

A Comfortable Witness Is a Good Witness: Rapport-Building and Susceptibility to Misinformation in an Investigative Mock-Crime Interview

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Summary: Major investigative interviewing protocols such as the Cognitive Interview recommend that investigators build rapport with cooperative adult witnesses at the beginning of a police interview. Although research substantiates the benefits of rapport-building on the accuracy of child witness reports, few studies have examined whether similar benefits apply to adult witnesses. The present study investigated whether verbal rapport-building techniques increase adult witness report accuracy and decrease their susceptibility to post-event misinformation. One-hundred eleven college adults viewed a videotaped mock-crime, received post-event misinformation (or correct information) about the crime, and were subsequently interviewed by a research assistant who built rapport (or did not build rapport) before recalling the mock-crime. Results indicated that rapport-building increased the quality of witness recall by decreasing the percentage of inaccurate and misinformation reported, particularly in response to open-ended questions. We discuss implications and recommendations for law enforcement. Copyright © 2011 John Wiley & Sons, Ltd.

INTRODUCTION

Imagine that you witness a crime. The police investigator brings you to the police station to obtain an official statement about the crime you just witnessed. Between the crime and your official witness statement, you are exposed to other (potentially inaccurate) information about the crime. Before administering the criminal interview, the investigator asks you a litany of mundane demographic questions in a dry and uninterested manner (e.g. what is your full name, cell-phone number, address, etc.), then moves directly into the interview about the crime. Would you feel comfortable? Would you feel a strong bond with this investigator, and willing to open up about the potentially traumatic experience you just witnessed? Most importantly, would your report be accurate and detailed, uninfluenced by the outside information you received?

The scenario presented above is likely to occur in many witness interviews. Unfortunately, many investigators fail to build rapport with cooperative criminal witnesses before beginning an investigative interview (Fisher, Geiselman, & Raymond, 1987), despite the fact that leading interview guidelines such as the Cognitive Interview (Fisher & Geiselman, 1992) and *Eyewitness Evidence: A Guide for Law Enforcement* (Technical Working Group on Eyewitness Evidence, 1999) recommend that interviewers build rapport to increase the accuracy of adult witness recall. Although there is no empirical data on why many investigators often fail to build rapport with adult witnesses, this may be because: (1) It is too time-intensive, (2) they may not fully appreciate the advantages of building rapport, particularly when the witness is an adult who has not directly experienced physical or psychological abuse, and (3) there are few empirically-established benefits (R. P. Fisher, personal

communication, May 7, 2010). It is quite possible that some investigators are completely unaware of how rapport-building may benefit a cooperative adult witness given the lack of specific interviewing training (Fisher & Schreiber, 2007); while other investigators may be aware of these benefits but lack a clear understanding of how to establish rapport.

RAPPORT-BUILDING

The construct of rapport is traditionally referenced in clinical settings, where therapists cite the importance of establishing a 'therapeutic alliance' (Bedi, Davis, & Williams, 2005). Despite its frequent usage by researchers and clinicians, there are many different definitions of rapport. For example, some believe that rapport involves a 'harmonious, sympathetic connection to another', while others believe rapport involves an 'accord or affinity, in an ecological alignment with another system' (Newberry & Stubbs, 1990, p. 14). As a likely result of these convoluted definitions, there is little consensus regarding the best way to establish rapport within a therapeutic setting (Collins, Lincoln, & Frank, 2005), much less in an investigative interview setting. Certainly rapport can be effectively established through the use of both verbal and non-verbal techniques (St-Yves, 2006). However, adult interviewing guidelines specifically recommend the use of verbal rapport-building techniques. For example, the Cognitive Interview (Fisher & Geiselman, 1992) encourages investigators to use active listening (e.g. following up with an 'uh huh' after a witness responds to a question), ask questions to indicate a general interest in the witness (e.g. 'Tell me about your family'), use the interviewee's name, and disclose personal information to the witness. Although research on the therapeutic alliance suggests that similar techniques can successfully establish rapport between therapist and client (Bedi, Davis, & Williams, 2005; Collins & Miller, 1994; Psychopathology Committee of the Group

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for the Advancement of Psychiatry, 2001), the benefits of these specific verbal rapport-building techniques have yet to be empirically tested in the context of a criminal interview.

One promising verbal rapport-building technique is interviewer self-disclosure. Self-disclosure, or transmitting personal information to another (Collins & Miller, 1994), is recommended by the Cognitive Interview and has long been regarded by clinicians as an effective rapport-building technique (e.g. Bedi, Davis, & Williams, 2005; Hanson, 2005). Research confirms that therapist self-disclosure can successfully build rapport. For example, self-report data indicate that clients perceive therapist self-disclosure as paramount to establishing a solid therapeutic alliance (Bedi, Davis, & Williams, 2005), and have more favorable opinions of the therapeutic process when therapists engage in self-disclosure (Myers & Hayes, 2006).

