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How multiple interviews and interview framing influence the development and maintenance of rapport

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ABSTRACT

Information obtained from investigative interviews is crucial for police to develop leads, advance investigations and make effective decisions. One well-endorsed approach for eliciting detailed and accurate information is building rapport between the interviewer and interviewee. While familiarity and communicative tone are predicted determinants of rapport, the effects of repeated exposure to an interviewer, as well as interview framing, on rapport has rarely been tested. In two simulated suspect interview experiments, we tested whether established rapport is maintained during a second interview with the same interviewer (Experiment 1) and how accusatory and humanitarian interview framings impact the development of rapport (Experiment 2). We also tested, across both experiments, whether nonverbal mimicry can be a proxy for measuring rapport. We found evidence suggesting that rapport, once established, is carried over to subsequent meetings, and that it is possible to build rapport even when it was poorly established in the initial interview. We also found that an accusatory interview framing was associated with lower rapport than a humanitarian interview framing, and that interview framing affected nonverbal mimicry between interviewer and interviewee. Contrary to our expectations, mimicry did not correlate with an existing measure of rapport.

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Rapport; investigative interview; information disclosure; mimicry; motion capture

Building rapport is one of the most recommended, yet poorly understood, investigative interviewing techniques (Abbe & Brandon, 2013; Fisher & Geiselman, 1992; see also Crough et al., 2022 for alternative viewpoints on the nature rapport in investigative interviews). According to a systematic review by Gabbert et al. (2021), the most common theoretical conceptualisation of rapport in investigative interviews is the Tripartite model of rapport (Tickle-Degnen & Rosenthal, 1987). Within the Tripartite model, rapport is said to comprise mutual attentiveness, positivity and coordination. Mutual attentiveness is described as shared attention, and engagement between both interaction partners. Positivity is described as friendliness between interaction partners and may be linked with two

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dimensions of social judgement: warmth (i.e. liking) and competence (i.e. respect; Fiske et al., 2007). Coordination is balance and harmony during the interaction, which can be observed via the amount of behaviour synchronisation between the interviewer and the interviewee (Abbe & Brandon, 2013). Together, mutual attentiveness, positivity and coordination are thought to be the building blocks of rapport.

Regardless of interviewing style (i.e. humanitarian- or accusatorial-based interviews), building rapport has been suggested to be positively associated with information provision during investigative interviews (Abbe & Brandon, 2013; Vallano et al., 2015; Walsh & Bull, 2011). However, there is not yet much evidence within an experimental setting that directly compares the effects of interview style on both rapport and information provision (Holmberg & Madsen, 2014; Vanderhallen et al., 2011). Further, we do not yet know the potential role rapport plays across multiple interviews, which are typical during investigations (Kassin et al., 2007). The experiments presented in this paper will test how interview framing (i.e. humanitarian or accusatory) impacts rapport and information provision, and whether the initial framing of an interview impacts on rapport or information provision at a second interview.

Accusatory vs humanitarian interviews

The Accusatory Interview style incorporates confrontational strategies, pre-assumes an interviewee's guilt and uses psychological manipulation to encourage the interviewee to confess (e.g. Meissner et al., 2014). Common features of Accusatory Interview models include techniques such as exaggerating the strength of evidence or severity of the charges (maximisation) and accusing the suspect of being guilty while also proposing moral justifications for the allegedly committed crime (minimisation). Accusatory interviews are still used widely in the United States (Miller et al., 2018). However, accusatory interviews can be problematic. For example, Leo (1992) stated that evidence supporting accusatory interviews is anecdotal and not empirically based. Snook et al. (2014) also found accusatory interviews included the use of unreliable behaviourally-based deception detection methods, and included techniques known to elicit false confessions.

Following the Tripartite model of rapport (Tickle-Degnen & Rosenthal, 1987), the techniques used during an accusatory interview should inhibit the establishment of rapport. Specifically, there is arguably poor mutual attentiveness between the interviewer and the suspect because the interviewer blocks the suspect's denials and attempts convincing the suspect to conform to the interviewers' pre-supposed narrative. Such interruptions also impact on coordination as there is no smooth turn-taking when the interviewer breaks the conversation flow. Positivity is also likely to be harmed due to accusations of deceit, aggressive questioning and neglecting the suspect an opportunity to provide an alternate account.

The Humanitarian Interview, also known as the 'rapport-based approach' (Alison et al., 2014), seeks to elicit as much detailed and accurate information as possible (*cf.* a confession in Accusatory Interviews; Snook et al., 2010). Accordingly, the Humanitarian Interview strategy encourages interviewers to be open-minded, unbiased and neutral when questioning suspects and accused persons (Milne & Bull, 1999). For example, the interviewer should not interrupt the suspect's initial statement as the interviewer is interested in a full account of what happened, thus promoting mutual attentiveness, coordination and positivity. The interviewer is also encouraged to use empirically supported memory

enhancement techniques (e.g. Fisher & Geiselman, 1992) to probe the suspect's account. Suspects are challenged where their account is inconsistent with the evidence, but in contrast to the Accusatory interview, it is not pre-supposed that inconsistencies imply guilt and suspects are given an opportunity to explain (Shepherd & Griffiths, 2021). The Humanitarian Interview is evidence-based and field-tested to support information disclosure and reduce false confessions (Meissner et al., 2012). For example, suspects provide more information when a humanitarian style of interviewing is used (e.g. Snook et al., 2015). Recent research suggests that while many guilty suspects enter the interview with the mindset to confess or deny the crime(s) under investigation, the use of humanitarian interviewing is critical in swaying undecided guilty suspects towards a confession (Cleary & Bull, 2021).

Crough et al. (2022) argue that even within a humanitarian approach rapport remains at least somewhat coercive. The instrumental nature of rapport is explicit in accusatory interviews. Within an accusatory interview the assumption is that the suspect is guilty and rapport building serves specifically to elicit information that confirms guilt along a presupposed narrative. By contrast, the instrumental nature of rapport within humanitarian interviews is more subtle. The aim of rapport building within humanitarian interviews is to influence the suspect to disclose information without any presumption of guilt (Milne & Bull, 1999). Nonetheless, there is a deliberate attempt by the interviewer to establish rapport and influence the suspect to provide information, which may work against the suspect's best interests. Yet, while the development of rapport remains strategic, the aim is not explicitly to manipulate the suspect into providing self-incriminating information. Rather, it is to seek to elicit both incriminating and exculpatory information. Of course, these principles by no means prevent interviewers assuming guilt or using rapport to specifically elicit incriminating information in reality.

Concerns about the implementation of interviewing principles notwithstanding, the Humanitarian Interview is, according to the Tripartite model, more consistent with building rapport. A Humanitarian interview should encourage building mutual attentiveness because the interviewer is trained to actively listen to, and not interrupt, the suspect (Holmberg & Christianson, 2002; see also Tickle-Degnen & Rosenthal, 1990). Therefore, the interview should be defined by smooth turn-taking (i.e. question and answer, with no interruptions) and thus achieve coordination as the conversation flows with clear rules for the interaction. Further, the interviewer expresses respect for the suspect which should increase positivity by being attentive to the suspect and not interrupting them and interviewing in a non-judgemental manner.

Research suggests that Humanitarian and Accusatory interviews differ in how well they establish rapport. For example, Holmberg and Christianson (2002) tested rapport using a 17-item inventory asking interviewees to rate the interviewer's behaviour. Results show that participants perceived the interviewer as more humanitarian when interviewed in the humanitarian interview and as more dominant when the interviewer conducted a dominant non-rapport-based interview. Further, Vanderhallen et al. (2011) found that using a humanitarian interview style increased rapport, while a dominant interview style hindered the development of rapport.

