The Effect of Tailored Reciprocity on Information Provision in an Investigative Interview

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Abstract

Purpose. In their study of reciprocity in investigative interviews, Matsumoto and Hwang (2018) found that offering interviewees water prior to the interview enhanced observer-rated rapport and positively affected information provision. In the current study, we examined whether tailoring the item toward an interviewee's needs would further enhance information provision. We hypothesized that interviewees given a relevant item prior to the interview would disclose more information than interviewees given an irrelevant item or no item.

Design. Participants ($N = 85$) ate pretzels to induce thirst, engaged in a cheating task with a confederate, and were interviewed about their actions after receiving either no item, an irrelevant item to their induced thirst (pen and paper), or a relevant item (water).

Findings. We found that receiving a relevant item had a significant impact on information provision, with participants who received water providing the most details, and significantly more than participants that received no item.

Originality. Our study is the first to experimentally test the effect of different item types upon information provision in investigative interviews.

Research Implications. Our findings have implications for obtaining information during investigative interviews and demonstrate a need for research on the nuances of social reciprocity in investigative interviewing.

Keywords: investigative interview, reciprocity, information provision, suspect interviewing

The Effect of Tailored Reciprocity on Information Provision in an Investigative

Interview

There is now a substantial evidence base to support that non-coercive investigative interviewing maximises the probability of cooperation with those suspected of committing a crime, while minimising the risks of false confession (e.g. Alison et al., 2013, Meissner et al, 2012, Vrij et al. 2017). Consequently, police interview training guidelines have over time moved toward adopting non-coercive models (Oxburgh & Dando, 2011). The PEACE (**P**lanning and Preparation, **E**ngage and Explain, **A**ccount, Clarify and Challenge, **C**losure and **E**valuation**)** model of investigative interviewing developed in England and Wales has served as a basis for training models adapted elsewhere, and similar models are now used across a number of countries including Scotland, Australia, New Zealand, Norway, Canada and more recently the Netherlands (Rose, 2023; van Beek & Bull, 2023, Walsh & Bull, 2015). The strength of evidence supporting these non-coercive information gathering focussed approaches has led to the development of the Mendez Principles, which serve as a guidance document for the international development of effective evidence based and non-coercive interviewing training (Demirden, 2023) including a new manual for investigative interviewing released by the United Nations (UN, 2024).

While the practical benefits of adopting non-coercive practices are clear, there are still questions as to the psychological underpinnings of the efficacy of some non-coercive methods. While there is a growing understanding of how interviewers can ask questions so as to maximise memory retrieval cues (e.g. see Price et al., 2024), and how to disclose evidence to maximise an investigator's ability to elicit information and corroborate evidence (e.g. Oleszkiewicz & Watson, 2021; Oleszkiewicz et al., 2023), there is less understanding of the interpersonal processes that are facilitated by non-coercive interviewing methods.

It is often thought that non-coercive interviews facilitate the development of rapport, and it is this rapport that leads to cooperation (Gabbert et al., 2021; Weiher et al., 2023). However, there is significant ambiguity about what rapport is and how it can be established and maintained (Neequaye, 2023). In this article, we narrow our focus to a single potential aspect of rapport building, which is an examination of the benefits of meeting a suspect's comfort needs. Moreover, we consider how meeting a suspect's needs may provoke reciprocity norms in a way that the simple provision of irrelevant items to suspects would not.

Reciprocity and Cooperation

A systematic mapping of the evidence base for rapport building behaviours in professional information gathering contexts found that reciprocity is key to building rapport, with most studies using some form of reciprocity to generate/manipulate rapport (Gabbert et al., 2021). Reciprocity refers to a shared transfer of favours between two or more people (Gouldner, 1960). Commonly, reciprocity is argued to be an evolved strategy of reputation management to secure future favours (Imada et al., 2023; Rossetti & Hilbe, 2023). However, people also often reciprocate even when the likelihood of a future exchange of favours is unlikely. For example, Burger et al. (2009) found that when participants received a favour, 30% complied with the confederate's request to complete a survey, compared to 0% compliance when participants did not receive a favour prior to the request. Similarly, Whatley et al. (1999) found that participants who received a favour donated more money to the gift-giver than those who did not receive a favour, even when the receiver made no promise to reciprocate (see also Perugini et al., 2003). These findings indicate that reciprocity is not merely associated with reputation management or the expectation of future exchanges of favours.

