what an adult co-witness has said, these data suggest that the relationship between the source of outside information and witness accuracy may be moderated by the witness' age. Specifically, younger witnesses were particularly susceptible to inaccurate information provided by an adult compared to inaccurate information provided by a peer. Younger witnesses were also vulnerable to

misinformation without a source compared to older witnesses, but not to the same extent as they were to misinformation from an adult source. In contrast, older child witnesses were less influenced than younger children by misinformation overall, regardless of the outside source. Thus, it appears that younger children may be less effective at incorporating both the accuracy (i.e., “Is this correct according to my memory of the event?”) and the source of the outside information when questioned about their recollections of a witnessed event. That is, younger child witnesses are particularly influenced by the source of outside information such that misinformation is likely to be reported when an adult source is either made explicit or inferred. The present study’s findings further suggest that as children get older, their ability to consider both the accuracy of the outside information and the credibility of the sources changes; if outside information stands in contrast with their own memory of the event (as is likely the case when presenting misinformation), they are less likely to distinguish between different outside sources even when one of the sources was an adult, resulting in their relying more on their own memories of the witnessed event. Another possible reason why older children may be less likely than younger children to perceive adults as particularly credible co-witnesses is the decrease in age gap relative to their own age.

Research on theory of mind may help explain further why older children may be finding adults less credible when compared to younger children. Scullin and Bonner (2006) investigated theory of mind with regards to children’s ability to attribute false beliefs to themselves or others (i.e., the ability to pretend). The authors argue that understanding false beliefs allows children to adopt effective strategies against interviewers asking suggestive questions or using social pressure. For example, Scullin

and Bonner (2006) argue that if a child understands that an interviewer can hold a false belief about a given situation, then this understanding enables him or her to resist interviewer suggestion. Taken in the context of the present study, as theory of mind develops with age, older children may understand both that they can acquire knowledge as effectively as adults and that if adults can hold false beliefs about an event, then there may be no particular reason to trust adults as a source of information any more than themselves. This understanding, then, may lead to a more critical evaluation of adults as outside sources of information, in comparison with younger children.

These findings are also in line with previous research on the effects of source credibility on witness memory. Skagerberg and Wright (2009) presented adult witnesses to a mock crime with post-identification feedback provided either by a police officer or a child. The authors found that the feedback effect was present only when the outside information was provided by a police officer (i.e., the high credibility source). Similarly, Lampinen and Smith (1995) found that when preschool children (ages 3 to 5) were presented with misinformation provided either by a credible adult, a child, or a discredited adult (all co-witnesses were strangers presented via video), memory impairment occurred only when misinformation was provided by the credible adult. The present study extends these findings beyond co-witness information from strangers to familiar sources as well (teachers, counselors, and classmates). Also, the finding that older children (i.e., adolescents) are less susceptible than younger children to misinformation provided by a source deemed as credible suggests that the ability to process outside information's accuracy and source develops throughout childhood, and is not something adults alone are capable of doing.

A Hurdle Model

These patterns suggest that child witnesses may be engaging in a three stage process when making decisions about information provided by other people: (1) a Memory Matching stage, (2) a Source Credibility stage, and (3) a Source Reliability stage. During the Memory Matching stage, child witnesses decide whether or not the outside information matches their memory trace for the event. If the information matches onto what is remembered, the information is reported and the following two stages are never reached. If, however, the outside information does not match the existing memory trace, child witnesses proceed to the Source Credibility stage. In this second stage, child witnesses begin to consider the source of the information along with their assessment of how credible they perceive the source to be, such as the likelihood that they may lie or the source's motivation to be accurate. If no source is made explicit, a source will be inferred and credibility will be assessed accordingly. If the source is deemed as noncredible, the original memory is reported and the third stage is never reached. However, if the source is deemed as credible, child witnesses then enter the Source Reliability stage. During this third stage, child witnesses are assessing the likelihood with which the source's memory is accurate/more accurate than their own, based on their implicit theories about memory and general cognitive abilities, such as attention and the availability of cognitive resources. If child witnesses have no reason to believe that the source's memory is more likely to be correct, then their own original memory is reported. However, if the source is deemed to have a better memory than the child witness, the outside information is reported.