One concern with much of the literature examining the effect of interview style on rapport and information provision is that it is difficult, if not impossible, to disentangle problematic aspects of accusatory interviews associated with low quality questioning (e.g. closed, leading questions), and the effects of having an accusatory versus non-judgemental

framing (Vallano & Schreiber Compo, 2015). In the current experiments, we aim to better understand how the interviewing style affects rapport by manipulating only how interviews are framed to participants. That is, we introduce the objective of the interview as either being a fact-finding mission where the rights of the interviewee and the procedures are clearly laid out (humanitarian framing), or a confirmatory exercise where the suspect is directly accused of being guilty and offered minimisations to justify the crime (accusatory framing). Other than setting the tone of the interview as humanitarian or accusatory, the questions otherwise follow best practice guidelines for information gathering (i.e. open-ended, non-leading). Our goal is to test if initial interview framing impacts rapport and information disclosure, even if the quality of questioning is consistently high.

Maintaining rapport across interviews

Having established that interview framing is likely to impact rapport, a remaining question is whether rapport is maintained from an initial interview to a subsequent interview? Whether rapport can be maintained across interactions is an important applied question to address because it is common for a suspect to be interviewed on multiple occasions during investigations; an average of 3.08 times per investigation (Kassin et al., 2007). Multiple interviews often need to be conducted due to new witness accounts, new evidence emerging, gaining additional accounts from the suspect, or ambiguities in the suspect's previous statement(s) (Shepherd & Griffiths, 2021).

Research shows that continuously maintaining rapport throughout an interview is imperative to preserve the established positive working relationship and enhance information provision (Walsh & Bull, 2012). However, research has yet to explore how and whether rapport is maintained across separate encounters. In line with the Tripartite model, components of rapport (i.e. mutual attentiveness, positivity, coordination) are subject to change over time. The relative importance of the three components may also differ depending on the stage of the relationship between two people. For example, during early encounters, both parties wish to make a good impression to establish rapport; thus, expressing positivity is important at this stage of the relationship. As people become acquainted, positivity becomes less important and is supplanted with other markers of rapport, such as coordination (Tickle-Degnen & Rosenthal, 1990). Thus, while high rapport relationships may continue to contain frequent expressions of positivity, expressions of positivity can nonetheless become less frequent and more idiosyncratic in more established relationships (Doohan & Manusov, 2004). For example, close friends can have an argument without losing their friendship, and the argument may still display a great deal of coordination and mutual attention. In contrast, coordination is often low at the beginning of a relationship and increases over time as interactants learn more about each other and their communication style and cues (Tickle-Degnen & Rosenthal, 1990). Increasing familiarity between the interaction partners leads to a greater predictability of the interaction, which can be observed through smooth turn-taking and body posture matching (i.e. mimicry).

The Tripartite model also suggests that rapport should increase from a first to a second interview as coordination increases after repeated exposure. However, positivity is arguably greater in the Humanitarian (*cf.* Accusatory) framed interview, and Tickle-Degnen and Rosenthal (1990) argued that positivity is especially critical in the early stages of a

relationship. Therefore, we expect that rapport should be higher after an initial interaction using a humanitarian compared to an accusatory approach. However, the importance of positivity is expected to diminish over time, and so rapport may increase over time regardless of interview style as coordination increases. Rapport increasing at a second interview is perhaps likely considering that all questioning is non-judgemental and gives the suspects an opportunity to fairly provide their account of events. In other words, Humanitarian interviews are expected to fast-track rapport within a single interview, but it is less clear how whether the effects of interview framing that differs in positivity would persist with a familiar interaction partner, especially when that interaction partner's subsequent behaviour is more appropriate than their initial statements implied they would be.

Nonverbal mimicry as a proxy for self-reported rapport

There are several self-reported measures of rapport, such as the Interaction Questionnaire (Vallano & Compo, 2011), the Rapport Questionnaire (Bernieri, 2005; Bernieri & Gillis, 2001), the Working Alliance Inventory (Horvath & Greenberg, 1989), and the RS3i – Rapport Scales for Investigative Interviews and Interrogations (Duke et al., 2018). Of these rapport scales, only Vanderhallen et al.'s (2011) and Duke et al. (2018) were developed specifically to be used in investigative interviews. However, Vanderhallen et al.'s (2011) scale has not yet been validated in English. Therefore, we decided to use the scale developed specifically for use in investigative interviews that has been validated: The Rapport scales for Interrogations and Investigative Interviews 'RS3i' (Duke et al., 2018). The RS3i is based on the Tripartite model, and therefore its items fit the three-component structure that is also the base for the conception of rapport used in the current paper. As both our conception of rapport and the RS3i are based on the tripartite model of rapport, we can test an objective proxy of rapport so as not to rely solely on self-reporting. Specifically, Tickle-Degnen and Rosenthal (1990) showed in their extensive review how nonverbal behaviour is linked with rapport. Tickle-Degnen and Rosenthal (1990) argued that coordination should increase over time, and become increasingly influential in determining rapport. Their claims allow us to consider whether coordination could act as an objective marker of rapport within an investigative interview.

The strongest candidate for a nonverbal measure of coordination, and therefore rapport, is the amount of nonverbal mimicry between the interviewer and interviewee. We define nonverbal mimicry as the automatic imitation of gestures, postures, mannerisms and other motor movements (Chartrand & Bargh, 1999) that is not goal-directed (Hamilton, 2013) and is therefore subconscious (Pentland, 2008). Tickle-Degnen and Rosenthal (1987) argued that nonverbal mimicry is an illustration of synchronicity between interactants and so it represents coordination. The main advantage of using nonverbal behaviour as a measure of rapport is that, unlike self-reported rapport, it is independent from the participant's reflection of an interaction that might be confounded with subjectively judged interview success. The unconscious engagement means that, unlike self-reports, mimicry may represent an objective measure of rapport shown between interactants which would not be affected by the biases associated with self-report measures. Identifying a nonverbal measure of rapport would be advantageous in terms of identifying an objective way to measure the occurrence of

rapport, rather than the self-reported psychological consequences or verbal precursors of its occurrence.

In line with Tickle-Degnen and Rosenthal (1990), several studies showed that nonverbal mimicry is higher between interaction partners when they experience well-established rapport (La France, 1979; La France & Broadbent, 1976; Schefflen, 1964), and vice-versa: mimicry results in increased rapport (Chartrand & Bargh, 1999; see Chartrand & Van Baaren, 2009 for an extensive review). Mimicry has also been demonstrated to be associated with rapport in other areas such as interpersonal relations and social interactions outside the investigative interviewing context (e.g. Lakens & Stel, 2011; Lakin & Chartrand, 2003; Stel & Vonk, 2010). Therefore, mimicry could be a plausible behavioural proxy for rapport.

Current experiments

In the following experiments, we test: (1) if rapport differs depending on interview framing as measured by self-report, and; (2) if rapport, once established, carries over to a second time point with the same interviewer. Based on the results of Experiment 1, we further tested in a second experiment: (3) if rapport is enhanced by humanitarian framing, or rather damaged by accusatory framing. A second aim of both experiments is to test: (4) if nonverbal mimicry can serve as an objective behavioural measure of rapport. Both experiments received ethical clearance from FSTREC, the Faculty of Science and Technology Research Ethics Committee at Lancaster University and SREC, Security Research Ethics Committee (Application FST17009 and amendments).

Experiment 1

In this experiment, we test the following hypotheses: (H1) the Humanitarian Framed Interview will be associated with higher self-rated rapport than the Accusatory Framed interview; (H2) self-rated rapport will increase from Time 1 to Time 2; (H3) higher mimicry will be associated with the Humanitarian Framed interview (compared to the Accusatory Framed interview) because the increased positivity in the Humanitarian Framed interview should accelerate the development of coordination; (H4) mimicry and self-reported rapport will be substantially positively correlated if mimicry is a plausible proxy measure of experienced rapport; and (H5) higher information provision will be associated with the Humanitarian compared to the Accusatory Framed interview.

