



The influence of room spaciousness on investigative interviews

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Purpose. The quality of information obtained from investigative interviews largely relies on the quality of communication between the interviewee and interviewer. One aspect of the communication process that has yet to be well examined is the environment in which the interviews take place. The present study examined the influence of physical spaciousness, manipulated as room size and interpersonal sitting distance between interviewer and interviewee on the disclosure of crime-related information, as well as perceptions of rapport and overall interview experience.

Methods. Participants engaged in a virtual reality scenario depicting a crime and were interviewed as suspects in either a larger or smaller room, at a closer or larger distance.

Results. Results showed no links between room size and sitting distance on disclosure rates. However, an exploratory analysis did reveal that participants interviewed in the larger room reported more positive interview experience in terms of spaciousness, and consequently higher perceptions of rapport, compared to those interviewed in the small room.

Conclusions. We found evidence against an influence of room size and interpersonal distance on disclosure. Still, our study does provide initial evidence that manipulating room size in an interview context could positively impact rapport-building.

The purpose of an investigative interview is to obtain as much accurate information as possible (Shepherd & Griffiths, 2013). The amount of information disclosed largely relies on the communication process between the investigator and the interviewee (Yeschke, 1997). It is therefore recommended for investigators to develop a positive and constructive dynamic – or rapport – with the interviewee as an important first step during all interviews (Bull & Milne, 2004; Fisher & Geiselman, 1992). Through rapport-building, investigators are able to develop a relationship with the interviewee, creating an atmosphere that encourages cooperation and supports the task of obtaining information (Abbe & Brandon, 2013). Rapport consists on showing empathy, personalizing the interview (Fisher & Geiselman, 1992), as well as engaging in active listening, attentiveness, and friendliness (Collins, Lincoln, & Frank, 2002).

While rapport-building has received substantial attention in the literature and interviewing manuals (i.e., UK's PEACE model for interviewing), one aspect of the

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communication process that has been neglected is the environment in which the interview takes place. When we communicate, aspects of our environmental surroundings exert an influence on our behaviour, and the way we perceive our environment can in turn influence how we communicate with others (Ignatius & Kokkonen, 2007; Knapp, Hall, & Horgan, 2013; Lebaron & Streeck, 1997). For example, a constraint environment can be associated with feelings of discomfort and apprehension, potentially causing us to become distant and withholding, while a warm and inviting environment can help us relax and feel at ease (Knapp *et al.*, 2013). In the present study, we specifically examined if and how physical spaciousness – manipulated as room size and interpersonal seating distance – influences rapport-building and the disclosure of information.

The room size and interpersonal seating distance aspects are relevant because of three reasons. First, they are incorporated in investigative interview models. For example, in the taxonomy of interview methods by Kelly, Miller, Redlich, and Kleinman (2013), *context manipulation* refers to techniques that alter the physical and/or temporal space of the interview room to maximize the probability of a successful interview (i.e., obtaining accurate and reliable information from the interviewee). Examples of context manipulations include considering the size of the interview room, the seating arrangement, the time of the day, and room temperature (see Kelly *et al.*, 2013 for a complete list of proposed techniques).

Notably, in their taxonomy Kelly and colleagues operationalize the relationship between context manipulation and interview quality as interactive and indirect. Rapport-building is at the centre of their model (Abbe & Brandon, 2013; Vallano, Evans, Schreiber Compo, & Kieckhafer, 2015), which then interacts with the other domains (i.e., evidence presentation, confrontation, collaboration, emotional provocation, and context manipulation; see Figure 1). The authors illustrated the importance of context manipulation, encompassing the model, because they argued that the context – or environment – should always be considered. The context can influence the rest of the domains, starting with rapport-building. It is, for example, easily imaginable that a pleasant and comfortable setting can facilitate the interviewer–interviewee dynamic and thereby interview quality.

The second reason that room size and interpersonal seating distance aspects are relevant is because some investigative interviewing guidelines take them into account. For example, the Reid manual recommends the seating proximity between suspects and interviewers to be at a close distance (approximately 1.22 m) arguing that sitting physically close translates to feeling psychologically close, creating a more intimate environment conducive to obtaining information (Inbau, Reid, Buckley, & Jayne, 2013). In line with these recommendations, a police survey showed that conducting interviews in a small, private room was the second highest rated technique out of 16 interview practices used by North American law enforcement officials, with 42% of respondents stating to always use this technique (Kassin *et al.*, 2007).