Although self-disclosure can enhance rapport within a therapeutic context, it is uncertain whether this technique will also enhance a witness's experience of rapport in a criminal investigation, and if so, whether it will translate into an increase in witness accuracy. Because therapeutic and investigative interviews have different goals (gathering information to successfully diagnose and treat a psychological disorder versus facilitating accurate and thorough memory recall, respectively), the benefits of self-disclosure may depend upon the setting. Although self-disclosure could enhance rapport in an investigative interview as it does in a therapeutic setting, self-disclosure could eliminate, or even reverse, the positive effects of rapport-building if the witness perceives the investigator's self-disclosures as atypical or awkward (Abell, Locke, Condor, Gibson, & Stevenson, 2006; Gurland & Grolnick, 2008; Henretty & Levitt, 2010). In fact, Gurland and Grolnick (2008) found that children perceived less rapport when adult interviewers acted in an atypical (i.e. playing with a toy) opposed to a typical fashion (i.e. reading the newspaper). Given the opposing theoretical predictions, whether or not self-disclosure can be a powerful tool for rapport-building and witness recall warrants empirical investigation.

Social support and child witnesses

Despite the recommendations for investigators to utilize verbal rapport-building techniques, the bulk of empirical research has examined the effects of non-verbal rapport-building on child witness recall. Studies employing this 'social support' paradigm typically present children with a staged or live event followed by a series of leading and non-leading questions from a supportive or non-supportive interviewer. The support manipulation involves the use of predominantly non-verbal techniques that 'foster a feeling of well-being in the target' (Carter, Bottoms, & Levine, 1996, p. 338). For example, the supportive interviewer makes consistent eye contact, frequently smiles, utilizes an open body position, and uses a warm and supportive voice intonation. Conversely, the non-supportive interviewer simply fails to utilize these techniques. A majority of these studies find that a supportive interviewer *increases* the overall accuracy of child witness reports and *decreases* the amount of incorrect responses to misleading questions

compared to a non-supportive interviewer (Carter, Bottoms, & Levine, 1996; Goodman, Bottoms, Schwartz-Kenney, & Rudy, 1991; Moston & Engleberg, 1992; Quas, Wallin, Papini, Lench, & Scullin, 2005).

Most child witness literature has established the effectiveness of non-verbal rapport-building techniques; however, less research has examined the impact of *verbal* rapport-building techniques on child witness recall by manipulating question type (open-ended vs. direct) during the rapport-building phase of the interview (Roberts, Lamb, & Sternberg, 2004; Sternberg et al., 1997). For example, Sternberg et al. (1997) presented children with a staged event followed by a rapport-building phase consisting of either open-ended questions (e.g. Tell me about yourself) or direct questions (e.g. How old are you). Building rapport with open-ended questions produced more accurate information than direct questioning (see also Roberts, Lamb, & Sternberg, 2004). These studies provide initial support for the benefits of verbal rapport-building techniques on child witness recall.

Although these studies clearly establish the benefits of rapport-building with child witnesses, these findings might not easily translate to adult witnesses. For example, research suggests that older children are less affected by interviewer support than younger children (e.g. Hardy & Van Leeuwen, 2004). This may be because older children have higher levels of 'resistance efficacy', or the child's perceived ability to resist misleading suggestions (Davis & Bottoms, 2002). That is, whether children felt confident in their ability to combat suggestive questioning mediated the relationship between interviewer support and commission errors to misleading questions. Thus, the effects of rapport-building on adult witnesses may be weak(er) as high resistance efficacy may dilute/weaken the effects of rapport-building on witness recall, particularly the effects on reporting misinformation. Another reason that rapport may have a weaker effect on adult compared to child witnesses is because adults may be less intimidated and anxious during an investigative interview. Although research has not yet examined the effects of rapport on anxiety for adult witnesses, research with child witnesses does indicate that a socially supportive interviewer may increase their report accuracy by reducing anxiety (Almerigogna, Ost, Bull, & Akehurst, 2007; Quas & Lench, 2007). For example, Almerigogna et al. found that children with lower state anxiety at or after retrieval were more likely to give accurate reports and less likely to report incorrect responses to suggestive questions. Thus, a reduction in anxiety at time of recall via verbal rapport-building techniques may also provide recall benefits for adult witnesses.

Rapport-building and adult witnesses

To date, very little research has been conducted on the effects of rapport-building with adult witnesses. One exception is a recent study by Collins, Lincoln, and Frank (2002), who investigated the effects of rapport-building on the accuracy of cooperative adult witness reports. In their study, participants viewed a mock-crime video and were subsequently interviewed by an interviewer who used either a

rapport, neutral or abrupt interview 'script'. Rapport was manipulated non-verbally; that is, via interviewer's voice intonation and body language, and by altering the layout of the interview room (e.g. a desk served as a barrier between the interviewer and witness in the abrupt condition). Following this rapport manipulation, participants answered a series of open and cued questions about the mock-crime. Results indicated that participants in the rapport condition freely recalled more accurate information than participants in the neutral and abrupt conditions. Interestingly, this pattern did not generalize to inaccurate information reported or participants' responses to cued questions. These results are fairly consistent with the child witness literature and support the proposition that rapport-building increases accuracy without a concomitant increase in incorrect details reported. However, as this study primarily manipulated *non-verbal* rapport-building, it remains unknown whether the type of rapport-building recommended in major investigative interviewing guidelines, namely *verbal* rapport-building, will affect adult witness recall, and reduces susceptibility to misinformation.