Method

Participants. Fifty-seven university students (44 females $M_{age} = 20.14$, $SD = 2.39$; 13 males $M_{age} = 22.54$, $SD = 4.39$) took part in the first interview session; fifty-two participants (91%) returned for the second interview session (41 female, $M_{age} = 20.20$, $SD = 2.44$; 11 male, $M_{age} = 23.09$, $SD = 4.57$). Since our hypotheses require that interactants are unknown to each other at the time of the first interview, we asked both participants and the interviewer if they had previously met each other. On no occasion had interactants previously met, so no participants were excluded. All analyses are based on the final sample of 52 participants, with 26 participants in both the Humanitarian and Accusatory framing conditions.

Design and procedure. A 2 (Interview framing: Humanitarian × Accusatory) × 2 (Time: Time 1 × Time 2) mixed-subject design was used. On arrival, participants were asked to read and sign an informed consent form, participate in two mock crime tasks, be interviewed about the mock crimes, and provide demographic information, after which they would be debriefed. Participants were compensated for their participation either in the form of payment (£5.00) or course credit. Participants were informed that they would be testing a new lie-detection approach during police interviews, and that they would be interviewed at one point during the experiment. They were told that one group of interviewers was trained in a new method to detect lies while the other group did not receive such training. This instruction was used as a reason as to why participants would be interviewed later, and why they were asked to lie at certain points, without divulging the true purpose of the experiment.

The suspect's task. In the pre-interview phase, we provided participants acting as the 'suspect' with guilty knowledge via a mock crime. First, participants engaged in a casual two-minute conversation with a confederate and then took part in two mock crimes. In the first task, following Van der Zee (2014), the participant and confederate were asked to solve a wooden puzzle task. However, as the task was set up in a way that they could not solve it within the given timeframe, the confederate located the solution (supposedly forgotten by the experimenter in the puzzle box) and used them to solve the puzzle. After the experimenter detects they had used the instructions, she asked the participant to conceal the cheating during the interview as it would sabotage the experiment.

In the second task, the participant and confederate were separated and asked to convince the interviewer they had played the board game '221 B Baker Street' (similar to Clue/Cluedo). Participants were told that the confederate played the game with a student helper, while the participant had to pretend to have played the game based only on looking at the game board and reading the game manual. Hence, the participant was tasked with fabricating knowledge about this event without having any direct experience of playing the game. Consistent with Van der Zee (2014), the participants were given 10 min to prepare a story about playing the game, while having access to all the gaming materials.¹

The interview. The interviewer was a paid research assistant who received interview training and practise before conducting the interviews. Interviews followed a standardised script (see <https://osf.io/jcafp/>) to ensure consistency and to ensure the only difference between experimental conditions was the initial framing of the interview as accusatory or humanitarian. The use of a script also ensured that, during the second interview, participant forgetting should apply more or less equally in both groups, since the questions asked would contain the same retrieval cues in both conditions. All interviews were observed via a one-way mirror by the first author to ensure adherence to the interview script. The interview script remained visible to only the interviewer during the interview via a stand. Participants were informed that one group of interviewers was trained in a new method to detect lies while the other group did not receive such training. This instruction was used as a cover story as to why participants would be interviewed later, and why they were asked to lie at certain points, without giving away the true purpose of the experiment.

The interview manipulation (Humanitarian vs. Accusatory framing) was limited to the introduction to ensure the questions were identical in both interviews. The questions were kept the same between interview framings to allow us to determine whether any differences observed were due to the framing of the interview and not due to differences in questioning. Further, the introduction sets the scene for the interview and is arguably the most important phase for building rapport (Walsh & Bull, 2010).

The interviews began with the interviewer accusing the suspect of lying and offering justifications for the crime (maximising and minimising the offense; Accusatory framing), or by being respectful and engaged with the suspect and making the goal of the interview transparent in terms of gathering information (Humanitarian; the interview scripts can be found here: <https://osf.io/jcafp/>). Interviews at the second time point contained no introduction phase as we wanted to ensure that any differences in rapport at Time 2 (which occurred 2–5 days after the first interview) was determined by what happened in the first interview. That is, we wanted to identify how initial efforts to establish rapport impacted rapport later, rather than attempt to manipulate how much rapport is developed a second time.

Measures

Self-reported rapport. Rapport was measured using the source version (i.e. the version for interviewees) of the Rapport scales for Interrogations and Investigative Interviews (RS3i; Duke et al., 2018). The RS3i is a 21-item multi-scale instrument designed to measure rapport in investigative interviews. The RS3i subscales measure the extent to which an interviewee has positive perceptions of the interviewer, how at ease the communication between the interaction partners is, and if the interviewee is motivated to cooperate with the interviewer (Duke et al., 2018). Items are measured on a 5-point Likert scale anchored at *1 = Strongly Disagree* and *5 = Strongly Agree*. We obtained good-to-excellent reliability scores for the suspect version of the scale for Experiment 1 ($\alpha = .84$). We do not report interviewer rapport because of evidence that interviewer ratings do not correlate with suspect ratings of rapport (Richardson & Nash, 2022; Taylor et al., 2021; Weiher, 2020).

Nonverbal measure of rapport. We measured nonverbal mimicry using the XSens MVN motion tracking suits (MTw Awinda; Schepers et al., 2018). XSens MVN measures body movement with high precision (120 times/s) and can detect changes in behaviour that would not be noticeable to the human eye. Movement is captured via 17 small matchbox sized motion trackers positioned on the body via a tight-fitting T-shirt and Velcro straps; trackers are positioned on the head, sternum, pelvis (on the back), and on the left and right side: shoulders (on the back), upper arms, lower arms, hands, upper legs, lower legs and feet. We used the AMAB method to process the data (Poppe et al., 2014) and, as outlined in Van der Zee et al. (2021), we applied dynamic time-warping to derive a measure of simultaneous movement (i.e. mimicry). Specifically, AMAB: (1) reorients the body representations of the interviewer and interviewee so that they face the same direction; (2) estimates the extent of overlap between the two body representations every second and (3) indexes this overlap while making allowances for the fact the initiation of mimicry may have a differential delay (see Weiher (2020) for an in-depth description of the preparation of the data for analysis).

Quality and quantity of the information provided. To code the number of details that participants disclosed during the investigative-style interviews, we applied an adjusted version of PLAT (e.g. Eastwood et al., 2019; Luther et al., 2015). PLAT records the first mention by participants of case related People, Locations, Actions and Times, and we added two additional categories: Object (O) and Conversation/Verbal details (C). Our coding scheme is available at: <https://osf.io/ce9hr/>. We analysed the total number of unique details provided by participants. We accounted for the varying interview lengths by dividing the total number of details by the total word count of suspect utterances (i.e. information density). We include this measure because humanitarian framing may increase information yield, but at the cost of reduced efficiency. That is, interviews may become considerably longer for only modest gains in information yield. Information density captures both the efficiency of the two interview framings and corrects for individual differences in verbosity within participants exposed to each interview method. To ensure coding was reliable, we used two independent coders (first author and research assistant). Coders were first trained using two scripts from an unrelated study, to ensure that both coders had a shared understanding of PLAT and were coding details consistently. Since no concerns were identified, a second check was made by having both coders code five scripts from the current experiment, to ensure that the change in context did not introduce problems with coding. Both coders confirmed that they had no concerns about applying the codes to the scripts, and no systematic differences in coding were identified during discussion. Consequently, the two coders proceeded to independently coded 60% (65 out of 109) of the transcripts to calculate an interrater reliability. This includes the five practice scripts since no changes were made to the coding after discussion. The coding was reliable: ICC = .80, (95% CI [.55, .91]). The remaining 40% of transcripts were coded only by the first author.