Lastly, room size and interpersonal distance are relevant to investigate because they determine physical spaciousness, and spaciousness has been shown to be promising for improving interviewees' affective experience and self-disclosure in the fields of communication and health care. Spaciousness can be manipulated through architectural aspects (i.e., room size) and the interior design (i.e., seating arrangement; see Okken, 2013, for a taxonomy of environmental factors). Limited physical space could induce perceptions of crowding and constraint, in turn decreasing interpersonal communication (Sundstrom, 1975). Moreover, a study found that when communicating about intimate

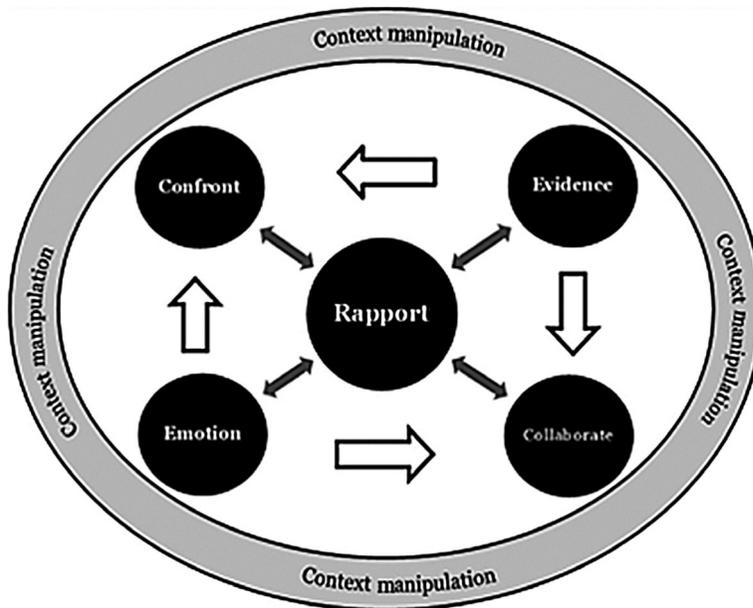


Figure 1. Taxonomy model by Kelly et al. (2013).

topics, participants placed at a closer distance to the interviewer spent less time in self-disclosure than those at a further distance (Johnson & Dabbs, 1976).

In two studies examining spaciousness, participants were interviewed about intimate topics in either a small or larger room, with a smaller or larger desk (measuring interpersonal distance; Okken, Rompay, & Pruyn, 2012, 2013a). Results showed that the larger room size increased participants' perceptions of spaciousness, and higher perceptions of spaciousness in turn led to more positive interview experience. Moreover, the larger room and larger interpersonal distance resulted in higher amount of self-disclosure provided for certain topics.

Despite the established use of environmental techniques in practice and other research fields, to our knowledge only two studies – reported in Dawson, Hartwig, Brimbal, and Denisenkov (2017) – have looked at the effects of environmental manipulations on disclosure specific to investigative interviews. In both studies, participants took part in a mock crime and were subsequently interviewed regarding their involvement. Two interview rooms were examined: a larger and spacious one designed to appeal to their sense of forthcomingness, and a small and enclosed custodial interview room. Results showed that participants who were interviewed in the larger room provided more overall details than those interviewed in the smaller room. Moreover, in one of their studies, these results were mediated by participants' perceptions of spaciousness, so that perceptions of greater spaciousness increased the odds of disclosure. Further, self-reported ratings showed that participants interviewed in the larger room reported wanting to leave less than participants interviewed in the smaller room. Notably, this finding challenges the Reid technique's assumption that a smaller room is more efficient for investigative interviewing by fostering intimacy between the interviewer and interviewee, and eliciting more disclosure (Inbau *et al.*, 2013).