Researchers have offered several explanations for why reciprocity may lead to cooperation, including the use of heuristics and internalisation. Heuristics involve focusing

on the essential pieces of information necessary to make a "good enough" decision, while ignoring extraneous information or making excessive effort seeking optimal solutions (Gigerenzer, 2008). Cialdini (2021) posited that heuristics can partially explain why reciprocity is useful at gaining cooperation, and Burger et al. (2006) argued that reciprocity triggers a "friendship" heuristic. We are accustomed to receiving favours from, and providing favours for, our friends. Thus, when a stranger does a favour for us, we may treat them as a friend and wish to reciprocate their kind act to strengthen our social ties.

Researchers have also postulated that reciprocity is an internalized social norm (Goei et al., 2003; Gouldner, 1960). An internalised social norm refers to an individual abiding by a particular norm even in the absence of observation or explicit pressure (Perugini et al., 2003). Receiving a favour and not reciprocating one in return elicits a sense of obligation and indebtedness, which ultimately evokes an aversive negative emotional state (Goei et al., 2007). Individuals who receive a favour can reduce this negative affective state by returning a favour, or by cooperating with a request of the favour-doer (Whatley et al., 1999).

While there is compelling evidence that reciprocity can drive cooperative behaviour and tit-for-tat favour exchanges, it is not clear that reciprocity should have similar effects within a suspect interview. The bulk of the research on reciprocity has addressed situations where mutual benefit can be achieved through cooperation (Gevarsi et al., 2022; Xia et al., 2023). Further, reciprocity may not be effective if it is expected that one interaction partner is unlikely to be cooperative or will not mutually benefit from cooperative exchange (Carter, 2024). In the case of suspect interviews, cooperation may benefit both interviewer and suspect but there is a clear imbalance whereby potential negative consequences fall much more heavily on the suspect than the interviewer, and there is always a risk to the suspect that disclosures implicate them as being responsible for the crime (Crough et al., 2022). For this reason, suspect interviews can be, at least in some instances, perceived by suspects as being

adversarial in nature (Kim, 2017; Stokoe & Edwards, 2008). Therefore, there is a need to determine to what extent reciprocity influences cooperation within investigative interviews.

Reciprocity and Information Provision

Matsumoto and Hwang (2018) examined whether reciprocity led to positive outcomes in an investigative interview context. In their study, the participants were interviewed about a mock crime they had committed (stealing a cheque). Prior to the interview, the participants either received a bottle of water or they did not. Interviews with participants that were offered water prior to the interview had greater observer-rated rapport. Further, participants instructed to lie during the interview (who were offered water) provided more relevant details; that is, details that addressed the questions asked and referred to actions of the participant that were likely to have occurred within the experiment.

Matsumoto and Hwang (2018) demonstrated that reciprocity can have a positive effect on information provision and communication quality during an interview. However, the choice of providing water may be critical to its impact on interview outcome. Research suggests reciprocity norms may be more strongly followed when they meet utilitarian needs (Pai & Tsai, 2016). Similarly, in their survey of 123 interviewers about their social influence use, Goodman-Delahunty and Howes (2016) found over 75% of interviewers reported using some form of reciprocity when interviewing detainees, but importantly, practitioners prioritised providing detainees with items that addressed their comfort needs such as a drink, food, and breaks. The interviewers also believed that tailoring items to the immediate comfort needs of detainees resulted in a higher tendency for the detainees to reciprocate the favours. The finding that providing for interviewees' comfort needs are related to successful interview outcomes suggests that reciprocity may be dependent on whether the provision of items to interviewees addresses their comfort needs. However, this insight from practitioners has not yet, to our knowledge, been tested experimentally.

The Current Experiment

We hypothesized that giving an item to participants would lead to higher information provision (i.e., the number of unique details provided) during an investigative interview by activating reciprocity norms, but that information provision would be greater when the item provided addresses interviewees need for comfort. Specifically, we predicted participants will disclose the most amount of information in the Comfort Relevant condition (i.e., water when thirsty), followed by the Comfort Irrelevant condition (i.e., pen and paper when thirsty), with the least information disclosed in the No Item Provided condition (i.e. no item is given to the participant when thirsty) (H1).