Results

Interviews took an average of 8 min and 52 s ($SD = 4$ min and 25 s, *minimum* = 2 min and 56 s, *maximum* = 27 min and 57 s). Preliminary analyses showed that there was a statistically significant difference for interview duration in the first interview (Humanitarian $M = 10$ min and 28 s, $SD = 6$ min and 41 s; Accusatory $M = 4$ min and 30 s, $SD = 2$ min and 48 s, Welch's $t(36.16) = 4.36, p < .001$), but not in the second interview (Humanitarian $M = 4$ min and 29 s, $SD = 3$ min and 47 s; Accusatory $M = 3$ min and 40 s, $SD = 3$ min and 9 s, $t(50) = 0.84, p = .402$). Length of interview did not correlate with rapport in either experimental condition at either time point, although this was near significance for the first Humanitarian interview ($r = .34, n = 28, p = .081$). All other correlations had $r < .28, ps > .169$. Follow-up tests for all ANOVAs have Tukey's correction applied for multiple testing.

Self-reported rapport. A factorial ANOVA was conducted to test for effects of Interview Frame (Humanitarian vs. Accusatory) and Time of interview (Time 1 vs. Time 2) on self-rated rapport (H1 and H2). The main effects were neither statistically significant for Interview Frame, $F(1, 50) = 2.50, p = .120, \eta^2 = 0.04$, nor Time of Interview, $F(1, 50) = 3.02, p = .089, \eta^2 = 0.01$. We observed an interaction effect between Interview Frame and Time of Interview, $F(1, 50) = 4.87, p = .032, \eta^2 = 0.02$. Scores for self-rated rapport were overall higher for the Humanitarian Interview at Time 1 ($M = 3.65, SD = 0.46$) and Time 2 ($M = 3.65, SD = 0.41$) than in the Accusatory interview at Time 1 ($M = 3.35, SD = 0.56$)

and Time 2 ($M = 3.60$, $SD = 0.44$). At Time 1, self-rated rapport was lower in the Accusatory (compared to the Humanitarian) interview, Welch's $t(54.26) = 2.48$, $p = .016$, $d = 0.65$, 95% CI [-0.46, 0.58]. In the Accusatory interview, rapport was significantly lower at Time 1 than Time 2, Welch's $t(46.47) = 3.10$, $p = .007$, $d = 0.82$, 95% CI [0.26, 1.37]. Rapport in the Accusatory interview was also lower at Time 1 than in the Humanitarian at Time 2, Welch's $t(79.45) = -2.23$, $p = .028$, $d = 0.61$, 95% CI [0.06, 1.15]. We also found that rapport at Time 1 was correlated with rapport at Time 2 in the Humanitarian condition ($r = .89$, $n = 26$, $p < .001$), however, the correlation in the accusatory condition was much smaller and not statistically significant ($r = .27$, $n = 26$, $p = .191$).

Overall, these results showed that rapport was higher in the Humanitarian than in the Accusatory Framed interview, but only at Time 1. We also observed that rapport is similar at Time 2 in the Humanitarian interview and increased from a low baseline in the Accusatory interview between Time 1 and Time 2, consistent with the Tripartite model of rapport.

Nonverbal mimicry. A factorial ANOVA was conducted to test for effects of Interview Frame (Humanitarian vs Accusatory) and Time of Interview (Interview 1 vs Interview 2) on mimicry (H3). The main effects were statistically significant for Interview Frame, with mimicry being higher in the Humanitarian ($M = 59.40$, $SD = 3.41$) compared to the Accusatory ($M = 57.00$, $SD = 2.84$) Framed interview, $F(1, 40^2) = 10.44$, $p = .002$, $\eta^2 = 0.11$. The main effects were also statistically significant for the Time of Interview, with mimicry increasing from the first ($M = 57.10$, $SD = 2.31$) to the second interview ($M = 59.30$, $SD = 3.82$), $F(1, 40) = 19.24$, $p < .001$, $\eta^2 = 0.13$.

We also observed an interaction effect between Interview Frame and Time of Interview, $F(1, 40) = 9.82$, $p < .001$, $\eta^2 = 0.07$. Follow up tests showed that mimicry was lower at Time 1 ($M = 57.5$, $SD = 1.88$) than Time 2 ($M = 61.2$, $SD = 3.59$), $t(40) = -5.20$, $p < .001$, $d = 1.31$, 95% [0.67, 1.93] in the Humanitarian Framed interview. Mimicry was also lower in the Accusatory Framed interview at Time 1 ($M = 56.7$, $SD = 2.63$) than in the Humanitarian Framed interview at Time 2 ($M = 61.2$, $SD = 3.59$), $t(76) = -5.26$, $p < .001$, $d = 1.43$, 95% [0.78, 2.06]. For Time 2, mimicry was higher in the Humanitarian Framed interview ($M = 61.2$, $SD = 3.59$) compared to the Accusatory Framed interview ($M = 57.4$, $SD = 3.06$), $t(76) = 4.48$, $p < .001$, $d = 1.15$, 95% [0.54, 1.74].

The mimicry results are similar to the rapport findings; mimicry was higher in the Humanitarian Framed interview compared to the Accusatory Framed interview, but only at Time 1. We also observed that mimicry was similar at Time 2 and Time 1 in the Humanitarian Framed interview, but increased from the first to the second interview in the Accusatory Framed interview, which is again consistent with the Tripartite model of rapport.

Testing whether nonverbal mimicry is a plausible proxy measure of rapport (H4), a Pearson product-moment correlation (corrected via Bonferroni correction) showed that rapport and mimicry were not statistically significant correlated: neither for the Humanitarian Framed interview at Time 1 ($r = -.25$, $n = 22$, $p = .241$) or Time 2 ($r = -.19$, $n = 24$, $p = .365$), or the Accusatory Framed interview at Time 1 ($r = -.12$, $n = 26$, $p = .573$) or Time 2 ($r = .15$, $n = 25$, $p = .478$). These results suggest that there is no meaningful relationship between nonverbal mimicry and self-rated rapport.

Information disclosure. A factorial ANOVA was conducted to test for effects of Interview Frame (Humanitarian vs Accusatory) and Time of interview (Interview 1 vs Interview

2) on disclosed information (H5). We observed statistically significant main effects for Interview Frame with disclosed information being higher in the Humanitarian Framed interview ($M = 168.00$, $SD = 87.60$) than in the Accusatory Framed interview ($M = 112.00$, $SD = 57.90$), $F(1, 48) = 10.69$, $p = .002$, $\eta^2 = 0.12$. Further, we observed a statistically significant main effect for Time of interview with participants disclosing more information at the first ($M = 170.00$, $SD = 90.70$) than the second interview ($M = 106.00$, $SD = 45.00$), $F(1, 48) = 58.36$, $p < .001$, $\eta^2 = 0.18$.

We observed an interaction effect between Interview Frame and Time of Interview, $F(1, 48) = 7.95$, $p = .007$, $\eta^2 = 0.02$. At Time 1, disclosed information was higher in the Humanitarian ($M = 208.79$, $SD = 96.55$) than in the Accusatory Framed interview ($M = 130.71$, $SD = 65.30$), $t(72.22) = 4.20$, $p < .001$, $d = 0.95$, 95%[0.37, 1.52]. Further, in the Humanitarian Framed interview, disclosed information was higher at Time 1 than at Time 2 ($M = 121.96$, $SD = 44.61$), $t(48.00) = 7.40$, $p < .001$, $d = 1.15$, 95%[0.54, 1.75]. In the Accusatory Framed interview, suspects disclosed more information at Time 1 than at Time 2 ($M = 90.85$, $SD = 40.48$), $t(48.00) = 3.41$, $p = .007$, $d = 0.73$, 95%[0.18, 1.27].