Theoretically, the aforementioned studies applied an embodied cognition account, which posits that cognition is dependent and shaped by the subjective experience of our

body, like the motor system, perceptual system, and interactions with the environment (Dijkstra, Eerland, Zijlmans, & Post, 2014). Essentially, cognition does not begin and end with the brain; rather, it draws upon physical experiences. More specifically, an area of embodied cognition focuses on metaphorical thought, and how metaphoric concepts can arise from physical correlates of emotion. As Lakoff (2012) exemplified, feelings of anger cause our skin temperature and blood pressure to increase; therefore, metaphors such as ‘his blood was boiling’ conceptualize the emotion of anger. In this regard, Dawson *et al.* (2017) proposed that aspects of our physical environment (i.e., spaciousness) can prime cognition in metaphoric ways (i.e., activating concepts of openness), consequently influencing behaviours (i.e., encouraging disclosure). Similarly, Okken (2013) suggested a strong connection between physical experiences and mental concepts. By manipulating the amount of physical space (i.e., room size, interpersonal distance), participants experienced more or less psychological space, which influenced their willingness to self-disclose.

The purpose of the current study was to take a step towards examining if physical spaciousness improves rapport-building and the disclosure of information. Stemming from previous literature, we sought to expand Okken *et al.*'s (2012, 2013a) results to an investigative interview setting by manipulating the interpersonal sitting distance between interviewer and interviewee. Moreover, we sought to conceptually replicate Dawson *et al.*'s (2017) findings of room size and information disclosure, while also examining the influence of spaciousness on rapport-building. Given the influence of spaciousness on affective experience in the aforementioned studies, and the robust association between rapport and information disclosure reported in the psychological literature, we expected rapport to be a mediator between the spaciousness manipulations (room size and interpersonal distance) and disclosure. That is, participants in the larger room and larger sitting distance conditions would perceive the interview process, as well as the interviewer, more positively, hence promoting higher disclosure. Our hypotheses are as follows:

- Hypothesis 1:* Participants in the larger room will rate the interview and interviewer more positively.
- Hypothesis 2:* Participants in the larger room will disclose more information.
- Hypothesis 3:* Participants with larger distance between interviewer and interviewee will rate the interviewer and interview more positively.
- Hypothesis 4:* Participants with larger distance between interviewer and interviewee will disclose more information.
- Hypothesis 5:* We expected the relationships in H2 (room size and disclosure) and H4 (sitting distance and disclosure) to be mediated by rapport-building.

Method

The present study was pre-registered and approved via the Open Science Framework (<https://osf.io/rjv8m/>). The study was approved by the standing ethical committee of our University.

Design

We used a 2 (Room size: large vs. small) × 2 (Sitting distance: close vs. further) between-subjects design with the following dependent variables: (1) quantity of disclosure,

measured by the number of units of information, and (2) quality of disclosure, measured by the amount of crime-related details provided. Further, we have the following dependent variables gathered from participants' self-reported data: (3) perceived room spaciousness, (4) perceived ease of self-disclosure, (5) perceived affective experience, and (6) perceptions of rapport. We used participants' perceptions of spaciousness as subjective measures alongside our manipulations of room size and sitting distance.

Participants

One hundred and fifty-nine participants were recruited from our university to partake in a study concerning memory for events in exchange for one research credit (SONA Systems) or a €5 voucher. Out of the total sample, 20 participants had to be excluded due to different reasons, such as knowing the purpose of the study ($N = 8$), poor English proficiency ($N = 4$), not looking at part of the stimulus video ($N = 4$), knowing the interviewer ($N = 2$), and moving their chair during the interview, thus altering their distance conditions ($N = 2$). All decisions about data exclusions were made irrespective to condition and prior to data analysis. Our final sample consisted of 139 participants¹ (25 male and 114 female), with an average age of 21.2 years ($SD = 3.37$). Seventy-one were assigned to the small room condition and 68 to the large room condition; 70 participants were assigned to the close distance condition and 69 to the far distance condition.