Based on the findings reviewed, the present study had two major goals: To investigate (1) the effects of verbal rapport-building on adult witness recall, and (2) the effect of rapport-building on the reporting of post-event misinformation. Unlike other social support and question type paradigms (e.g. Carter, Bottoms, & Levine, 1996; Sternberg et al., 1997), we presented adult participants with written misinformation separately *before* the rapport manipulation, followed by open and cued questions about the mock-crime. This design allowed us to determine whether building rapport can act as a safeguard against reporting previously presented misinformation in adult witnesses. Recent research utilizing similar paradigms with child witnesses found that the use of cognitive interviewing including rapport-building reduced the amount of false acquiescence to leading information provided by the interviewer but that an extended rapport phase did not increase the amount of correct details reported or reduce the likelihood of reporting misinformation (Holliday, 2003; Holliday & Albon, 2004).

Finally, the present study is the first to investigate two different types of verbal rapport-building to determine whether interviewer self-disclosure is an important component in successful rapport-building and subsequent witness recall. Specifically, we tested a *uni-directional* rapport-building condition, involving an interviewer who invited the witness to self-disclose personal information (without interviewer self-disclosure), and a *bi-directional* rapport-building condition, involving an interviewer who invited witness self-disclosure while also disclosing personal information him/herself. Based on previous research with both child (e.g. Carter, Bottoms, & Levine, 1996) and adult witnesses (Collins, Lincoln, & Frank (2002)), we expected that building rapport with a cooperative adult witness would increase report accuracy and decrease report inaccuracy, including the reporting of misinformation. Although we believed that this effect may be stronger for the bi-directional than the uni-directional condition (due to more self-disclosure), we made no *a priori* predictions due to the exploratory nature of this issue.

METHOD

Participants

One hundred twenty-five participants at a southeastern university participated in the present study. Of these participants, we excluded nine because of a recording equipment malfunction and five because they did not provide data for all of the dependent measures. The final sample of 111 participants were predominantly Hispanic ($n = 76$; 66%), followed by Caucasian ($n = 12$; 11%), African-American ($n = 12$; 11%), Asian ($n = 3$, 3%) and Other ($n = 8$; 7%). Mean participant age was 20 years.

Design

We randomly assigned participants to a 2 (misinformation: present vs. absent) by 3 (rapport: no-rapport vs. uni-directional rapport vs. bi-directional rapport) design.

Materials and procedure

Two different research assistants were needed for each participant and were randomly assigned as Research Assistant 1 (RA 1) and 2 (RA 2) for each participant from a total set of 17 research assistants.

Mock-crime video

RA #1 showed participants a short mock-crime DVD (approximately 1 minute long) depicting a theft, in which a man removes money from a victim's purse and leaves.

Police report

After a 5-minute word completion (filler) task, RA #1 presented participants with a written summary of the mock-crime labeled the 'police report'. The primary purpose of the police report was to create a scenario in which a witness receives details after witnessing the crime but before the official police interview. The police report further served as the misinformation manipulation, which either accurately (the 'correct' police report) or inaccurately (the 'misinformation' police report) depicted the events in the DVD. To create a diverse set of misinformation items, the police report contained a total of 10 incorrect details, including three additions (e.g. 'the victim had a cup of coffee' when there was none in the DVD) and seven modifications (e.g. 'the room contained 5 chairs' when there were 3 chairs in the DVD).

Rapport scripts

After participants completed another 5-minute word completion (filler) task, we manipulated rapport and a different research assistant (RA 2) administered one of three rapport-building scripts (no-rapport, uni-directional or bi-directional). We based the no-rapport script on actual interviews conducted by a local police department's robbery division. This script consisted of demographic questions such as 'What is your first, middle, and last name?', 'What is your phone number?' and 'What is your address?'. The uni-directional and bi-directional rapport scripts both included

verbal rapport-building techniques recommended by the Cognitive Interview. These scripts differed in the type and amount of self-disclosure involved. The uni-directional script sought self-disclosure only from the interviewee by asking each witness to provide personal information (e.g. 'Tell me about your family'). In the bi-directional condition, the interviewer sought interviewee self-disclosure and additionally disclosed personal information about herself. For example, once obtaining interviewee self-disclosure regarding their family, the interviewee would follow up by disclosing information of her own (e.g. 'I have two brothers and sisters who live in California'). All research assistants attended an extensive training session on how to follow each rapport-building script. Only after research assistants adhered to the protocols were they allowed to conduct rapport interviews. During the study, we frequently monitored interviewers' performance to ensure that they followed the script and used the verbal rapport-building techniques correctly. All witness interviews were recorded with a web-cam and transcribed verbatim.

After the rapport-building manipulation, the same interviewer (RA 2) asked participants to answer a sequence of uniform questions about the mock-crime DVD (the free recall measure): Four open-ended questions about the major pieces of the crime (e.g. 'Tell me about the victim'), followed by eleven cued questions (e.g. How many chairs were in the study lounge?). All participants received the same set of open-ended and cued questions, with each cued question addressing a detail surrounding one of the ten manipulated pieces of misinformation. All questions were phrased in a non-suggestive manner.