Research has also consistently shown that humanistic rapport-based interviewing elicits more cooperation from suspects than non-rapport-based interviewing in both laboratory and field studies (e.g., Alison et al., 2013, Brimbal et al., 2019; Gabbert et al., 2021; Walsh & Bull, 2012). One plausible effect of addressing suspects' comfort is that this action increases affiliation (Pai & Tsai, 2016) and may thus facilitate the development of a working alliance between interviewer and interviewee (Vanderhallen et al., 2011). Consequently, we also test whether rapport is influenced by giving participants (comfort relevant) items, and whether there is any relationship between rapport and information provision. We hypothesized that giving a comfort relevant item would result in higher suspect perceived rapport with their interviewer than when the item provided does not address suspect needs, and particularly compared to when no item is given (H2).

Method

Participants

Ninety-five university students took part in exchange for course credit or £3.50. Ten participants were excluded from analysis: one refused to eat pretzels and so was not subject to the experimental manipulation (see Procedure section), five indicated that they recognised

the use of a confederate[1], one requested to withdraw their data, and three participants were

excluded because recording equipment failure meant it was impossible to code their

information provision. The final sample consisted of 85 participants, including 58 women

(M_{age} = 20.1, SD = 3.7) and 24 men (M_{age} = 21.7, SD = 3.7). Three participants did not

declare their sex. Participants were assigned randomly one of the three experimental

conditions: Comfort Relevant Item (n = 29), Comfort Irrelevant Item (n = 29), and serving as

a control group, No Item Provided (n = 27). Sensitivity analysis indicated that with our three

categories within a single factor and 85 participants, we would be able to reliably detect

effects larger than η_p^2 = .08, using an α of .05 and an 80% power threshold.

Materials

Experimental Quiz

We designed a general knowledge survey (using difficult trivia-style questions) to

provide a context in which participants could cheat (similar to Evans et al., 2013). We piloted

the survey with PhD students at [anonymised institution] (N = 12) to gauge question

difficulty, and ensure that a participant would be likely to accept the offer to cheat by a fellow

quiz completer. The final survey contained 20 questions from a variety of disciplines (see

Appendix A for the general knowledge survey).

Post-hoc Questionnaire

We asked participants to: (1) rate their perception of rapport with the interviewer by

rating 6 items (drawn from Bernieri, 1991; e.g., 'friendly' and how 'harmonious', on a 7-

point scale 1 = *Not at all,* 7 = *Extremely*)[2]; (2) report how thirsty they felt when they entered

the lab, during the cheating paradigm, during the distractor task, and during the interview as a

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[1] One participant reported in the post experiment questionnaire that they stopped cheating during the task after a while because they suspected that they might be being recorded. We retained this participant because their concern was about being caught cheating, rather than believing the cheating was part of the experiment. Excluding this participant does not change the statistical of any of our reported results.
[2] Responses to two questions were missing data for two participants; we imputed the mean score for these two participants.

manipulation check; and, (3) report any suspicions regarding the purpose of the experiment in a closed-ended format (i.e., 'yes' or 'no') with a follow-up probing (i.e., what do you think was the purpose of the experiment?) to determine whether the participant should be excluded.

Design & Procedure

We used a between-subjects design with 3 levels of a single factor (Item Type: Comfort Relevant, Comfort Irrelevant, No Item Provided). Participants were met by the first author and told that they would be taking part in the piloting of a well-known UK student quiz called "The International Collegiate General Knowledge Survey (UK adapted version, 2017)". They were told that their task was to complete the survey with a partner and, to motivate their performance, that the highest-scoring team would win £50 (in reality, all participants were entered into the £50 prize draw). Participants were also told that, besides piloting the survey, the researchers were interested in the influence of high-carbohydrate food intake on cognitive performance. Thus, participants were asked to eat 15 grams of pretzels while reciting the alphabet backwards (a printed version of the English alphabet was provided) to induce thirst. As a cover story, participants were told (erroneously) that reciting the alphabet backwards would help to establish a baseline of cognitive functioning prior to the survey. Previous research has shown that providing participants with pretzels can induce thirst (Aarts et al., 2001; Balcetis & Dunning, 2010; Ferguson & Bargh, 2004). Once the participants provided consent, the first author provided 15 grams of pretzels for the participants to consume.