A factorial ANOVA was also conducted to test for effects of Interview Frame (Humanitarian vs Accusatory) and Time of interview (Interview 1 vs Interview 2) on *information density*. We observed statistically significant main effects for Interview Frame with information density higher in the Information-gathering approach ($M = 0.25$, $SD = 0.04$) than in the Accusatory-interrogation method ($M = 0.17$, $SD = 0.05$), $F(1, 48) = 66.35$, $p < .001$, $\eta^2 = 0.47$. Further, we found a main effect of Time of Interview with information density being higher at Time 2 ($M = 0.23$, $SD = 0.05$) than Time 1 ($M = 0.20$, $SD = 0.06$), $F(1, 48) = 17.38$, $p < .001$, $\eta^2 = 0.05$. However, we did not observe an interaction effect between Interview Frame and Time of Interview, $F(1, 48) = 1.82$, $p = .183$, $\eta^2 = 0.01$.

Discussion

We found that rapport was higher at Time 1 in the Humanitarian framed interview compared to the Accusatory framed interview. However, rapport was similar across both interview framings at Time 2, which suggests that although rapport might not be set by earlier encounters, an Accusatory interview may negatively affect rapport, at least initially. There were also similar effects on disclosed information, with less information disclosure following an interview that was framed accusatorily. The finding regarding information elicitation is in line with Meissner et al. (2012) who indicated that Humanitarian interviews motivate suspects to disclose more detailed and accurate information by building rapport. Further, Holmberg and Madsen (2014) stated that Humanitarian interviews lead to a higher amount of provided information compared to a dominant non-rapport interview (i.e. Accusatory interview). We expand on these earlier studies by showing that rapport and information provision are lower in accusatory-framed interviews (cf. humanitarian interviews), even when the remainder of the accusatory interview contains questions designed to maximise information elicitation (i.e. the questions were open, non-judgemental, non-leading). Our design provides reason to suspect that interview framing alone can have a tangible impact upon interview outcomes (e.g. information provision), even when acceptable interviewing practice is followed elsewhere (i.e. appropriate questioning) and further highlights the importance of establishing rapport early in the interview (Walsh & Bull, 2010). Also in line with our findings, Holmberg and Madsen (2014) reported that suspects reported more information in the first interview compared to the second interview.

We did not find a statistically significant correlation between self-rated rapport and nonverbal mimicry, which undermines the suggestion that nonverbal mimicry could be a potential measure of experienced rapport. We did, however, observe that rapport and nonverbal mimicry differed as expected according to experimental condition (i.e. both rapport and mimicry were higher in the Humanitarian compared to the Accusatory framed interview), which is consistent with mimicry-capturing aspects of rapport. If mimicry was a measure of global rapport, and not simply coordination, our results could suggest that mimicry and rapport may be variables that are affected by similar conditions, but which are not directly associated; this possibility is tested in Experiment 2.

Our results tentatively suggest that rapport, once established, can be maintained following a first interview, and that rapport will increase with exposure even when positivity is not established, at least when questioning is otherwise appropriate following the initial accusatory framing at Time 1. However, this experiment cannot clearly show that it is the case that a humanitarian framed interview increases rapport. It may be that our second interview, where we only directly ask questions without any introduction, reflects a baseline level of rapport, with a humanitarian framing only matching this baseline. Thus, rather than Humanitarian framing increasing rapport, it may be that Accusatory framing diminishes rapport; this finding would be consistent with our results, but would mean that rapport may not necessarily have carried over to the second interview. Experiment 2 seeks to disambiguate these two alternative interpretations of our data.

Experiment 2

The results of Experiment 1 showed that the interview framing affected the development of rapport. Yet, it is unclear whether Humanitarian framing facilitates rapport building, accusatory framing inhibits rapport, or if both effects occur. In Experiment 2, we seek to clarify the effect of interview framing by testing directly how the Humanitarian and the Accusatory framing influences the establishment of rapport and the disclosure of truthful information by the suspect during the interview. We test, by introducing a control group, whether Humanitarian framing increases rapport or if Accusatory framing reduces rapport. The control interview begins immediately with questions, just as our Time 2 interviews did in Experiment 1.

An additional threat to our validity in Experiment 1 was that we used a single trained interviewer to conduct all interviews. While we did not tell the interviewer our hypotheses, it is possible that they could guess the aims of the experiment and so may have behaved differently across the conditions, at least as much as they could while adhering to their script. To address this potential issue, we recruited participants and randomly allocated them to either the role of suspect or interviewer, ensuring that the observed effects are due to our interview manipulations (i.e. participants are blind to our study aims).

A final change from Experiment 1 is that, rather than have participants engage in a deception task, we had them play the role of a suspect in a mock crime; playing a suspect role helped ensure our experimental findings generalise across paradigms. The vignette used in Experiment 2 provides a more realistic topic for an interview, at the cost of less closely representing participants' actual behaviour. Specifically, we used a case vignette in this experiment to gain control of ground truth and accuracy; we know exactly what the truthful version of the story is, and which details are truthful,

fabricated or inaccurate. The completeness and accuracy of elicited information is advocated as a key outcome of rapport building; thus, obtaining maximum confidence in the information elicited is important for researching the relevance of rapport.

We hypothesised that the Humanitarian Framed Interview should be associated with higher rapport than either the Accusatory Framed Interview or the Control Interview (H1). Further, we hypothesised that the Humanitarian Framed Interview should be associated with higher mimicry than either the Accusatory Framed Interview or the Control Interview (H2). We also retest our hypothesis that nonverbal mimicry may be a proxy measure of rapport (H3). It is possible that our null result for mimicry may reflect our use of a single interviewer in Experiment 1 because there are significant individual differences in how much people mimic (Ashton-James & Levordashka, 2013); these factors may have restricted any possible variance in our mimicry scores across conditions. Therefore, we re-test this hypothesis using our design with multiple participants taking the role of interviewer. We hypothesised that the Humanitarian Framed Interview should be associated with higher (truthful) information disclosure than either the Accusatory Framed Interview or the Control Interview (H4).

Method

Participants. One hundred and thirty-eight university students were randomly assigned to take part as either the suspect or the interviewer via a coin toss. Following our allocation procedures, 69 participants (32 females $M_{age} = 20.72$, $SD = 3.77$; 36 males $M_{age} = 21.94$, $SD = 5.77$; 1 did not declare their sex) took part as a suspect; 23 participants took part as suspects in the Humanitarian Framed Interview, 24 in the Accusatory Framed Interview, and 22 in the Control Interview conditions. We also had 69 students (45 females $M_{age} = 22.36$, $SD = 5.72$; 24 males $M_{age} = 21.71$, $SD = 4.35$) take part as the interviewer with the same number allocated to each experimental group as suspects. As our predictions require that interactants are strangers, we included a question in the post-experiment questionnaire asking if participants had met before taking part in the experiment. No participants reported having previously met, so we did not exclude any participants for this reason.

Design and procedure

The design of this study followed a single factor between-subjects design with 3 levels (Interview Frame: Humanitarian vs. Accusatory vs. Control). A One-way ANOVA was used for all group comparisons.