Procedure

Upon arrival to the laboratory, participants were greeted by an experimenter who provided the consent form and instructions. All participants were explained that they would participate in a virtual reality task in which they would meet a friend of theirs, and together they were supposed to find a third person. They were instructed to pay close attention to all details. Once participants granted that they understood their objective, they were asked to put on the virtual reality equipment (headset and headphones) and begin the Virtual Reality (VR) experience. In the VR experience, participants found themselves in an alleyway and were given a minute to familiarize with the environment. Shortly after, they were approached by the friend who began conversing about the previous night, alluding that they were hanging out together. Consequently, a third man approached, looking to cross over to the other side of the alleyway. The friend then proceeded to rob the man of his watch. The man refused to hand over the watch and addressed the participant directly, asking to help control his friend. After this, the friend becomes frustrated and pulls out a gun, demanding the watch to be handed over. Ultimately, the friend pulls the trigger, shooting the victim who falls to the floor. The friend then advises the participant to start running, as he flees the scene. That is the end of the VR experience, which lasted 1 min and 44 s.

Next, participants were randomly allocated to either a small or larger interview room, with either a close or larger sitting distance between them and the interviewer. The experimenter walked the participants to the interview room, informing them they were considered suspects to the crime and needed to be interviewed. They were also told they would receive an extra €5 voucher if the interviewer believed them to be innocent; this

¹ In our pre-registration, we stated we would recruit 100 participants. However, this was due to a power miscalculation. We continued to test participants prior to data analysis after an updated calculation revealed we needed 138 total participants to detect a medium effect size (.3) with power set at .95 and $\alpha = .05$, for a correlation bivariate normal two-tailed model.

was to incentivize participants to take the task more seriously. In reality, all participants received the extra voucher. Once the experimenter left, the interviewer (who had no previous contact with the participants) entered the room and began the interview. The interview script included a phase of rapport-building and then proceeded to ask open-ended questions related to the crime. Interviews were audio recorded. After the interview ended, the interviewer left the interview room and the experimenter returned, who then instructed participants to complete a post-interview questionnaire. Participants were also asked both on the questionnaire and by the experimenter if they had been aware of the study's purpose prior to participating (i.e., from a friend who previously participated), assuring them that if they had they would still receive compensation. We used these questions to exclude aware participants from the analyses. Lastly, they were debriefed, thanked, and compensated for their participation.

Interview room manipulation

Following the VR experience, participants were escorted to either the larger or small interview room, which were previously arranged according to the sitting distance condition assigned. The two rooms were not identical in structure (one was squared and the other rectangular) and floor colouring (one had beige tiles and the other had green tiles); however, they both had one desk, a desktop computer, and two chairs, university-style fluorescent lighting, no windows, and bare walls. The larger room measured 9.3 m² (3.72 length × 2.5 width), and the small room measured 5 m² (2.73 length × 2.03 width). The sitting distances were arranged by the distance between the two chairs (close distance 1.65 m, and further distance 2.10 m). These distances were chosen based on what felt natural within the two rooms. The participants always sat on the chair against the wall, to prevent them from moving and altering the distance assigned. The interviewer and participants sat facing each other, with no desk in between them.

Interview

All interviews were conducted by four female trained research assistants. Prior to data collection, interviewers engaged in practice trainings to ensure they were familiar with the script and their behaviours were consistent. Interviewers were instructed to engage in active listening (i.e., using affirmations such as mhm, okay, and eye contact), to speak professionally, and that the conversation should sound natural and fluid throughout the interview. Once interviewers entered the room, they introduced themselves by shaking the participants' hands, informed them they would begin the audio recording, and engaged in a structured interview script. The script began with a rapport-building phase where the interviewer asked participants four questions about themselves (i.e., 'How is your day going so far?'; 'How is your experience as a student at [university]'; 'What year are you in school?'; and 'What do you want to do with your degree?'). Interviewers were instructed to respond accordingly to each question, but to not self-disclose. Consequently, the interviewer informed participants they were to be interviewed about what happened as a person of interest. The interviewer began with an open-ended question (i.e., 'Please tell me from the very beginning to the very end what happened today') and followed up with five more specific questions (e.g., 'Please tell me everything you can remember about the crime-scene/victim/people involved in the crime/conversation that took place/shooting'). After each question, participants were prompted once with 'Is

there anything else you remember?’ On average, interviews lasted 7 min and 24 s ($SD = 2.48$), of which the average time spent on rapport was 63 s ($SD = 0.36$).

