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The cognitive interview for suspects: A test with customs officers

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Abstract

The current study aimed at testing the impact of the cognitive interview for suspects (CIS) used by trained custom officers on the quantity of gathered details, compared to a control standard interview (SI) used by untrained officers. Forty-five mock-suspects were required to perform a series of actions and each was interviewed by a pair of customs officers. Participants had to give statements containing truthful parts and deceptive parts. The CIS elicited significantly more details than the SI. Truthful parts of the statements contained more details than deceptive parts. An interaction effect revealed that the CIS elicited a higher number of action details in truthful parts. It is worthwhile for professionals in the field to adopt the CIS, which provides valuable benefits for information gathering. Moreover, the increase in action details raise the question of considering it as a possible lie detection tool.

KEYWORDS
cognitive interview for suspects, customs, information gathering, lie detection, standard interview, training

1 | INTRODUCTION

Investigators may have various objectives when interviewing a suspect: to obtain as much details as possible, to distinguish between lies and truth, and to obtain a confession. Interrogation models considered as accusatory, such as the Reid technique, tend to emphasize only one of these goals, namely obtaining a confession (Inbau et al., 2001). This may also be the case for standard interviews, that is, interviews conducted by untrained interviewers (Snook et al., 2012). Typically, these interview models are constructed on the basis of a short questions/short answers interaction (Kebbel et al., 2001) and can contain 'psychologically manipulative tactics that are designed to elicit compliance from a suspect in the form of a confession to the crime' (Meissner et al., 2014: 462). This quest for a confession

often limits the volume of details obtained due to its narrow focus (Gudjonsson, 2003). However, the quantity of gathered details is crucial for case solution and effective criminal prosecution since, on the one hand, it makes it possible to obtain valuable information on a criminal event and, on the other, permits the emergence of inconsistencies that result in the detection of lies (Dando & Bull, 2011; Geiselman & Fisher, 2014).

By contrast with the accusatory models, the cognitive interview for suspects (CIS, Geiselman, 2012) is a more recent interview method, inspired by 'witness interview dynamics', that focuses on gathering information and identifying deception. However, to our knowledge, very few studies have been conducted on the CIS, and none when it is used by professionals and compared to a standard interview. Furthermore, none have assessed its benefit in gathering more details. Considering the potential value of this method, the current study aims to test the efficacy of the CIS compared to a standard interview (SI) conducted by customs officers and to evaluate its benefits in gathering a significant amount of information about the criminal event.

1.1 | The cognitive interview for suspects

The CIS is an adaptation of the Cognitive Interview (CI, Fisher & Geiselman, 1992), which was initially developed for interviewing witnesses and victims. The core elements of the CI draw on theoretical principles such as Tulving's theory of multiple access to memory and specific encoding (Tulving, 1983). As proposed in Deslauriers-Varin et al. (2018), the theoretical bases are grounded in three basic psychological processes, namely: memory and cognition, social dynamics, and communication. More specifically, memory-enhancing techniques (e.g., Mental context reinstatement, Reverse order) are often combined with methods for improving social dynamics (e.g., Rapport building, encouraging active participation) in order to develop a communication environment that is most likely to allow victims and/or witnesses to provide the most detailed, comprehensible, and accurate account of what they experienced (Fisher & Geiselman, 1992). To date, the CI is the interview technique that has undergone the most scientific testing (Geiselman & Fisher, 2014). Many studies have shown that, significantly, the CI elicits between 25% and 50% more correct information from witnesses or victims than the comparison interview, including details related to actions, people, objects, and locations, and does so at a comparable accuracy rate (Memon et al., 2010). The CI or its components are now part of many police training programs and are the recommended police practices in numerous countries (Deslauriers-Varin et al., 2018).