The suspect task. The suspect participants were given 10 min to read a case vignette describing their involvement in theft at a military base (see <https://osf.io/wcdrz/>). The vignette stated that they worked at a military base as a local contractor delivering food and equipment from the local airport. They were informed that the base recently experienced theft of equipment (e.g. engine parts for vehicles). A close friend of the suspect revealed that they are part of the smuggling ring, and that they are looking for new drivers. He (the close friend) asked the suspect to smuggle equipment out of the base, which the suspect agreed to as the suspect needed money. The case vignette then provided the suspect with various ways smuggling equipment out of the base, including how the suspect engaged in smuggling. As the suspect is also involved in the crime, they are

asked to evaluate how much information they choose to provide during the interview. On one hand, they should try not to incriminate themselves. On the other hand, they need to give enough information to become an informant for the police and gain police protection.

Interviewer-task. Interviewers were told that they will question an alleged suspect about theft of military equipment. Their task was to figure out how much the suspect knows and decide whether the alleged suspect is guilty or innocent. The participant interviewers were given a standardised interview script and approximately 10 min to practice. All interviewers practised at least once with the experimenter. The interview script remained visible to only the interviewer during the interview via a stand.

The interview. The interviews were conducted in line with Experiment 1, with two exceptions. First, we equipped participants in only the upper body portion of the motion capture suit due to numerous equipment failures in Experiment 1 (e.g. the suits temporarily or entirely stopped working in 11 out of 57 sessions). To justify the change from full to only upper body, we correlated the full body measure with the upper body measure from the nonverbal mimicry outputs from Experiment 1. The upper body measure correlated strongly with the full body measure, $r = .93$, $p < .001$. Second, interviewers wore a police badge because both the suspect and the interviewer are dressed in the same motion capture suit. The additional police badge was added to avoid possible group effects from both interaction partners wearing the same clothing (i.e. we did not want interviewers and interviewees to perceive themselves as part of an in-group). In line with Experiment 1, the first author observed all interviews through a one-way mirror to ensure adherence to the experimental protocol.

A final change from Experiment 1 is that our use of a vignette allowed us to directly compare interview frames on their ability to elicit accurate information. To code accurate information, we prepared lists with details and their respective synonyms based on the case vignette. A total of 32 accurate pieces of information could plausibly be provided. Truthful details are coded dichotomously, either 0 (missing) or 1 (mentioned). Two coders coded 26% (18 out of 69) of the transcripts. The training of coders followed the same procedure as in Experiment 1. The number of identified accurate pieces of information coded between Rater 1 ($M = 12.94$, $SD = 2.18$) and Rater 2 ($M = 13.00$, $SD = 2.47$) was reliable, $ICC = .79$, (95% CI [.52: .92]). Given that reliability between raters was acceptable, a single coder applied coding to the remaining transcripts.

Results

Interviews took on average 2 min and 44 s ($SD = 1$ min and 22 s, *minimum* = 1 min and 5 s, *maximum* = 8 min and 16 s) in this experiment. Interview lengths did not differ depending on experimental condition ($F(2,66) = 0.79$, $p = .456$). Interview durations were similar in the Humanitarian ($M = 2$ min and 30 s, $SD = 1$ min and 24 s), Accusatory ($M = 2$ min and 58 s, $SD = 1$ min and 31 s) and Control condition ($M = 2$ min and 37 s, $SD = 1$ min and 4 s). Preliminary analyses showed that, contrary to Experiment 1, there was no statistically significant association between the length of the interview and self-reported Rapport $r_s = -.01$, $p = .920$). Self-rated rapport did not correlate with the duration of interview in any experimental condition (Humanitarian ($r_s = -.36$, $n = 23$, $p = .090$), Accusatory ($r_s = .27$, $n = 24$,

$p = .022$), or Control ($r_s = -.12$, $n = 22$, $p = .594$)).³ Follow up tests for all ANOVAs have Tukey's correction for multiple testing applied.

Self-reported rapport. We obtained good to excellent reliability scores for the RS3i rapport scale for Experiment 2 ($\alpha = .90$). A one-way between-subject ANOVA with Welch's correction for unequal variances was conducted to compare the effect of Interview Frame on suspect-rapport (H1). There was a significant effect of Interview Frame on rapport, $F(2, 40.1) = 3.93$, $p = .028$. A Games-Howell Post-Hoc Test⁴ showed that there is a significant difference between the Humanitarian Framed interview and the Control interview, $t(33.09) = -2.55$, $p = .040$, $d = 0.77$, 95% [0.13, 1.39], but no other group comparisons were statistically significant: Humanitarian Framed interview and the Accusatory Framed interview, $t(34.90) = -1.76$, $p = .197$; the Accusatory Framed interview and the Control Framed interview, $t(44.00) = 0.57$, $p = .838$. Overall, rapport was rated highest in the Humanitarian Framed ($M = 3.61$, $SD = 0.32$), followed by the Accusatory Framed interview ($M = 3.36$, $SD = 0.62$), and was rated lowest in the Control Framed interview ($M = 3.26$, $SD = 0.56$).

Nonverbal mimicry. A one-way between-subjects ANOVA was conducted to compare the effect of Interview framing on nonverbal mimicry in the Humanitarian, Accusatory and Control interviews (H2). There effect of Interview Frame on nonverbal mimicry across the three conditions was not statistically significant, $F(1, 57)^5 = 1.21$, $p = .306$. Nonverbal mimicry was highest in the Humanitarian Framed interview ($M = 74.51$, $SD = 1.78$), followed by the Control interview ($M = 74.22$, $SD = 1.13$), and was rated lowest in the Accusatory Framed interview ($M = 73.80$, $SD = 1.36$).

A Pearson product-moment correlation coefficient was computed to assess the relationship between experienced rapport and mimicry across interview conditions (H3). Mimicry and rapport was only statistically significantly but negatively correlated for the Humanitarian Framed interview ($r = -.50$, $p = .041$). There were no statistically significant correlations for the Accusatory Framed interview ($r = -.21$, $p = .367$), or the Control interview ($r = .09$, $p = .699$).

Information disclosure. There was not a significant effect of Interview Framing on disclosed information across the three conditions, $F(2, 66) = 0.36$, $p = .698$ (H4). Disclosed information was highest in the Humanitarian interview ($M = 57.09$, $SD = 59.92$), followed by the Control interview ($M = 48.73$, $SD = 50.53$), and was lowest in the Accusatory interview ($M = 45.96$, $SD = 20.80$).⁶

There was not a significant effect of Interview Framing on information density for the three conditions, $F(2, 66) = 0.70$, $p = .503$. Information density was similar in the Humanitarian interview ($M = 0.15$, $SD = 0.04$), the Control interview ($M = 0.15$, $SD = 0.09$) and the Accusatory interview ($M = 0.13$, $SD = 0.04$).

Our use of a scripted vignette made it possible to test if interview framing specifically promoted the disclosure of accurate information, since we could determine whether disclosed information did or did not correspond to the vignette. There was a statistically significant effect of Interview Frame, $F(2,66) = 3.84$, $p = .026$. Tukey's post hoc tests showed that statistically significantly more accurate details were provided following an interview with a Humanitarian Framing ($M = 11.94$, $SD = 2.84$) compared to the Control

interview ($M = 9.68$, $SD = 2.38$, $t(66) = 2.64$, $p = .027$, $d = 0.86$, 95% CI [0.24, 1.47]). Neither the Control nor the Humanitarian Framed interviews statistically significantly differed from the Accusatory Framed interview ($M = 11.42$, $SD = 3.17$, $p_s > .102$).

Discussion

Experiment 2 found that rapport was again higher in the Humanitarian Framed interview than in the Accusatory Framed interview, and lowest in the Control interview condition; though only the difference between the Humanitarian Framed interview and Control interview condition was statistically significant. The Control interview condition helped us to determine whether the difference between self-reported rapport in Interview Frame conditions across timepoints found in Experiment 1 was due to Humanitarian Framing increasing rapport or Accusatory Framing decreasing it. The data suggests that Humanitarian Framing leads to an increase in rapport rather than Accusatory Framing reducing rapport. Moreover, the results of the current experiment suggest it is as bad (if not worse) to start the interview with no introduction at all.