Once finished with the pretzel task, participants were asked to give their mobile phone to the experimenter so that they could not cheat on the survey by looking up answers. They were then led to a second room and introduced to the confederate. Two female psychology students acted as the confederate. There was no statistically significant difference in information provision based on the confederate, $t(82) = 1.8, p = .072$. Both the participant

and the confederate were told that they had 10 minutes to work together on the General

Knowledge Survey. Within the first 2 minutes, the confederate retrieved her phone from her

pocket and opened a photo of an already completed alternate version of the survey. To

explain the presence of the photo, the confederate stated that "My flatmate took this last

week". The phone version of the survey contained 10 questions from the current survey, and

10 different questions. The confederate encouraged the participant to write down the answers

to the survey while she was comparing the experiment version with the phone version, and

additionally answering the questions using a web search engine. Although the confederate

encouraged cheating, participants were at no point forced to cheat during the experiment;

witnessing cheating of the confederate was still sufficient information that could be disclosed

during the interview (see Appendix B for the complete list prompts used by the confederate).

The experimenter ended the survey task after 10 minutes and asked the participant to return

to the initial room for further individual testing.

Participants then were asked to eat another 15 grams of pretzels while reciting the

English alphabet backwards. To justify repeating this task, participants were told that the

survey might have affected their cognitive ability. Participants then engaged in the Thematic

Apperception Task (Morgan & Murray, 1935), which served as a distractor and an activity

that could be interrupted by the experimenter. After five minutes, the interviewer (second

author) entered the room and interrupted the participants' completion of the Thematic

Apperception Task, and said, "I am a representative working with the head of this study. I

have to ask you some questions concerning your participation today. Please come with me."

The interviewer then led the participant to an interview room.

The interviewee was invited to sit across from the interviewer. A computer monitor

and handheld audio recorder sat to the right of the interviewer. Prior to speaking, the

interviewer placed either a comfort relevant item (330ml bottled water), a comfort irrelevant

item (paper and pen), or did not place any item in front of the participant, depending on their

randomly assigned condition. In each item-present condition, the interviewer motioned her

hand toward the item and said, "This is for you." The interviewer then delivered a structured

interview about what occurred during the survey task and included questions such as, "Please

tell me step-by-step everything that has happened since you arrived here today" and "Tell me

everything that happened while you were taking the survey" (see Appendix C for the

complete interview script). The interviewer stuck to the script to ensure the participants were

always given the same opportunity to provide information, but was free to adapt the precise

wording of the questions to not inhibit the conversational flow of the interview. Participants

were told that using reference tools of any nature during the task (e.g., a mobile phone) is

strictly forbidden. Further, participants were aware that cheating would nullify their

opportunity to win the £50 reward for best team performance.

The interview was designed to give participants the opportunity to disclose

information concerning both their own involvement and the involvement of the confederate

during the survey task, while simulating a non-coercive investigative interview. The non-

coercive interview was achieved by asking open and non-accusatory questions that first

sought a free narrative from the participants, progressing toward addressing the experiences

during the survey and of their (confederate) partner; a direct, but not accusatory, question

regarding whether the participant cheated on the test ("Did you cheat?") was asked at the end

of the interview (see Appendix C for the full interview script). Once the interviewer asked all

questions on the script, participants filled out a post-hoc questionnaire and were debriefed

about the true nature of the study.

Interview Coding

Audio files of the interviews were transcribed and coded for information provision by

using the Assessment Criteria Indicative of Deception (ACID; Colwell et al., 2007). While

the ACID coding scheme is most often used to classify statements as honest or deceptive, we uses ACID as it allows for the coding of detail types, and so provided an empirically supported method of identifying how detailed participants answers are (Bogaard et al., 2024). The coders coded the amount of external, contextual, and internal details. For example, external details are classified as details describing the event in question. Therefore, the phrase "a small girl with short hair" accounts for four unique external details (Colwell et al., 2007). During coding, the adherence to the interview script was also assessed, and where questions were omitted participants were excluded from analysis, however the interviewer did adhere to the research protocol in all interviews.

To assess inter-rater reliability of the coding, the first author and a research assistant both coded nine (10.6%) transcripts. As ACID scores were numeric data, we calculated interclass-correlation for interrater reliability, and compared outcomes based on the total number of details coded per question. The ICC was .96, suggesting excellent reliability between coders (Koo & Li, 2016). Reliability was sufficiently high that the rest of the coding was performed by only one of the two coders. The first author then coded nine additional transcripts and the research assistant coded all remaining transcripts. The two coders coded only unique details provided by the participant; repeated information was not coded.