Depending on the child's age, these three appraisal stages are approached and processed differently. Specifically, when a younger child is presented with inaccurate information, this misinformation might not match the original memory trace, so the Source Credibility stage is entered. If the source is an adult, the younger child is likely to deem this source as credible, thus proceeding to the Source Reliability stage. Younger children are more likely to find adults reliable (based on their implicit theories of memory), as well as credible (e.g., "I think adults are less likely to lie than children"), thus explaining why they were significantly more likely than older children to agree with inaccurate information attributed to an adult source. In contrast, when older children are presented with inaccurate information from an adult, they may proceed through the Source Credibility stage in one of two ways. The older child will either (1) deem the adult as noncredible, consequently reporting his or her own original memory, or (2) the older child will deem the adult source as credible, leading into the Source Reliability stage. During this final stage, the older child is likely to decide that adults are no better at remembering things than older children (e.g. 16- or 17-year-olds) are, as the adult source is similar in age to their own, deeming the adult source's memory as unreliable, or at least equally reliable to their own (adolescent) memory, resulting in the reporting of the original memory. To summarize, younger child witnesses are likely to report misinformation provided by an adult because they find adults both credible and reliable source of information. Older child witnesses, on the other hand, are no longer particularly influenced by incorrect information attributed to an adult source either because they no longer consider adults to be particularly credible, or because they have no reason to

believe that adults' memories are more reliable, considering themselves "memory equals."

It is interesting to note that the present study's findings do not fit perfectly into general child witness memory suggestibility findings, which state that as age increases, memory suggestibility decreases (Ceci & Bruck, 1993; Quas et al., 1999). The present study found that suggestibility (or lack thereof) to non-credible sources (i.e., peers) was consistent across all ages. Current findings also do not fit with existing research on adolescents, suggesting particular vulnerabilities to social influence provided by peers (Costanzo & Shaw, 1966; Berndt, 1979). What the current data do suggest is that the relationship between age and susceptibility to misinformation is a more complex one, requiring the consideration of the outside information's source, accuracy of the information provided, as well as the age of the child witness. When correct information is introduced during an interview, memory accuracy is high irrespective of age. However, if misinformation is introduced, it is only detrimental when an adult source is made explicit or an adult source is inferred by the child witness. Still, the degree to which misinformation attributed to an adult source harms memory performance varies as a function of age, with younger children being at a much higher risk than older children for incorporating this specific type of inaccurate information into their memory.

Limitations and Future Directions

One limitation of the present study was the nature of the stimulus material: a lengthy, age-appropriate, entertaining, detail-rich event. Although presenting child and adolescent witnesses with a highly memorable event was strategic in that it provided interviewers with a substantial number of details worthy of subsequent questioning, it

may have led to an overestimation of witnesses' baseline memory accuracy. A less memorable event may provide a different representation of a child witness' memory after a 1-week delay. Future studies may want to explore the influence of OP source on witness suggestibility using a different, possibly shorter and less memorable event to see how those findings compare with that of the present study. Another limitation related to the witnessed event was that it was an expected event; that is, participants were informed that they would be watching a 10-minute video clip from a children's movie. This may have resulted in participants paying more attention to the event than they would have had it been a spontaneous, unexpected one. Future studies could explore the suggestive effects of various informational sources on child witness memory while presenting a more ecologically-valid, spontaneous event. Although the stimulus material used in the present study was lengthier and arguably more memorable than what some child witnesses might actually encounter, it is worth noting that even so, significant detriments in memory were observed when presenting misinformation that was attributed to a credible source. Thus, presenting child and adolescent witnesses with a spontaneous, unmemorable event may very well magnify the findings of the present study.