Our findings also suggest that rapport may have been maintained between multiple interviews. That is, the results of this study suggest that if Time 1 in Experiment 1 had no effect on the perceived rapport, then rapport should have been lower at the second interview compared to the first. This is because interviews at the second time point had no introduction (Experiment 1), and Experiment 2 showed that interviewing with no introduction was associated with low rapport. That rapport stayed the same or increased in Experiment 1 at the second time point does therefore suggest that rapport may have been affected by the participant's prior experience, or at the very least that positivity within initial encounters helps to increase rapport more quickly than mere repeated exposure. In summary, the results of Experiment 2 suggest that higher rapport at Time 2 in the Accusatory Framed interview in Experiment 1 was dependent on it being a second encounter, which supports Tickle-Degnen and Rosenthal's (1990) prediction that the importance of coordination to rapport increases over time.

The findings of Experiment 2 also revealed no significant differences between the interview frames for information disclosure. Again, the effects were in the expected direction with total disclosed information highest in the Humanitarian Framed interview, but comparisons were not significant, possibly due to very high variability in information disclosure within our different conditions. The large standard deviations imply significant individual differences in information disclosure independent of interview framing. Similarly, while we found accurate information was highest when interviews had a Humanitarian Frame, this was only statistically significantly superior to the Control interview with no introduction. Field research suggests that most people have a plan for how they will respond during an interview which most stick to regardless of what happens in the interview, with only a few participants changing their disclosure strategy based on interviewer behaviour (Cleary & Bull, 2021). While our results are suggestive that those that do change their behaviour may be more inclined to be more cooperative when an interview has a Humanitarian Frame, we are not able to clearly demonstrate any such effect.

A potential limitation of Experiment 2 is that participants spent more time with the interviewer in the Humanitarian and Accusatory Framed interviews than our Control interview condition. Ideally, the time spent with the interviewer would be equal across conditions because rapport should increase with exposure time. However, we were unable

to create a genuinely neutral introduction that would match the time spent in the other two interviewing conditions. Moreover, having a control condition with no introduction reflects the second interview of Experiment 1, and allowed us to disambiguate whether rapport can genuinely be maintained as inferred from the results of Experiment 1, or whether the findings at the second interview merely indicated what happens when an interview has no introduction.

General discussion

Across two experiments, our findings suggested that rapport may be maintained from a first to a second interview, and may recover in a second interview (if it was low during a first interview). The findings from Experiment 2 suggested that the effects observed in Experiment 1 represent a genuine maintenance, or increase, in rapport from a first to second interview because, in the absence of a prior meeting, interviews with no introduction are associated with low rapport. Additionally, our findings support Tickle-Degnen and Rosenthal's (1990) Tripartite model as a trajectory of the three elements of rapport, or the importance of the three components depending on the status of the relationship, by showing that rapport should increase over time with positivity accelerating this process in Time 1; however, time spent with an interaction partner may achieve this anyway.

Our findings suggest that a key benefit of a Humanitarian Framed interview is accelerating the development of rapport. While other approaches may, with enough time, allow for rapport to develop, a clear non-judgemental introduction to the interview does appear to facilitate the development of rapport. An optimistic finding is also that our results suggest that rapport may be recovered at a second interview even if it was not established (or low) initially. At least when questioning remains non-judgemental and non-leading as in our experiment. A poor initial impression within the interview may not necessarily doom the future relationship between interactants.

Disclosed information

Rapport is argued to aid information provision within investigative interviews (Abbe & Brandon, 2013, 2014; Vallano et al., 2015; Walsh & Bull, 2011). However, according to our findings, disclosed information might not differ according to the interview frame. Holmberg and Madsen (2014) found that a humanitarian rapport interview led to more reported information all together than a dominant non-rapport interview. We did not find compelling evidence that interview frame affects information disclosure. That is, we did observe differences in Experiment 1, but not in Experiment 2.

The lack of a consistent difference between the Humanitarian and the Accusatory interviews in terms of reported details may be due to various factors. The most obvious explanation is that the effects of interview framing are much more subtle than the effects of a full shift in interview style between humanitarian and accusatory. That is, altering interview frame may alter the relationship between interviewer and suspect via rapport, and this may (sometimes) affect information provision. However, the goal of an accusatory interview is normally to extract a confession and not to elicit information, and as such has a very different questioning style to a humanistic interview. Thus, our null result likely reflects that probably the most critical element for eliciting information

from suspects is appropriate questioning (Oxburgh et al., 2014). Another explanation may be that in the Humanitarian interview, suspects might feel under less pressure and give as much information as they remember that does not implicate themselves. While in the Accusatory interview, suspects being directly accused of committing a crime wanting to explain themselves and therefore giving as much information as they can. For example, Hartwig et al. (2010) found that guilty suspects will provide a lot of information when there are opportunities to provide alibis or volunteer information that helps them to appear innocent.

The lack of significant difference in information provision between the Humanitarian and the Accusatory Framed interviews might also be due to different personalities reacting different to the interview framings. Gudjonsson and Petursson (1991) found that the reason why offenders might confess might be a combination of the offence committed, to offender's attitude and personality factors and we have not considered the role of suspect or interviewer personality or attitudes here. A study by Rieken (2020) suggested that Humanitarian interviews might be most effective when suspects are low in agreeableness, which is a personality trait one would expect to be common in genuine suspects, but not necessarily university students. Nonetheless, as with establishing rapport, it is unlikely that interview framing is the only important factor and there are likely to be considerable differences in how much detail different participants provide.

However, we think it is most likely that these null findings reflect our experimental design, and should not be immediately assumed to have direct implications for practice. One critical difference between our experiments and practice is that we limited our manipulation of interview framing to the introduction of the interview. This means that the questions posed to participants were identical. We know that the quality of the questions asked is critical for determining how much information is provided (Oxburgh et al., 2012, 2014; Snook et al., 2012). Thus, it is entirely plausible that the primary determinant of information provision is the nature and type of question asked, and all the questions posed to our participants were open questions designed to be maximally efficient to elicit information – other than whether the interview was framed as an accusatory or information gathering encounter. It is unlikely that actual accusatory interviews would use so many open questions and this is a likely reason for why accusatory interviews are usually found to elicit less investigative information.

Another explanation for our results regarding information elicitation might be that the stakes during the interview were relatively low. Regardless of interview condition, participants may have been insufficiently motivated to conceal critical details. Committing a mock crime or reading a case vignette might have not created realistic feelings of guilt for suspects in this study to change behaviour accordingly. Creating situations with higher stakes would lead to individuals being more motivated to lie or tell the truth, as participants believe the consequences of being detected might be higher (Matsumoto & Hwang, 2015).

Finally, it is possible that the interviews were too brief for rapport to be sufficiently established and facilitate meaningful information disclosure. However, we would have expected to observe floor effects for rapport scores if the short interviews were a significant concern, and there were no such evidence in the means or distributions of rapport scores across our experimental conditions. Moreover, our aim was to demonstrate that how the interview was framed for participants had a meaningful impact on rapport

(and information disclosure). Given the brief length of our interviews, it is likely that the rapport scores reflected the initial advantage given by adopting a humanitarian framing over an accusatory framing. In practice, interviews are naturally longer and more complex than in the laboratory, and here the importance of maintaining rapport *within* an interview is likely to become much greater. Walsh and Bull (2012) have previously shown, in interviews with actual suspects, that then initial benefits can be lost when rapport is not maintained across the interview.