Interaction questionnaire

While RA 2 waited outside the room, participants completed the interaction questionnaire (IQ), which measured participants' perceptions of rapport—a manipulation check. Participants rated the *interviewer* and *interaction* for the presence (or absence) of 27 rapport-related characteristics on a seven-point Likert-type scale (1 = *low amount of characteristic*, 7 = *high amount of characteristic*). We based these items on characteristics empirically related to establishing rapport within a therapeutic setting (e.g. Bernieri, 1988; Elvins & Green, 2008). Participants used the *interviewer* subscale to rate the interviewer on characteristics such as friendliness and positivity and used the *interaction* subscale to rate the interaction on characteristics such as cooperativeness and friendliness (see Appendix A).¹ Finally, participants completed a demographic questionnaire, were debriefed, and given credit for their participation.

Scoring

Two research assistants attended an intensive training on how to score transcripts using a standard scoring protocol designed to assess the accuracy and inaccuracy of witness reports in response to both open and cued questions. Only

¹We analysed data on seven of the eighteen adjectives in the interaction subscale for two reasons: (1) some items were not relevant to an investigative interview setting and (2) many of the adjectives were likely difficult for non-native English speakers to comprehend (e.g. engrossing).

after both scorers reached an acceptable agreement independently of each other did scoring of study transcripts commence. A primary scorer scored all 111 transcripts, while a co-scorer independently scored 27% of the transcripts to calculate inter-rater reliability coefficients. Intra-class correlations indicated high levels of reliability for all dependent variables, ranging from .95 (the lowest) to .99 (the highest).

For both question types, the primary scorer initially divided each witness transcript into units, defined as separate and new pieces of information that facilitate a successful police investigation. Next, each scorer used the mock-crime DVD as a source document to independently score each unit of every transcript as accurate, inaccurate or misinformation. Any unit erroneously describing the events depicted in the mock-crime DVD was scored as inaccurate. Each inaccurate unit was further scored as an addition (if this unit *added* information not present in the DVD), modification (if this unit incorrectly *changed* details present in the DVD) and/or misinformation (*only if* this inaccurate unit contained one of the ten manipulated misinformation pieces presented in the misinformation police report). We conducted the primary analyses on accurate information, total inaccurate information (including both misinformation and other false information reported), and misinformation (including only misinformation units mentioned in the police report that were erroneously reported by participants).

RESULTS

Preliminary analyses

Interviewer effects

Several multivariate analyses of variance (MANOVAs) were conducted on items measuring rapport within the interaction questionnaire to examine whether rapport interviewers affected participants' ratings of interviewer rapport (the interviewer subscale) and interaction rapport (the interaction subscale). There was no effect of interviewer (RA 2) on participants' ratings of interviewer rapport $F(81, 819) = 1.19, p = .13$, or participants' ratings of interaction rapport, $F(63, 686) = 1.11, p = .28$, independent of rapport condition. Any differences between rapport conditions are thus unlikely to be the result of the specific interviewers who delivered the rapport manipulation.

Rapport length

We then conducted a MANOVA to assess whether rapport condition affected the following variables: How much time the interviewer spent administering the rapport manipulation, how much time the participant spent answering open and cued questions, and how many words participants produced in response to both open and cued questions. A MANOVA indicated a significant main effect of rapport, $F(8, 190) = 5.29, p < .001, \eta^2 = .18$. Between-subjects F tests further indicated that rapport condition affected the length of time the interviewer spent building rapport with the participant, $F(2, 190) = 19.13, p < .001, \eta^2 = .28$. *Post hoc* analyses indicated that interviewers spent more time building rapport with bi-directional participants ($M = 12.71$ min,

$SD = 3.14$) than with uni-directional participants ($M = 10.74$ min, $SD = 3.27$), and spent more time building rapport with uni-directional participants than no-rapport participants ($M = 8.07$ min, $SD = 2.07$). These significant effects are not surprising, given that the rapport-building scripts required additional time and self-disclosure. However, rapport condition did not affect the amount of time participants subsequently spent answering both open and cued questions $F(2, 190) = 2.44$, $p = .10$, or the amount of words given in response to either open $F(2, 190) = 0.51$, $p = .60$ or cued questions, $F(2, 190) = 1.21$, $p = .30$. These findings indicate that although rapport condition affected the length of time spent during the rapport-building portion of the script, the manipulation did not affect the length of participants' subsequent eyewitness reports.

Rapport manipulation check

We then examined whether participants perceived the levels of rapport for the interviewer and interaction differently via the interaction questionnaire—a manipulation check. A 2 (misinformation: present vs. absent) \times 3 (rapport: no rapport vs. uni-directional vs. bi-directional) MANOVA on the items in the interviewer subscale revealed that rapport condition significantly affected participants' perceptions of how much rapport the interviewer established, $F(18, 184) = 2.12$, $p = .007$, $\eta^2 = .17$. Follow-up comparisons revealed that rapport condition significantly affected participant perceptions of interviewer friendliness $F(2, 99) = 9.71$, $p < .001$, and positivity, $F(2, 99) = 4.30$, $p = .02$, and that both uni-directional ($M = 6.05$, $SD = 1.18$) and bi-directional rapport participants ($M = 6.09$, $SD = 1.57$) perceived the interviewer as friendlier than no-rapport participants ($M = 4.64$, $SD = 1.93$). Similarly, uni-directional rapport participants perceived the interaction as more positive ($M = 5.83$, $SD = 1.18$) than no-rapport participants ($M = 4.85$, $SD = 1.91$).