One of the main goals of this study was to explore the suggestive effects of OP on child witness memory while manipulating OP source. To achieve this goal, then, the number of co-witnesses was kept constant at either one peer or one adult allegedly providing the outside information. Also, the specific co-witnesses were kept anonymous so as to avoid any differential influences from certain individuals (e.g., the school's principal or the "smart" kid in the classroom). As a consequence, the present study's design does not allow one to tease apart and isolate the influence from specific adult and

peer sources. Future studies may wish to manipulate different adult and peer sources with the aim of isolating their respective suggestive effects on witness memory. If, for example, the lack of a peer OP effect was due to children's inability to assess co-witness credibility (due to anonymity) and not because all peer co-witnesses were deemed as noncredible, the present study would be unable to conclude one way or the other. Still, the fact that the anonymity of adult co-witnesses did not seem to dilute its effects on witness suggestibility suggests that the identity of a source may not be of particular importance.

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Appendix A

Video Questionnaire

1. One of the adults said that Sullivan saw swimming goggles for the first time. Is that true?
2. One of your peers said that Sullivan knew how to swim. Is that true?
3. Did Ratface wander off and trespass?
4. When setting up the camp site, did the boys collect fruit?
5. One of your peers said that the other kids bothered Ratface. Is that true?
6. One of the adults said that while the counselor was teaching Sullivan how to swim he dunked Sullivan's head under water. Is that true?
7. Did one of the boys jump into the lake?
8. Did Ratface say that he didn't care if a counselor starved to death?
9. One of your peers said that the campers were playing football. Is that true?
10. One of the adults said that Sullivan hit a ball out of bounds. Is that true?
11. One of your peers said that only two (2) people in the video didn't know how to swim. Is that true?
12. One of the adults said that when Sullivan saw The Lady for the first time, she was standing in front of her house. Is that true?
13. Were there 2 campers in Sullivan's canoe?
14. One of your peers said that the video showed only 1 day at camp. Is that true?
15. Did the boys wear camp T-shirts when they rode in the canoe?
16. One of your peers said that the boys used paddles to move the canoes. Did the boys use paddles to move the canoes?
17. Did the boys see a camp fire burning?
18. One of the adults said that The Lady was wearing a necklace. Is that true?
19. Was The Lady's bathing suit red?
20. Was it an all-boys camp?
21. One of the adults said that Sullivan's cousin was teaching him how to swim. Is that true?

22. Did a counselor chase Ratface through the forest?
23. Was there a man laughing at the cook about the meatloaf?
24. Did the older counselor say he liked wrestling more than volleyball?

Appendix B

Source-Monitoring Questionnaire

Instructions: “Now that you have finished answering questions about the video, I would like to ask you questions about your memory. For each question you will have a few answers to pick from. For each answer you picked I will then ask you whether you remembered this from watching the video, from the questions I asked you earlier, from both the video and the questions, or whether it was the answer that just “felt right.”

“Let’s practice with 2 questions.”

A. What was the name of one of the campers?

- a. Mouseface b. Madface c. Ratface
- Where do you remember this information from?
- a. From the video b. From the interview
- c. From the video and the interview d. It felt “right”

B. What was the name of one of the campers?

- b. Sullivan b. Solomon c. Sultan
- Where do you remember this information from?
- a. From the video b. From the interview
- c. From the video and the interview d. It felt “right”

Before you begin: **“Does that make sense? Do you have any questions before I continue?”**

1. What did Sullivan see for the first time?

- a. Swimming goggles b. A lifesaver c. A paddle
- Where do you remember this information from?
- a. From the video b. From the interview
- c. From the video and the interview d. It felt “right”

2. Did Sullivan know how to swim?

- a. No b. Yes
- Where do you remember this information from?
- a. From the video b. From the interview
- c. From the video and the interview d. It felt “right”

3. Who wandered off and trespassed?

- a. Delaney b. Sullivan c. Ratface

- Where do you remember this information from?

- a. From the video b. From the interview
c. From the video and the interview d. It felt “right”

4. When setting up the campsite, what did the boys collect?

- a. Bugs b. Fruit c. Fire wood

- Where do you remember this information from?

- a. From the video b. From the interview
c. From the video and the interview d. It felt “right”

5. Who bothered the other kids?

- a. Ratface b. Delaney c. Sullivan

- Where do you remember this information from?

- a. From the video b. From the interview
c. From the video and the interview d. It felt “right”

6. While learning how to swim, whose head was dunked under water?

- a. Ratface b. Delaney c. Sullivan

- Where do you remember this information from?