Analytical Approach

We report both traditional null hypothesis significance testing (NHST) and Bayesian hypothesis testing (interpreted using Lee & Wagenmakers, 2013, priors set using default Cauchy distribution), along with effect sizes, to offer a comprehensive and nuanced interpretation of our data. While NHST provides a familiar framework for assessing statistical significance, Bayesian methods, such as Bayes factors, offer a complementary perspective by quantifying the relative evidence for both the null and alternative hypotheses. This approach aligns with recommendations to move beyond dichotomous

NHST interpretations and towards a more continuous assessment of evidence (Wagenmakers et al., 2018; Wilkinson,1999). By incorporating Bayes factors, we can avoid the pitfalls of overinterpreting non-significant p-values and provide a more nuanced understanding of the strength of evidence for our hypotheses. We believe that this combined approach,while acknowledging the different philosophical underpinnings of Bayesian and frequentist statistics, will contribute to a more robust and replicable body of research findings.

Results

Descriptive Statistics

Overall, participants provided a mean of 160.7 ($SD = 67.6$) unique details during their interview. The mean rapport score was 4.1 ($SD = 1.8$). There was no meaningful correlation between details provided and rapport, $r = -.05$, $p = .630$, 95%CI [-.27, .16]. Spearman's Rho indicated that participant's thirst after being interviewed was negatively correlated with information provision $\rho = -.22$, $p = .048$, 95%CI [-.42, .00], but was not meaningfully correlated with rapport $\rho = -.15$, $p = .182$, 95%CI [-.36, .08].

Manipulation Check

To ensure that consumption of pretzels did induce thirst, we measured participant thirst upon entering the lab and before the commencement of the interview. A mixed effects ANOVA with measure moment (pre- vs post- consuming pretzels) as a within participants variable and experimental condition as a between participants variable showed that there was a main effect of measurement moment, but no main or interaction effects with any of our experimental conditions. We summarise these findings in Table 1.

[Table 1 here]

Table 1

Group Means for thirst per Experimental Condition and measurement period, pre- vs post-eating pretzels

Factor	Level	M	SD	F	p	n_p^2	95%CI
Measure time	Pre	2.7	0.9	61.6	< .001	.43	.27, .55
	Post	4.4	1.1				
Experimental Condition	Control	3.4	1.4	0.3	.734	.01	0, .05
	Comfort Irrelevant	3.5	1.4				
	Comfort Relevant	3.7	1.4				
Interaction	Pre-Control	2.7	1.5	0.6	.575	.01	0, .05
	Post-Control	4.1	2.0				
	Pre- Comfort Irrelevant	2.6	1.5				
	Post- Comfort Irrelevant	4.5	2.1				
	Pre-Comfort Relevant	2.7	1.3				
	Post-Comfort Relevant	4.7	1.8				

Notes: Due to one piece of missing data in the pre-measure of thirst in the control condition, the sample size for the control group is reduced to 26 for this analysis.
Degrees of freedom are (1,81) for the main effects of measure time and experimental condition, and (2,81) for the interaction.

Information Provision (H1)

A one-way between-subjects ANOVA was conducted to compare the effect of Item Provision condition on information disclosure (H1). As expected, there was a significant effect of condition on information disclosure, $F(2, 82) = 3.48$ $p = .035$, $n_p^2 = .08$, 95%CI [0, .19], $BF_{10} = 1.5$. In line with H1, we found that participants provided the most information when given a Comfort Relevant Item ($M = 177.7$, $SD = 63.9$) than when given a Comfort Irrelevant Item ($M = 168.8$, $SD = 75.2$); the lowest information provision was observed for the No Item condition ($M = 133.6$, $SD = 55.6$). A polynomial contrast confirmed a linear trend whereby information disclosure increased as the comfort relevance of the item increased, $F(1, 82) = 6.29$ $p = .014$. To directly compare experimental groups, additional Games-Howell Post-Hoc tests showed that there was a statistically significant difference between the Comfort Relevant Item and the No Item conditions, $t(53.8) = 2.75$ $p = .022$, $BF_{10,U} = 5.51$ (posterior odds: 3.24), $d = 0.73$, 95%CI [0.19, 1.27], but no other group comparisons were statistically significant: Comfort Relevant Item and the Comfort Irrelevant Item conditions, $t(54.6) = 0.48$, $p = .879$, $BF_{10,U} = 0.29$ (posterior odds: 0.17), $d = 0.13$,

95%CI [-0.39, 0.64]; the Comfort Irrelevant Item and the No Item conditions, $t(51.5) = 2.00$,

$p = .123$, $BF_{10,U} = 1.34$ (posterior odds: 0.79), $d = 0.53$, 95%CI [-0.01, 1.06].