Disclosure

Disclosure was measured by the quantity and quality of the statements. For quantity of information, we looked at word count and total units of useful information. For example, the following sentence had three units of information: ‘I was standing in an alleyway, and I was meeting a friend. And we were going to go for a walk’. Regarding quality of information, we coded crime-related details, such as details specific to the description of the shooter (i.e., clothing, gender). For example, the following statement was coded as having 4 crime-related details: ‘[. . .] I believe there was only one gunshot. So it was only shot the once. [The gun was] held sort of hip-ish height, so it wasn’t sort of aimed upright or anything. It was definitely a threatening position’. Two research assistants were trained on coding using a random subsample of the responses; coders discussed any discrepancies they encountered until they reached an acceptable inter-rater reliability. Consequently, one main coder, blind to the conditions, coded all participant responses, and the second randomly coded 20% of the sample. Both coders reached acceptable agreement for total units of information provided, average measures intraclass correlation coefficient (ICC) = .87, and total of crime-related details (ICC = .85).

Interview experience

All participants were asked to complete a self-report questionnaire about their perception of the room setting, how they felt throughout the interview, and how they perceived the rapport with the interviewer. Adapted from the questionnaire used by Okken *et al.* (2012), perceived room spaciousness was measured using the items ‘I feel confined inside this room’, ‘I have enough freedom of movement inside this room’, ‘I would easily feel suffocated inside this room’, and ‘I was physically comfortable throughout the interview’. The items were added up to provide an overall room spaciousness measure, which reached acceptable internal consistency with a Cronbach alpha (α) of .71. Perceived ease of self-disclosure was measured with the items ‘Inside this room I felt able to speak freely’, ‘I felt uncomfortable providing information inside this room’, and ‘I felt inhibited from speaking inside this room’ and averaged for one self-disclosure measure ($\alpha = .77$). To measure participants’ affective experience, an affect measure was used comprising the items ‘Inside this room, I feel at ease’, ‘I feel uncomfortable inside this room’, and ‘This room gives me a pleasant feeling’ ($\alpha = .77$). All questions were rated on a 7-point Likert-type scale (1 = low amount of characteristic, 7 = high amount of characteristic).

To examine participant’s perceptions of the interpersonal distance, we included the following self-report questions: I liked the distance between me and the interviewer, the sitting distance made it easier for me to talk to the interviewer, I would have preferred to be seated at a larger distance to the interviewer, and I would have preferred to be seated at a closer distance to the interviewer.

To measure rapport, we used a measure containing all items of the interaction questionnaire by Vallano & Compo (2011). The questionnaire is comprised of an *interviewer* and *interaction* subscales, for a total of 27 rapport-related characteristics ($\alpha = .87$). The questionnaire is rated on a 7-point Likert-type scale (1 = low amount of characteristic, 7 = high amount of characteristic). Participants used the *interviewer* subscale to rate the interviewer on characteristics such as friendliness and positivity. The

interaction subscale was used to rate the interaction on characteristics such as cooperativeness and coordination.

Results

Self-report

Room size and interview experience

We hypothesized that participants interviewed in the larger room would rate the interview and interviewer more positively (H1). We conducted Pearson bivariate correlations between room size on perceptions of spaciousness, ease of disclosure, affective experience, and rapport (displayed in Table 1). We did not find a correlation between room size and rapport ($r = .000, p = .999$).

However, as expected, we found that room size was correlated with perceived spaciousness ($r = .215, p = .011$), participants in the larger room ($M = 19.14, SD = 4.22$) reported more overall spaciousness comfort compared to those in the smaller room, $M = 17.28, SD = 4.59, t(139) = -2.51, p = .013, d = 0.42$. Similar to Dawson *et al.* (2017), we also found that participants interviewed in the small room ($M = 4.24, SD = 1.34$) reported wanting to leave more than those in larger room, $M = 3.40, SD = 1.64, t(139) = 3.27, p = .016, d = 0.56$.

Additionally, we found that participants' perceived spaciousness correlated with perceptions of ease of disclosure ($r = .544, p = .000$) and affective experience ($r = .694, p < .001$), thus suggesting that participants in the larger, as opposed to smaller, room felt more overall comfort throughout the interview. Notably, perceived spaciousness and rapport were also significantly correlated ($r = .362, p < .001$).