A 2 \times 3 MANOVA on the items in the interaction subscale revealed that rapport condition had a marginally significant effect on how much rapport permeated the interview, $F(14, 202) = 1.56$, $p = .09$. Follow-up comparisons revealed that uni-directional rapport participants perceived the interaction as more friendly ($M = 5.34$, $SD = 1.88$) than no-rapport participants ($M = 4.41$, $SD = 1.72$). Similarly, uni-directional rapport participants perceived the interaction as more positive ($M = 5.49$, $SD = 1.12$) and worthwhile ($M = 5.10$, $SD = 1.18$) than no-rapport participants ($M = 4.75$, $SD = 1.78$ —positive; $M = 4.20$, $SD = 1.58$ —worthwhile).

Although participants perceived the rapport and no-rapport conditions differently, they did not perceive differences between uni-directional and bi-directional rapport. This result contradicts the notion that interviewer self-disclosure would increase participants' experience of rapport. This result, along with the fact that the uni-directional and bi-directional rapport conditions did not affect: (1) The amount of time spent answering questions, (2) the number of words and (3) the primary dependent

measures,² allowed us to collapse across rapport conditions for all primary analyses.

Primary analyses

On average, of the 47 details contained within the police report, participants recalled 25 details in response to open-ended questions, and 16 details in response to cued questions. For answers to open-ended and cued questions separately, we conducted a 2 (rapport: present vs. absent) \times 2 (misinformation: present vs. absent) MANOVA on the following dependent measures: (1) Percentage of accurate units reported, (2) percentage of total inaccurate units reported (including misinformation) and (3) percentage of misinformation units reported (see Table 1).³ To control for differences in report length and allow for comparisons with other witness studies, we primarily focused on percentage variables. To allow for a better assessment of study specific findings, we also added several analyses on the quantity of accurate, total inaccurate and misinformation units reported.

Responses to open-ended questions

A 2 (rapport: present vs. absent) \times 2 (misinformation: present vs. absent) MANOVA revealed a main effect of rapport, $F(2, 106) = 3.98$, $p < .05$, $\eta^2 = .07$. Follow-up ANOVAs indicated that rapport-building affected the percentage of accurate units, $F(1, 106) = 4.52$, $p < .05$, $\eta^2 = .04$, total inaccurate units⁴, $F(1, 106) = 4.52$, $p < .05$, $\eta^2 = .04$ and misinformation units reported by the participant (regardless of the misinformation manipulation), $F(1, 106) = 6.87$, $p < .05$, $\eta^2 = .06$. As predicted, participants who experienced rapport provided a higher percentage of accurate information than participants who did not experience rapport. Conversely, rapport-building also decreased the percentage of total inaccurate information reported: Participants who experienced rapport provided a lower percentage of inaccurate information and misinformation than participants who did not experience rapport.

There was also a main effect of misinformation, $F(2, 106) = 7.32$, $p < .005$, $\eta^2 = .12$, such that whether participants received misinformation or not affected the percentage of accurate units, $F(1, 106) = 5.33$, $p < .05$, $\eta^2 = .05$, total inaccurate units⁵, $F(1, 106) = 5.33$, $p < .05$, $\eta^2 = .05$ and misinformation units reported by the participant, $F(1, 106) = 14.27$, $p < .001$, $\eta^2 = .12$. Serving as a manipulation check, between-subjects F tests confirmed an overall misinformation effect: Participants who received misinformation reported a greater percentage of misinformation

³Each percentage variable was calculated using the following formula: total # of (accurate) units reported/(total # of accurate units + total # of inaccurate units reported). The percentage variable 'total inaccurate information' includes all inaccurate units reported by witnesses including misinformation items recalled and other false items. Each percentage variable was calculated separately for open-ended and cued questions.

⁴In addition to conducting analyses on 'total inaccurate information', we also conducted between-subjects F tests to assess whether rapport condition affected the percentage of inaccurate units that did not include misinformation—that is, all 'other false' information. This analysis did not reach significance, $F(1, 105) = 2.12$, $p = .15$.

⁵Between-subjects F tests assessing whether misinformation condition affected the percentage of inaccurate units that did not include misinformation—a pure measure of inaccurate units—did not reach significance, $F(1, 105) = .63$, $p = .43$.

²Several analyses conducted on all three levels of the rapport variable did not produce any significant differences between the uni-directional and bi-directional rapport conditions on the dependent variables of interest.