Nonetheless, it is not the case that we found no effects of interview framing on information provision at all. In Experiment 1, there was a large effect on information density being higher in the Humanitarian than in the Accusatory interview. However, we could not replicate the effect in the second experiment; this might be due to employing a single-well trained interviewer in Experiment 1, while Experiment 2 was carried out with participants who had limited preparation time. Plausibly, there might be beneficial effects of more thorough training and practice, or even just of engagement with the task. Less optimistically, another explanation might be that the interviewer in Experiment 1 guessed the desired study outcome, so the study was not genuinely double blinded. Here the answer is not so clear cut, because the interviewer still had to follow a script and had limited power to change the interview to manipulate the number of details provided. For example, the interviewer could not ask more follow up questions or probes to artificially raise the number of details elicited. This might suggest we may observe a genuine effect of interview delivery, but demand characteristics cannot be entirely ruled out.

Nonverbal mimicry as a proxy for experienced rapport

If mimicry is a proxy of experienced rapport, then mimicry should also be influenced by the same factors as rapport (i.e. the interview framing). Mimicry was higher in the Humanitarian interviews than in the Accusatory interviews, which may imply that mimicry may be affected by the interview framing in much the same way that experienced rapport might have been. The effect of the Humanitarian interview on rapport may most likely be due to increased positivity. Specifically, we know from previous literature that mimicry is higher when interaction partners like each other. Liking between interaction partners could be due to the mutual respect communicated by the Humanitarian interview. Low mimicry ratings in the Accusatory interview could be explained by the suspects feeling accused before the interview even began, and therefore not mimicking the interviewer because suspects were not motivated to affiliate with the interviewer on these terms (Lakin & Chartrand, 2003; Maddux et al., 2008). Therefore, that the behaviour matching occurred in the Humanitarian but not in the Accusatory interview might be since behavioural matching is more likely to develop in positive social situations (Beňuš, 2014).

We did not find any statistically significant correlation between mimicry and self-reported rapport in any experimental condition across our two experiments. Here our findings are contrary to the literature that informed our predictions (e.g. Lakens & Stel, 2011; Lakin & Chartrand, 2003; Stel & Vonk, 2010). One explanation for the lack of correlation between rapport and mimicry might be that there may be no need for it in our specific setting. Mimicry may be of less importance in an interaction that is already positive, such as an information gathering interview because a positive

interaction may not need additional fine-tuning, as the interaction is smooth anyway (Stevanovic et al., 2017). Mimicry also tends to be higher when people feel motivated to affiliate. For example, Lakin and Chartrand (2003) found mimicry was higher in interactants who were not successful in building affiliation. People may not feel such motivation to affiliate during a formal and sometimes adversarial encounter such as a police interview.

Nonetheless, the lack of observed statistically significant correlations between mimicry and rapport is in opposition to the Tripartite model. Tickle-Degnen and Rosenthal (1987) argued that mimicry should become an increasingly important indicator of experienced rapport over time via increased coordination. Our null findings imply one of the following conclusions: (1) mimicry and the self-report rapport scale may not measure the same aspects of rapport; (2) either mimicry, self-reported rapport, or both may not capture genuine rapport at all; (3) the interactions in our studies may be too short for mimicry to become an important component of rapport; or (4) mimicry is a variable that sometimes is affected by similar conditions to rapport, but may be affected by too many other factors to be a reliable measure of rapport. While any or all of these explanations could be true to some extent, option 4 seems to be the most compelling explanation; explanation 3 (interactions were likely too short to establish mimicry) can be considered unlikely because there are studies that studied mimicry over a duration similar to our interview times. For example, Hale (2017) summarised several studies on mimicry and reported the following interaction times: mimicry interactions lasted between on average 43 s to 3 min (Stel et al., 2010), 5 min (Kouzakova et al., 2010), 10 min (Kot & Kulesza, 2016; Van Swol, 2003; Van Swol & Drury-Grogan, 2017) and 45 min (Maddux et al., 2008). In further support of explanation 4, Hale (2017) presented experimental results that showed that mimicry might not have a direct role in establishing rapport, but rather these are two different constructs that are sometimes both present under similar conditions. Our findings suggest that Hale was right, and we have independently replicated her results using in-person experiments. It may be the case that mimicry is a 'default' social behaviour (Van Baaren et al., 2009) used as a method to quickly understand other people's motives by facilitating interpersonal alignment (Hale, 2017). Rapport may often be a consequence of this increased interpersonal alignment, but frequent coincidence of rapport and mimicry may be insufficient for mimicry to be a valid proxy measure of rapport.

Final considerations may be that our method of measuring mimicry was the reason we did not observe any effects. In contrast to previous studies, we directly measured mimicry through automatic measurement of bodily alignment. This method of measurement is bias free, but may not capture all aspects of behaviour which may be considered to encompass mimicry. For example, a human rater may count someone following a small right arm movement with a large left arm movement as mimicry – our automatic measure would not do so because body position have become less rather than more aligned. Our automated measure does overcome the weaknesses of using human raters, such as a lack of consensus across studies for how mimicry should be coded (e.g. see Bernieri et al., 1996; Stel et al., 2010), and because our measure is independent of camera positioning or physical obstructions for observing behaviour. Nonetheless, there remains a need for automated behavioural measures to be validated against traditional coding practices to fully assess the strengths and weaknesses of each approach.

Conclusion

We found that a Humanitarian interview is likely to increase rapport compared to an Accusatory interview, and may also elicit more information. We also found evidence that rapport can maintain from a first to a second interview. Being able to maintain rapport from one encounter to the next could mean that what happens in the first interview, or even during the first encounter with the police, may impact on later interactions. Finally, we found that automatically measured mimicry does not correlate highly with self-reported rapport. Theoretically, these results support the Tripartite model of rapport by showing the benefits of early displays of positivity, though the role of behavioural mimicry within the model remains unclear. Practically, our results provide further support for the use of Humanitarian interviewing practices over Accusatory ones. Our results were observed in the laboratory and how they would replicate in a setting more akin to an interrogation (e.g. high stress, anxiety-producing) remains uncertain. We encourage future research to examine the issue of rapport as a function of interview framing and subsequent interviews in more ecologically valid situations.

Notes

1. Note however that while participants were interviewed about both tasks (wooden puzzle task and the board game task) that, due to a procedural error whereby confederates were often unable to solve the puzzle task themselves despite using the instructions, only the board game task was used for the analysis.
2. The reported degrees of freedom are lower than expected from the sample size due to missing data concerning technical errors with the motion capture suits: two data points in the first interview session and 3 data points in the second interview session are missing.
3. We also ran these analysis excluding outliers which were interviews that lasted longer than 5 min 50 s. There was one outlier in each experimental condition and the differences in duration of interview remained non-significant via a One-way ANOVA with Welch's correction for unequal variances, $F(2,40.4) = 1.88$, $p = .166$. All correlations between time and rapport also remained non-significant ($ps > .161$)
4. A Games-Howell Post-Hoc Test was used to determine where group difference lie for this analysis rather than Tukey corrections. This was because this analysis failed a homogeneity of variances test (no other analyses failed this test and so Tukey corrections are used for all other comparisons).
5. There were fewer participants included in this analysis due to missing data caused by recording errors: $n = 21$ in the Accusatory interview, $n = 17$ in the Humanitarian interview and $n = 22$ in the Control interview.
6. The standard deviations are very large for this analysis because of the presence of three outliers: two in the Humanitarian condition, and one in the Control condition. An analysis excluding these outliers does not affect the results of the ANOVA: $F(2,41.4) = 0.79$, $p = .462$. Scores per group were Humanitarian $M = 40.52$, $SD = 15.06$, Accusatory $M = 45.96$, $SD = 20.80$, and Control $M = 38.76$, $SD = 19.66$.

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Data availability statement

The data that support the findings of this study are openly available in the Open Science Framework at <https://osf.io/ak6tp/>.

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