Interpersonal distance and interview experience

We expected participants interviewed at a larger interpersonal distance would perceive the interview and interviewer more positively (H3). We found no significant correlations between the sitting distance and the rest of the measures, including rapport (Table 1). Therefore, we rejected our third hypothesis.² However, participants in the closer distance condition reported preferring to sit at larger distance to the interviewer ($M = 2.99, SD = 1.39$) than those in the larger distance condition, $M = 2.52, SD = 1.26, t(137) = -2.06, p = .041, d = 0.35, 95\% CI (-0.91, -0.02)$. This provides some indication that participants did perceive the smaller distance as less comfortable than the larger.

Disclosure

Room size and disclosure

We expected participants in the larger room to provide more disclosure than those interviewed in the smaller room (H2). The correlations between room size and the

² Similar effects were found when conducting a MANOVA with room size and sitting distance as independent variables, and perceived spaciousness, ease of disclosure, affective experience, and rapport as dependent variables. We found no significant interaction between room size and distance condition, Wilks' $\lambda = .99, F(4, 132) = 0.11, p = .98, \text{partial } \eta^2 = .003$. There was a significant multivariate effect of room size, Wilks' $\lambda = .90, F(4, 132) = 3.54, p = .009, \text{partial } \eta^2 = .097$, and no multivariate effect for interpersonal distance, Wilks' $\lambda = .99, F(4, 132) = 0.23, p = .92, \text{partial } \eta^2 = .007$. In follow-up ANOVAs, we only found a significant effect of room size on perceived spaciousness, $F(1, 132) = 6.66, p = .011, \text{partial } \eta^2 = .047$.

Table 1. Correlations between room size and interpersonal distance on perceptions of spaciousness, ease of disclosure, affective experience, and rapport

	Room size		Interpersonal distance	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Spaciousness	.215	.011	-.055	.522
Ease of disclosure	-.060	.486	-.066	.442
Affective experience	.142	.096	-.057	.502
Rapport	.000	.999	-.071	.409

disclosure measures were all non-significant (see Table 2). Additionally, participants' perceived spaciousness did not significantly correlate with word count ($r = -.144$, $p = .091$), total units of information ($r = .016$, $p = .849$), or crime-related units of information ($r = -.010$, $p = .908$).

Interpersonal distance and disclosure

Moreover, we hypothesized that participants interviewed with a larger interpersonal distance between them and the interviewer would provide more information (H4). We found no evidence for this; interpersonal distance did not significantly correlate with any of the disclosure measures (see Table 2), and thus, we rejected our fourth hypothesis.³

Lastly, since we did not find an association between room size or interpersonal distance and any of the disclosure measures, we did not conduct a mediation analysis with rapport as mediator, and thus, our fifth hypothesis was also rejected.

Exploratory analysis

Although we did not find a significant correlation between our spaciousness manipulations (room size or interpersonal distance) and rapport, we found a significant correlation between room size and perceived room spaciousness, and a significant correlation between perceived spaciousness and rapport. Therefore, we decided to run a mediation analysis with room size as our predictor, perception of spaciousness as our mediator, and rapport as our outcome, the different interviewers were added as covariates in this model (Figure 2). Results indicated that room size was a significant predictor for perceived spaciousness (path a') and that perceived spaciousness was a significant predictor for perceptions of rapport (path b'). Room size was not a significant predictor of rapport when controlling for the mediator, perceived spaciousness, which is consistent with full mediation (path a * path b). Therefore, participants perceived rapport more positively, when they also perceived the room spaciousness more positive. We tested the mediation using the PROCESS macro for IBM SPSS (Hayes, 2012). PROCESS uses a nonparametric resampling procedure with $n = 5,000$ bootstrap resamples to derive a 95% confidence interval and a point estimate for an indirect path. This technique yielded confidence

³ Similar effects were found when conducting a MANOVA with room size and sitting distance as independent variables, and word count, total units, and crime-related units of information as dependent variables. We found no significant interaction between room size and distance condition, Wilks' $\lambda = .99$, $F(3, 133) = 0.35$, $p = .79$, partial $\eta^2 = .008$. We found no significant multivariate effect of room size, Wilks' $\lambda = .97$, $F(3, 133) = 1.17$, $p = .32$, partial $\eta^2 = .026$, and no multivariate effect for interpersonal distance, Wilks' $\lambda = .97$, $F(3, 133) = 1.15$, $p = .33$, partial $\eta^2 = .025$.