Table 1. Mean percentage of units reported in the rapport and misinformation conditions (standard deviations in parentheses)

	Rapport		<i>F</i>	η^2	Misinformation		<i>F</i>	η^2
	Present (<i>n</i> = 67)	Absent (<i>n</i> = 44)			Present (<i>n</i> = 53)	Absent (<i>n</i> = 58)		
Open-ended questions								
Accurate	85% (10%) ^a	81% (12%) ^a	4.52	.04	81% (11%) ^d	85% (11%) ^d	5.33	.05
Inaccurate	15% (10%) ^b	19% (12%) ^b	4.52	.04	19% (11%) ^e	15% (11%) ^e	5.33	.05
Misinformation	2% (4%) ^c	5% (6%) ^c	6.87	.06	5% (6%) ^f	2% (4%) ^f	14.27	.12
Cued questions								
Accurate	71% (10%)	74% (10%)	.43	.00	67% (10%) ^g	77% (10%) ^g	15.56	.13
Inaccurate	29% (10%)	26% (10%)	.43	.00	33% (10%) ^h	23% (10%) ^h	15.56	.13
Misinformation	7% (5%)	6% (5%)	.04	.00	11%(9%) ⁱ	2% (5%) ⁱ	40.01	.28

Note: Means sharing the same superscript are significantly different at the .05 level. 'Inaccurate' answers included both misinformation and other false items reported by participants.

compared to participants who did not receive misinformation. The presence or absence of misinformation also tainted the accuracy of participant's reports for other details: Participants who received misinformation reported a lower percentage of accurate details and a higher percentage of total inaccurate details than participants who did not receive misinformation.

The 2×2 MANOVA on the numeric measures (the total number of units reported in response to open-ended questions) produced a main effect of rapport, $F(3, 105) = 3.95, p < .05, \eta^2 = .10$. Similar to the results above, between-subjects *F* tests indicated that rapport significantly affected the number of total inaccurate units, $F(1, 105) = 8.25, p < .05, \eta^2 = .07$, and misinformation units reported, $F(1, 105) = 8.24, p < .05, \eta^2 = .07$. Participants who did not experience rapport provided more total inaccurate ($M = 3.75, SD = 2.88$) and misinformation units ($M = 0.84, SD = 1.03$) than those who experienced rapport ($M = 2.69, SD = 1.88$ —total inaccurate; $M = 0.43, SD = 0.80$ —misinformation). However, rapport no longer significantly affected the number of *accurate* units reported, $F(1, 105) = .44, p = .51$. This analysis also produced a main effect of misinformation, $F(2, 105) = 6.24, p < .05, \eta^2 = .15$. Once again, receiving the correct or misinformation police report significantly affected the number of misinformation units in the predicted direction, $F(1, 105) = 15.57, p < .05, \eta^2 = .13$. In addition, misinformation significantly affected the number of accurate units reported, $F(1, 105) = 3.78, p = .05, \eta^2 = .03$. Participants who did not receive misinformation reported more accurate units ($M = 17.24, SD = 7.77$) than those who received misinformation ($M = 14.83, SD = 4.94$). However, misinformation no longer significantly affected the number of total *inaccurate* units reported, $F(1, 105) = 2.96, p = .08, \eta^2 = .03$.

Responses to cued questions

Rapport-building did not have the same effect in response to cued questions. A 2 (rapport: present vs. absent) \times 2 (misinformation: present vs. absent) MANOVA did not reveal a main effect of rapport, $F(2, 102) = .37, p = .69$. There was, however, a main effect of misinformation, $F(2, 102) = 20.95, p < .001, \eta^2 = .29$. Follow-up analyses revealed significant effects for the percentage of accurate units, $F(1, 102) = 15.56, p < .001, \eta^2 = .13$, total inaccurate units, $F(1, 102) = 15.56, p < .001, \eta^2 = .13$, and misinforma-

tion reported, $F(1, 102) = 40.01, p < .001, \eta^2 = .28$.⁶ Serving as a manipulation check, participants who received misinformation reported a greater percentage of misinformation ($M = 11%, SD = 9%$) than participants who did not receive misinformation ($M = 2%, SD = 5%$). The presence or absence of misinformation once again tainted the accuracy of participants' eyewitness reports for other details: Participants who received misinformation reported a lower percentage of accurate details ($M = 67%, SD = 10%$) and a higher percentage of total inaccurate details ($M = 33%, SD = 10%$) than participants who did not receive misinformation ($M = 77%, SD = 10%$ —accurate; $M = 23%, SD = 10%$ —inaccurate).

Don't know responses

Because of the possibility that our manipulations may have impacted the amount of don't know responses, we conducted a Rapport \times Misinformation MANOVA on the percentage of don't know responses to open-ended and cued questions.⁷ This analysis did not produce any significant main effects or interactions.

DISCUSSION

Although most investigative interviewing guidelines recommend the use of rapport-building before a witness interview, there is surprisingly little research on how verbal rapport-building affects the quality of adult witness recall. The present study demonstrated that when interviewing cooperative adult witnesses, building rapport is an important investigative interviewing technique, especially in conjunction with a subsequent open-ended interviewing style. Rapport-building improved the quality of witness reports primarily by decreasing the amount of total inaccurate information reported, specifically by reducing the amount of inaccuracies in the form of post-event misinformation. However, building rapport via interviewer self-disclosure did not result in additional witness recall benefits. It appears that rapport-building may be especially beneficial after adult

⁶A MANOVA on the numeric variables produced nearly identical results with one exception—the misinformation main effect on the pure measure of inaccurate units did not reach significance, $F(1, 101) = .00, p = .99$.