- a. From the video b. From the interview
c. From the video and the interview d. It felt “right”

7. What did one of the boys jump into?

- a. A puddle b. A lake c. A pool

- Where do you remember this information from?

- a. From the video b. From the interview
c. From the video and the interview d. It felt “right”

8. Who was told that they didn’t care if they starved to death by a counselor?

- a. Delaney b. Ratface c. Sullivan

- Where do you remember this information from?

- a. From the video b. From the interview
c. From the video and the interview d. It felt “right”

9. What sport were the campers playing?

- a. Softball b. football c. Volleyball

- Where do you remember this information from?

- a. From the video b. From the interview
c. From the video and the interview d. It felt “right”

10. Who hit a ball out of bounds?

- a. Sullivan b. Delaney c. Ratface

- Where do you remember this information from?

- a. From the video b. From the interview
c. From the video and the interview d. It felt “right”

11. How many people did not know how to swim in the video?

- a. 4 b. 3 c. 2

- Where do you remember this information from?

- a. From the video b. From the interview
c. From the video and the interview d. It felt “right”

12. When Sullivan saw The Lady for the first time, where was she?

- a. Swimming in the lake b. Standing in front of her house
c. Running around the lake

- Where do you remember this information from?

- a. From the video b. From the interview
c. From the video and the interview d. It felt “right”

13. How many campers were in Sullivan’s canoe?

- a. 2 b. 3 c. 4

- Where do you remember this information from?

- a. From the video b. From the interview
c. From the video and the interview d. It felt “right”

14. How many days at camp did the video show?

- a. 1 b. 2 c. 3

- Where do you remember this information from?

- a. From the video b. From the interview
c. From the video and the interview d. It felt “right”

15. What did the boys wear when they rode in the canoe?

- a. Camp T-shirts b. Sweaters c. Life jackets

- Where do you remember this information from?

- a. From the video b. From the interview
c. From the video and the interview d. It felt “right”

16. What did the boys use to move the canoes?

- a. Flippers b. Paddles c. A motor

- Where do you remember this information from?

- a. From the video b. From the interview
c. From the video and the interview d. It felt “right”

17. Did the boys start a camp fire?

- a. Yes b. No

- Where do you remember this information from?

- a. From the video b. From the interview
c. From the video and the interview d. It felt “right”

18. What was The Lady wearing?

- a. A necklace b. A life jacket c. A swimming cap

- Where do you remember this information from?

- a. From the video b. From the interview
c. From the video and the interview d. It felt “right”

19. What color was The Lady’s bathing suit?

- a. Blue b. Red c. Black

- Where do you remember this information from?

- a. From the video b. From the interview
c. From the video and the interview d. It felt “right”

20. What type of camp was it?

- a. Boys-and-girls camp b. All-girls camp c. All-boys camp
- Where do you remember this information from?

- a. From the video b. From the interview
- c. From the video and the interview d. It felt “right”

21. Who was teaching Sullivan how to swim?

- a. His brother b. His cousin c. His father
- Where do you remember this information from?

- a. From the video b. From the interview
- c. From the video and the interview d. It felt “right”

22. Who was chased through the forest by a counselor?

- a. Ratface b. Delaney c. Sullivan
- Where do you remember this information from?

- a. From the video b. From the interview
- c. From the video and the interview d. It felt “right”

23. How did the man feel about the meatloaf when talking to the Cook?

- a. Crying b. Laughing c. Yelling
- Where do you remember this information from?

- a. From the video b. From the interview
- c. From the video and the interview d. It felt “right”

24. What sport did the older counselor like more than volleyball?

- a. Football b. Wrestling c. Softball
- Where do you remember this information from?