Table 2. Correlations between room size and interpersonal distance on word count, total units of information, and crime-related information. Means, standard deviations, and ranges of disclosure variables

	Room size						Interpersonal distance					
	Large			Small			Far			Close		
	<i>r</i>	<i>p</i>	Range	<i>M</i> (<i>SD</i>)	Range	<i>M</i> (<i>SD</i>)	<i>r</i>	<i>p</i>	Range	<i>M</i> (<i>SD</i>)	Range	<i>M</i> (<i>SD</i>)
Word count	-.096	.259	243-1,557	670 (274.80)	264-2,106	728.65 (325.82)	.037	.666	264-1,557	689 (278.88)	243-2,106	711.27 (325.31)
Units of information	-.097	.258	25-59	47.66 (13.13)	25-97	50.27 (13.87)	-.071	.406	25-84	50 (13.32)	25-97	48.04 (13.76)
Crime-related units	-.134	.116	14-54	31.56 (9.32)	14-54	34.23 (10.49)	-.072	.403	14-58	33.64 (10)	16-68	32.21 (10)

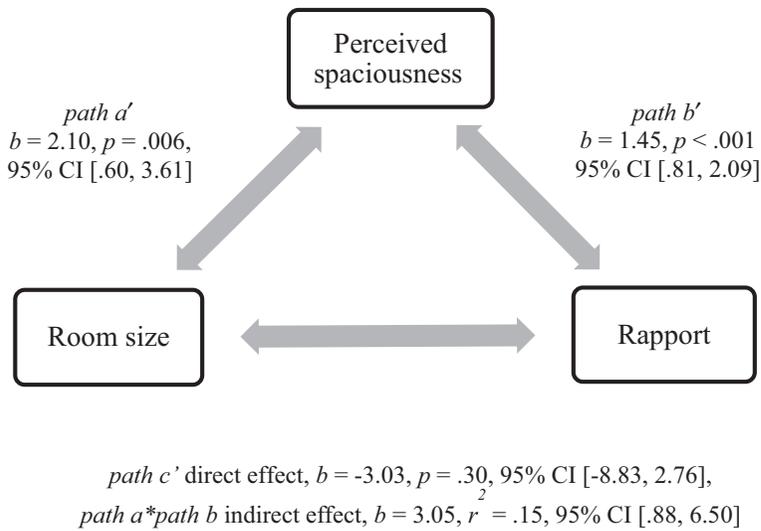


Figure 2. Mediation model with room size as predictor, perceived spaciousness as mediator, and rapport as outcome variable. Interviewers were added as covariates.

intervals that did not include zero, therefore suggesting that perceptions of rapport were mediated by perceived spaciousness.

Discussion

We found that our manipulations of spaciousness (room size and interpersonal distance) did not result in significantly different perceptions of rapport, or in an increased disclosure rate. An explorative analysis revealed that room size was positively associated with rapport via perceived spaciousness. At minimum, the findings suggest that our room size manipulation was effective in affecting participants' perception of room spaciousness and that this perception of spaciousness is in turn associated with positive rapport-building. These results contradict the Reid technique's assumption that smaller rooms foster closeness with the interviewer (Inbau *et al.*, 2013). This also highlights the importance of considering the interviewees' perceptions and personal experience in relation to their comfort and overall interview experience.

We did not find the hypothesized influence of room spaciousness on disclosure of crime-relevant information, failing to replicate Dawson *et al.*'s (2017) findings. While our study differed from Dawson *et al.*'s in several aspects, the core elements were consistent. We had similar sample sizes, laboratory-based paradigms (involvement in a mock crime by delivering a flash drive with sensitive information vs. involvement in a shooting via VR), and in both studies disclosure was measured by total details and crime-related (or critical) details. Most importantly, room spaciousness was successfully manipulated in both laboratories via room size, with participants interviewed in the larger room conditions reporting more positive perceptions of spaciousness.