⁷This variable was calculated using the following formula: # of don't know responses/total number of units reported to open-ended (cued) questions.

witnesses have been exposed to post-event misinformation and when the interviewer subsequently asks open-ended questions. Failing to build rapport in the presence of misinformation places the participant at the greatest risk for incorporating false details into their witness report.

Based on the present findings, the strengths of easily-implemented verbal rapport-building techniques also extend to adult witnesses. The study's findings are in line with Collins et al. (2002), who also found that rapport-building improved the overall quality of cooperative adult witness recall. However, the present study goes beyond prior research (including Collins et al.) by demonstrating that rapport-building also significantly reduced the percentage of incorrect details reported, as well as the susceptibility to post-event misinformation. Our findings are also consistent with the child witness literature (e.g. Carter, Bottoms, & Levine, 1996; Davis & Bottoms, 2002; Goodman, Bottoms, Schwartz-Kenney, & Rudy, 1991; Quas, Wallin, Papini, Lench, & Scullin, 2005), which finds that creating a comfortable environment before witness recall decreases the amount of incorrect details reported in response to leading questions—a form of post-event misinformation. It now appears that a comfortable environment not only protects children against providing erroneous answers to suggestive questioning, but also has the potential to reduce the likelihood that adult witnesses will make errors of commission that include post-event misinformation, even in response to non-leading questions.

The fact that rapport-building between exposure to misinformation and recall decreased the misinformation effect at time of retrieval suggests that at least part of the misinformation effect is not due to permanent memory alterations. Rather, it appears that rapport was able to influence the social demand characteristics of the interview situation: Participants who experienced rapport were better able to either resist reporting false report information or better able to access their original memory for the event. Alternatively, rapport at time of retrieval may have encouraged better use of source-monitoring strategies (e.g. Lindsay & Johnson, 1989) via putting witnesses more at ease. Thus, rapport-building may have aided witness recall because it reduces anxiety at time of retrieval (see Almerigogna, Ost, Bull, & Akehurst, 2007). As a result, the witness may be able to conduct a more exhaustive and thorough memory search (see Carter, Bottoms, & Levine, 1996). Future research should examine whether this explanation applies to adult witnesses (see Ridley & Clifford, 2004, 2006, for alternative explanations regarding how anxiety affects witness memory).

Also consistent with prior research (Lamb, Orbach, Warren, Esplin, & Hershkowitz, 2000; Roberts, Lamb, & Sternberg, 2004), rapport-building exerted its most positive influence on open-ended questions. This result tends to suggest that rapport-building may be effective by allowing the interviewer to more effectively transfer control to the witness (Fisher & Geiselman, 1992). In addition to the notion that it may be exactly a combination of effective interviewing strategies that results in a witness accuracy increase, free recall has distinct features that render it more likely to be sensitive to rapport-building. Specifically, to be reported in

free recall, a given piece of information has to have a stronger memory trace to exceed the reporting threshold. Conversely, there is little pressure to report details a witness is unsure of or would have never reported if not specifically probed. Thus, if rapport-building implies reverting control back to the witness, this control is most likely to present itself in the section of the interview that the witness has most control over—the free recall section. Rapport-building before cued questions may be 'overshadowed' by the directive nature of specific recall for details.

Implications and recommendations

The present study is the first to provide empirical evidence for the benefits of verbal rapport-building after exposure to misinformation, as well as extending these benefits to adult witnesses. Indeed, our results suggest that adult witnesses also benefit from rapport-building whether or not they have been exposed to potential misinformation. In addition, the present study also sheds light on the efficacy of specific rapport-building techniques. The fact that our brief but effective rapport-building manipulation significantly improved recall accuracy suggests that the quality of rapport-building is more important than the quantity. It is not enough to merely spend time with a witness before the official criminal interview—investigators must use their time wisely. Specifically, investigators should utilize the verbal techniques recommended by the Cognitive Interview that enhanced adult witness recall, such as showing interest in the witness by asking about (comfortable) personal information. However, since we replicated many of the effects found by researchers who manipulated non-verbal rapport with child witnesses, investigators should probably build rapport using both non-verbal and verbal techniques to maximize the benefits of rapport on adult witness recall. Future research should address the combined and respective effects of verbal and non-verbal rapport-building techniques.

Although promising, it appears that interviewer self-disclosure did not facilitate a more comfortable environment when compared to only interviewee self-disclosure (both based on witnesses' perceptions and their recall data). However, self-disclosure from either the interviewer or interviewee may still act to personalize the interview, especially considering that participants in the no-rapport condition often perceived the interview as 'too professional'. Thus, unlike St-Yves (2006) who recommends interviewer professionalism, we question that approach and continue to believe that a less professional, somewhat informal interaction, created through verbal rapport-building techniques, can enhance rapport and subsequent eyewitness recall. We thus abstain from disqualifying self-disclosure as an effective rapport-building technique. The possibility remains that interviewer self-disclosure may be a more effective rapport-building technique within an investigative interview if it is context-appropriate. Future studies should investigate alternative approaches to interviewer self-disclosure that have the potential to facilitate witness recall without running the risk of being perceived as unprofessional or context-inappropriate.