Rapport (H2)

Rapport did not differ across experimental conditions, $F(2,81) = 1.1$, $p = .327$, $n_p^2 =$

.03, 95%CI [0, .11], $BF_{10} = 0.3$. Rapport was similar between those that received a Comfort

Relevant Item ($M = 3.8$, $SD = 1.8$), a Comfort Irrelevant Item ($M = 4.5$, $SD = 1.6$), and No

Item (Bernieri: $M = 4.1$, $SD = 2.0$).

Exploratory Analyses

We conducted a logistic regression analysis to investigate whether there was a

relationship between participants admitting to cheating during the experimental task and their

assigned experimental group[3]. A contingency table (Table 2) shows that the proportion of

participants that admitted cheating does appear to increase as the comfort relevance of the

item increased. However, a chi-squared test indicated that these differences were not

statistically significant, $X^2(2) = 3.85$, $p = .146$. Moreover, the logistic regression analysis,

using indicator contrasts with the No Item condition as the reference category, was also not

significant[4], Cox and Snell $R^2 = .04$, $X^2(2) = 3.79$, $p = .150$.

Table 2

Contingency table of participants admitted vs denying cheating as a function of item

provision

Experimental Condition	Denies cheating n (%)	Admits Cheating n (%)	Total
No Item	11 (41%)	16 (59%)	27
Comfort Irrelevant Item	7 (24%)	22 (76%)	29
Comfort Relevant Item	5 (18%)	23 (82%)	28

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[3] Corruption of one audio file meant it was not possible to code for admission for one participant in the Comfort Relevant item condition.
[4] We also performed this test using a linear polynomial contrast in line with our primary hypothesis, and this was also not statistically significant (B = 0.81, $SE = .45$, $p = .068$), and so we report the values using the indicator contrasts for ease of interpretation.

| Total | 23 (27%) | 61 (73%) | 84 |

Table 3

Logistic regression indicating the extent that item provision predicts admitting cheating

during the experimental task

Predictor	OR	Lower CI	Upper CI	Beta	*SE*	Wald	*p*
Constant	1.46			0.38	0.39	0.92	.339
No Item vs Comfort irrelevant Item	2.16	0.69	6.80	0.77	0.59	1.74	.188
No Item vs Comfort Relevant Item	3.16	0.92	10.87	1.15	0.63	3.34	.068

Finally, we compared the number of details provided by those that did admit cheating (M = 160.2, SD = 65.1) to those that denied cheating (M = 160.5, SD = 76.3). The difference was not statistically significant, t(82) = .02, p = .985, d = -.01, 95%CI [-.48, .48].

Discussion

Overall, the results showed that information provision increased linearly as the relevance of items provided to participants increased, and was highest for participants who received an item tailored to their immediate comfort needs (i.e., receiving water when thirsty). Therefore, as predicted, participants presented with items tailored to their immediate comfort needs provided significantly more information than those who did not, with a medium-to-large effect. It should be noted, however, that the confidence interval around the effect size is quite wide, indicating there is still some uncertainty around the *precise size* of the effect. So, while we are confident that an effect exists, we are less confident in the magnitude of the effect. However, there was no meaningful difference in the number of details provided by those who received a comfort irrelevant item (i.e., pen and paper), and those who did not receive any item. Moreover, our exploratory analysis also indicated that item provision did not directly predict confessions. Our results are in line with Matsumoto

and colleague (2018), who found that offering participants items affected information provision, but we further showed that a potential critical element involved addressing interviewees immediate comfort needs.