Given the disparate results, more studies are needed to establish if spaciousness can indeed facilitate disclosure in an investigative interviewing context. Particularly, future studies should carefully examine the mechanisms behind the effect. Dawson *et al.* (2017) stemmed from a metaphoric priming approach; however, such priming research should

be approached with caution, as it has generated substantial scepticism in the social psychology field due to failures to replicate (Bower, 2012; Camerer *et al.*, 2018; Verschuere *et al.*, 2018; Yong, 2012). For example, in an effort to replicate Dawson *et al.*'s (2017) findings and other well-known priming measures, Dianiska, Swanner, Brimbal, and Meissner (2019) examined the influence of lexical (i.e., word scrambles related to openness concept), contextual (e.g., room decorative posters depicting open settings) and embodiment primes (e.g., interviewers' open or closed off body postures) on information disclosure, failing to find convincing evidence of their influence.

Our results need to be interpreted in the light of several limitations. First, given our experimental paradigm, ecological validity is limited. The mock crime and subsequent interview may have failed to elicit feelings of discomfort associated with a police interview. Similarly, the rooms we used were within the university, and thus familiar for the participants. This may have affected participant's initial comfort levels, expecting them to already feel comfortable in a familiar environment.

Another point qualifying the conclusion that there was no influence of seating distance is that the two distance conditions we employed may not have differed enough to elicit differences. Research on proxemics suggests there are four different interpersonal distance zones which people choose, often unconsciously, depending on how intimate they want the interaction to be. Those zones include the intimate (0–0.5 m), personal (0.5–1.2 m), social (1.2–3.7 m) and public (>3.7 m) zone (see Hall, 1990). Our interpersonal distance manipulations of 1.65 and 2.10 m were both in the social zone. Future studies may derive more from proxemics research by employing a larger range of distances to determine what is more appropriate for police interviewing practices. For example, by directly testing the Reid manual's recommendation of 1.22 m, which lies closer to the personal zone according to Hall (1990). Besides examining different distances, future studies could examine different seating arrangements. In our study, participants were seated against a wall with the interviewer directly in front of them. It is possible for such arrangement to hinder positive perceptions of spaciousness and overall comfort.

Further, in this study we primarily focused on examining if spaciousness influenced participants, and not the interviewers. The interviewers in our study were aware of the participants' conditions (from the room size and interpersonal distance). In our method section we noted that the interviews were highly scripted, and we found no effect of interviewer on our outcomes, nonetheless, it is necessary for future research to examine if and how the environment influences the interviewers behaviour.

Lastly, in this study we expected spaciousness to positively influence participants' perceptions of rapport, and higher rapport to lead to higher information disclosure (H5). We hypothesized this mediation due to the association between spaciousness and affective experience (i.e., comfort, ease of disclosure) from previous studies (Okken *et al.*, 2012, 2013a), yet how rapport and elements of affective experience interplay remains to be empirically established. Currently, the literature on rapport lacks a consensus of what interviewees consider rapport to be, and thus, there is room to explore how other aspects – such as physical comfort – relate to the construct of rapport. This presents an avenue for future research.

In sum, our simulation study yielded a lack of evidence for an influence of room size and interpersonal distance on disclosure. Still, our study does provide initial evidence that manipulating room size in an interview context could positively impact rapport-building. Moreover, the effect on rapport was mediated by perceived spaciousness. This suggests that simple manipulations increasing merely the perceived spaciousness may positively affect the interview. In this study, we looked at room size and seating distances, yet there

are other aspects – related to architecture and interior design – that influence interviewee's perceptions of spaciousness which remain to be tested within an investigative interview context, for example, lighting (Gifford, 1988; Okken, Rompay, & Pruyn, 2013a, 2013ba, b) as well as the room's colour (Oberfeld, Hecht & Gamer, 2010) and ceiling height (Meyers-Levy & Zhu, 2007).

Environmental manipulations can be feasible to implement, offering simple tactics for improving the interviewing process, while steering away from problematic accusatorial techniques. Environmental factors can be considered when constructing or remodelling interview rooms, and through training practitioners on how to use the environment to their advantage, these factors have the potential to offer practical recommendations that could aid in rapport-building efforts.

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