- a. From the video b. From the interview
- c. From the video and the interview d. It felt “right”

Graph 1

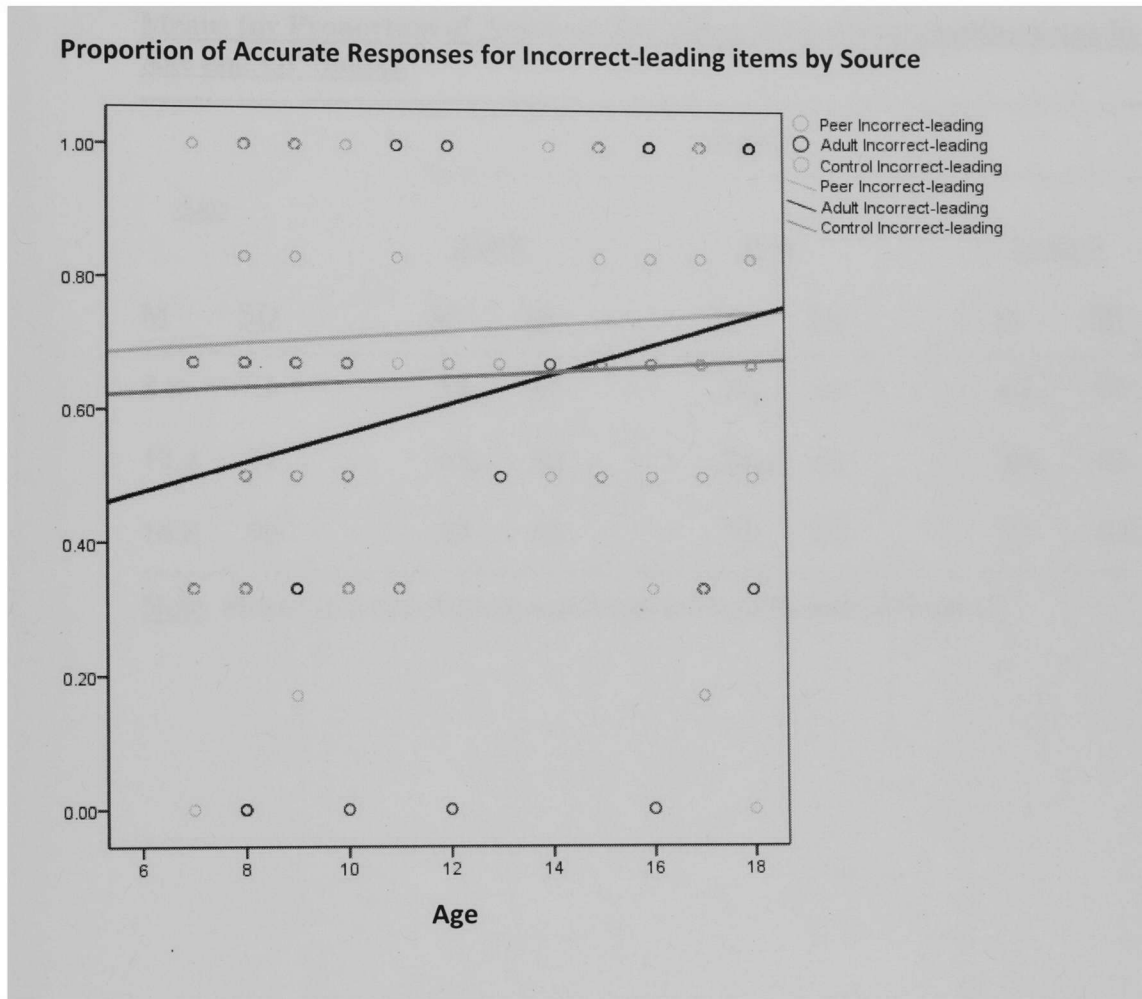


Table 1

Means for Proportion of Accurate Responses to Incorrect-leading items by Age and OP Source

<u>Age</u>		<u>Source</u>					
		<u>Adult</u>		<u>Peer</u>		<u>Control</u>	
		<u>M</u>	<u>SE</u>	<u>M</u>	<u>SE</u>	<u>M</u>	<u>SE</u>
8.8	1.1	.59 _a	.03	.74 _a	.03	.67 _a	.02
12.2	.92	.65 _a	.02	.74 _{a,b}	.02	.68 _b	.02
16.8	.90	.73	.03	.75	.03	.70	.02

Note. Means in a row sharing subscripts are significantly different.