However, Matsumoto and Hwang's (2018) findings that offering an item also led to greater rapport in the investigative interview were not replicated in the current study. That is, we did not find any direct effect of item provision on rapport, nor did we observe any association between rapport and information provision. This difference in findings for rapport could be explained by differences in how rapport was measured between the two studies. Matsumoto and Hwang (2018) used observer-rated rapport and we used rapport as rated by the interviewee. Observer and interviewee ratings of rapport are normally considered a valid measure of rapport, and they are normally closely correlated (Richardson & Nash, 2022). Nonetheless, there remains conceptual confusion about what rapport is (Neequaye & Mac Giolla, 2022) and measures often fail to correlate with observed behaviour (Taylor et al., 2021; Weiher et al., 2023). We chose to adopt a measure of rapport which emphasises communication quality. In contrast, Matsumoto and Hwang (2018) used only a single item measure of overall rapport. Plausibly, the differences in measurement practice can explain the difference in results. For example, reciprocity might have a more direct effect on trust than communication quality (McCabe et al., 2003). It is a clear point of contention within the current investigative interviewing literature whether rapport partially encapsulates trust (Neequaye, 2023). Our findings thus emphasise the need for consensus in how we define and measure rapport, and how we separate rapport from related constructs such as trust.

An important implication of our results is that neither information provision, confessions, nor rapport were elicited through mere item provision. Rather, it was only through ensuring an immediate comfort need of the participants was met that we were able to secure greater information provision. Therefore, it is unlikely that simply reciprocity norms

are the most likely cause of our findings. Instead, it is more likely that the benefits of

information provision stemmed from addressing participants' immediate comfort needs, and

so maximising their ability and willingness to cooperate (Baugerund & Johnson, 2017,

Goodman-Delahunty & Martschuk, 2020). That is, our findings more closely fit a procedural

justice argument that the probability of cooperation is maximised when people feel they are

treated fairly and with respect than a reciprocity norm explanation (Farrugia & Gabbert,

2020; Goodman-Delahunty et al., 2013). Therefore, we believe our results are part of a

growing literature supporting the use of humanitarian interviewing practices.

   A final consideration is that meeting participants physical needs may by itself have

supported information provision by reducing the physical stress upon participants, and so

facilitating participants capability to accurately recall and provide information (Baugerund &

Johnson, 2017; Risan et al., 2020). Such an interpretation could be supported by our

observed, albeit small, negative correlation between thirst and information provision.

Limitations

   An obvious limitation of our study is that we used a stylised experiment to represent

the much higher stakes interaction of a suspect interview. While there were potential

consequences of being caught cheating for our student participants, these consequences were

considerably less severe than for those accused of serious crimes. The benefit of laboratory

studies such as ours is that we can seek to isolate the effects of specific variables, but of

course such control comes at a considerable cost with regard to direct applicability to practice

(Deiner et al, 2022). Replication of our research in more ecologically valid settings is

therefore critical (Lin et al. 2021). Therefore, we are pleased that our findings align both with

practitioners rationales for providing interviewees with provisions such as water and comfort

breaks (Goodman-Delahunty et al., 2013), and with an ever growing body of literature on the

benefits of humanitarian approaches to interviewing for information elicitation (e.g. Izotovas et al., 2021; Goodman-Delahunty & Martschuk, 2020; Webster et al., 2020).

Another important limitation is that the interviewer was not blind to the purpose of the experiment (they could not be, given the item manipulation), which could have affected social nuances and may have led to differential responding to the interview questions. According to Rivard et al. (2016), blind interviewers with no pre-interview knowledge about a crime elicit more correct information than those who are accurately informed about a crime before the interview. However, Rivard et al. employed a non-structured interview format and found that interviewer behaviour differences only emerged in the first question of the interview, as blind interviews were more likely to open with a non-suggestive question than the informed interviewers. To limit verbal influences toward the study results by the interviewer, the current study used a standardised interview script.

Conclusion

Reciprocity has been reported to be a rapport building technique within investigative interviews (Gabbert et al., 2021). However, a direct test of reciprocity within an investigative interview setting has rarely been studied. We endeavoured to expand on the findings of Matsumoto and Hwang (2018) by testing whether the information provision in response to being given a "item" by interviewers observed in their study might be contingent on whether the item provided addressed participants comfort needs. As addressing interviewees' comfort needs are expected to more effectively elicit reciprocation (Goodman-Delahunty & Howes, 2016), we tested whether interviewees provide more information (i.e., positive interview outcomes) when they receive a comfort relevant item (i.e., water when being thirsty) compared to when they received a comfort irrelevant item (i.e. a pen when thirsty) or no item. Only offering a comfort relevant item led to more information provision over offering no item. Our results support the value of addressing suspects comfort needs and provide

important experimental support that humanitarian behaviours in addition to humanitarian

questioning may aide ethical information elicitation in investigative interview and security

contexts.