There are several caveats to our findings and recommendations. As is the case with many university laboratory studies, several facets of the present study lacked ecological validity. The final sample consisted of primarily female, Hispanic undergraduates. As a result, the beneficial effects of rapport-building may not generalize beyond this homogeneous sample. However, other researchers have obtained similar benefits using a different participant sample (i.e. Caucasians—Collins, Lincoln, & Frank 2002).

Likewise, some of our stimulus materials did not perfectly mimic an actual criminal event. For example, research assistants (not police investigators) interviewed participants without police uniforms, the actual stimulus event was an obviously staged mock-crime DVD, witnesses had no reason to be afraid or nervous to talk about the crime, and the interviewers used scripts to interview participants. Despite these potential deficits in ecological validity, it is interesting to note that they still produced effects of rapport-building on adult witness accuracy, thus rendering stronger effects of rapport-building in the real world more likely.

Arguably, the size of our misinformation effect may have been a function of the specific items chosen, given that misinformation items were not counterbalanced between participants. However, our misinformation paradigm is similar to others used by previous researchers (e.g. Eakin, Schreiber, & Sergeant-Marshall, 2003; Loftus, Levidow, & Duensing, 1992). More importantly, we argue that the difference in the size of the misinformation effect between rapport groups—the main focus of the present study—is likely independent of the specific item set presented.

It is also possible that the positive effects of rapport-building found in this study occurred because interviewers spent more time with the witnesses. However, it took significantly longer to build bi-directional rapport than uni-directional rapport, yet participants perceived the same amount of rapport in both conditions. Most importantly, these conditions did not produce differences in the quality of witness recall. In addition, all scripts (regardless of their effect on interview length) contained the same number of subsequent open and cued questions, allowing for equal recall time. Due to our failure to find differences both in participants' rapport ratings and recall quality, we believe it is unlikely that the sheer passage of time accounted for our results.

Taken together, the present study lends strong empirical support to the nationally recommended interviewing technique of rapport-building: Not only does building rapport at the beginning of a witness interview shift the ratio of inaccurate to accurate witness recall, but it also has potential to act as a buffer against falsely reporting prior misinformation if combined with an open-ended questioning style. Future research should disentangle the respective influence of timing of rapport and misinformation to shed light on encoding versus retrieval processes.

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APPENDIX A: INTERACTION QUESTIONNAIRE

Directions: Rate the interviewer on the following characteristics:

1. Smooth

1 not smooth	2	3	4 somewhat smooth	5	6	7 extremely smooth
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2. Bored

1 not bored	2	3	4 somewhat bored	5	6	7 extremely bored
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3. Satisfied

1 not satisfied	2	3	4 somewhat satisfied	5	6	7 extremely satisfied
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4. Awkward

1 not awkward	2	3	4 somewhat awkward	5	6	7 extremely awkward
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5. Engrossed

1 not engrossed	2	3	4 somewhat engrossed	5	6	7 extremely engrossed
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6. Involved

1 not involved	2	3	4 somewhat involved	5	6	7 extremely involved
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7. Friendly

1 not friendly	2	3	4 somewhat friendly	5	6	7 extremely friendly
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8. Active

1 not active	2	3	4 somewhat active	5	6	7 extremely active
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9. Positive

1 not positive	2	3	4 somewhat positive	5	6	7 extremely positive
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Directions: Rate the interaction on the following characteristics:

1. Well-coordinated

1 not coordinated	2	3	4 somewhat coordinated	5	6	7 extremely coordinated
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2. Boring

1 not boring	2	3	4 somewhat boring	5	6	7 extremely boring
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3. Cooperative

1 not cooperative	2	3	4 somewhat cooperative	5	6	7 extremely cooperative
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4. Harmonious

1 not harmonious	2	3	4 somewhat harmonious	5	6	7 extremely harmonious
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5. Unsatisfying

1 unsatisfying	2	3	4 satisfying	5	6	7 extremely satisfying
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6. Uncomfortably Paced

1 uncomfortably paced	2	3	4	5	6	7 comfortably paced
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7. Cold

1 not cold	2	3	4 somewhat cold	5	6	7 extremely cold
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8. Awkward

1 not awkward	2	3	4 somewhat awkward	5	6	7 extremely awkward
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9. Engrossing

1 not engrossing	2	3	4 somewhat engrossing	5	6	7 extremely engrossing
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10. Unfocused

1 not focused	2	3	4 focused	5	6	7 extremely focused
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11. Involving

1 not involving	2	3	4 somewhat involving	5	6	7 extremely involving
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12. Intense

1 not intense	2	3	4 somewhat intense	5	6	7 extremely intense
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13. Friendly

1 not friendly	2	3	4 somewhat friendly	5	6	7 extremely friendly
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14. Active

1 not active	2	3	4 somewhat active	5	6	7 extremely active
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15. Positive

1 not positive	2	3	4 somewhat positive	5	6	7 extremely positive
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16. Dull

1 not dull	2	3	4 somewhat dull	5	6	7 extremely dull
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17. Worthwhile

1 not worthwhile	2	3	4 somewhat worthwhile	5	6	7 extremely worthwhile
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18. Slow

1 not slow	2	3	4 somewhat slow	5	6	7 extremely slow
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