Ethics Statement

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Conflict of interest

Author contributions

Data availability statement

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Appendix A

General Knowledge Survey

1. What is the equation for discovering the circumference of a circle?

2. What is the capital of Afghanistan?

3. Which 3 countries are involved in NAFTA?

4. How many prime numbers are there between 1 and 20?

5. How many countries currently comprise the EU?

6. What animal was inside Sputnik 2 when launched into orbit in 1957?

7. What is the chemistry formula for sodium chloride?

8. In what year did the Berlin Wall fall?

9. Who invented the World Wide Web?

10. Who served as Vice President of the United States from 2009-2016?

11. What animal was used in Ivan Pavlov's classical conditioning experiments?

12. What are 3 official languages spoken in Belgium?

13. In what year did the Vietnam War end?

14. Varicella zoster virus is the scientific term for what childhood illness?

15. What is the leading cause of death worldwide?

16. Who authored Great Expectations?

17. This musical term meaning "high" in Italian refers to the second highest part of a contrapuntal musical texture, and is also applied to a vocal range.

18. Who painted "The Birth of Venus"?

19. $a^2 + b^2 = c^2$ was the formula derived by which Greek mathematician?

20. This "father of science" is credited with challenging the geocentric view that the earth was the centre of the universe, and he followed up on much of the work of Copernicus.

Appendix B

Confederate Instructions and Prompts

1. Read over Questions with participant [approximately 20 seconds]

    a. If the participant says nothing after 20 seconds, comment "Oh wow, these questions look pretty hard."

    b. If the participant comments on the difficulty within the first 20 seconds, agree with him/her.

    c. Allow the participant approximately 1 minute to genuinely attempt to answer questions, and give answers to 2 questions (predetermined) yourself.

2. Look over participant's shoulder [participant sits with back to door] to check for experimenter.

3. Take out phone, open photograph (from homepage). Silently read/compare answers for approximately 10 seconds.

4. [Low voice] "My housemate took this last week [pause...] Oh no, some of these questions aren't the same."

5. Quietly read the answers (i.e., "Number 3 is Alaska") and nod toward the participant to pick up a pen and write the answers.

    a. If the participant does not write the answers, politely ask them, "Will you please write some of these answers while I read them? They aren't in order – this looks like a different version of the test."

    b. If the participant refuses to aide in writing, pick up the pen and write the 10 answers as you find them. Allow the participant to write answers while you read them.

6. Once all 10 answers are copied and attempts have been made to answer remaining questions, if there is time remaining, suggest using google (on phone) to "check" the participant's answers to remaining questions and/or look up remaining answers.

Conduct with participant:

1. Always be receptive to the participant (act naturally)

2. Use open body movements, face the participant, and turn your body toward the participant.

3. If/when the participant protests, (1st protest): assure them, "It's ok, they (experimenters) won't know"/ (2nd protest): "This is just piloting for a stupid show. It doesn't matter." / (3rd protest): Stop persisting.

4. If the participant refuses to participate in cheating but otherwise appears comfortable with you cheating, no longer ask the participant to aide in cheating (i.e., no additional prompts by the confederate following the scripted prompt.

Appendix C

Interview Script

1. Can you please tell me about your affiliation with the university?

2. Please tell me step by step, everything that has happened since you arrived here today.

3. Tell me more about the International Collegiate General Knowledge Survey.

4. Please tell me about the questions involved in the General Knowledge Survey.

5. How difficult did you find the questions?

6. Tell me everything that happened while you were taking the Survey.

7. Tell me more about what you did while you were taking the Survey.

8. Tell me more about what your partner did.

9. How did you feel while you were taking the Survey?

10. Is there anything important that you feel you should share with me?

11. [shows participant test] Is this your test?

12. It is a tough question, but I have to ask you: Did you cheat?

    If Answer to question 12 is "Yes":

        13. Tell me about cheating on the test.

    If answer to question 12 is "No":

        14. What else can you tell me?