In a way similar to the CI, the CIS is an information-gathering approach based on scientifically derived principles of memory and communication theory. In the CIS, the suspect is encouraged to provide a large amount of details that may be relevant for a police investigation. As presented by Geiselman (2012), the CIS consists of eight stages: (1) *Rapport building/Introduction*. During this stage, the interviewer develops a rapport with the suspect while talking about neutral topics in order to put them in a psychologically comfortable state and thus make the interview more productive, (2) *Narrative*. The suspect is encouraged to freely report as many details as possible (*Report everything* instruction) and to mentally recreate the context of the crime (*Mental context reinstatement* instruction), (3) *Drawing/sketch*. In this stage, the suspect has to sketch/draw the crime scene or a part of this scene, (4) *Follow-up, open-ended questions*. Questions are asked using an information-gathering approach rather than a confrontational one, (5) *Reverse order* mnemonic. The suspect is instructed to recall the criminal event backward, (6) *Challenge*. In this stage, the suspect is gradually confronted with evidence and incriminating contradictions. The interviewer remains respectful and presents the weakest evidence first, (7) *Review*. The interviewer reviews the suspect's statements and asks them to correct any errors or omissions and (8) *Closure*. At this stage, cooperative suspects can be thanked. To those who appear to have lied, the interviewer may 'express disappointment and disrespect' (Geiselman, 2012: 5).

Note that six of these stages are adapted from the CI method for witnesses, whereas the *Drawing* and the *Challenge* stages are two new techniques that are intended to improve lie detection (Dando & Bull, 2011; Vrij, Leal,

et al., 2010). Indeed, one of the major differences between witness and suspect interviews is the truthfulness of the statements. Witnesses are assumed to produce 'honest' errors (e.g. caused by misperception, interferences, retrieval failures) while suspects tend to lie intentionally (Yarmey, 2009). These differences have led to the protocol being adapted to a potentially less cooperative and more deceptive population. In particular, the protocol includes some components whose purpose is to detect deception (i.e. *Drawing*, *Reverse-order* and *Challenge*).

1.2 | Empirical assessment of the cis protocol and deception detection

In the first study conducted by Geiselman (2012), CIS-trained college students conducted interviews with participants who had been instructed to describe a recent autobiographical or a completely fabricated event. The interviewers had to rate the likelihood of the participant's truthfulness at each stage of the protocol. The results from this study showed that the interviewers were able to discriminate truth from lies in the CIS context and that their accuracy increased as they progressed through the various stages of the protocol. Two other studies have assessed the ability to discriminate between truth and lies in the CIS protocol (Frosina et al., 2018; Logue et al., 2015). In these studies, the participants in the truthful condition had to play a game with a confederate, whereas those in the deceptive condition had to steal $10 from a confederate's wallet, while pretending that they had also played the game. They were then interviewed by CIS-trained college students. Deception was rated by means of two methods: verbal cues (Logue et al., 2015) and physiological cues (Frosina et al., 2018). The results showed that these lie detection methods were effective and applicable in the CIS context. According to the authors, the CIS may lead to better deception detection due to the information-gathering style of this protocol and to the increase in the suspects' cognitive load. However, in all three studies cited, the CIS was not compared with a control group. Furthermore, only deception detection was evaluated and the amount of information contained in the suspects' statements was not assessed. However, it is important to verify that the CIS can provide valuable details for investigative purposes, while at the same time increasing the number of opportunities for signs of deception to emerge. Finally, given the applied aim of the CIS, it seems particularly important to assess whether it can be beneficial in the field when used by professionals who regularly interview suspects.

1.3 | Hypotheses

In the current study, the investigators were customs officers. Indeed, this is a population that has been insufficiently studied in the scientific literature compared to police officers, even though interviewing suspects is also one of a customs officer's tasks (Granhag et al., 2014).

Trained or untrained customs officers had to gather details in a mock-suspect interview. The experimental design involved mock-suspects in order to verify the accuracy of the gathered information, which is an important element to be taken into account in the field. In order to mimic a real-life situation, the participants were asked to lie about some parts of their actions and to tell the truth about others (Vrij, Granhag, et al., 2010). More specifically, it was expected that, compared to a SI, the CIS would help the interviewers gather more details (i.e. more action, person, object and location details) without increasing the number of incorrect and confabulated details. Moreover, as was found in Geiselman (2012), the CIS-trained interviewers were expected to detect lies better than untrained ones.

2 | METHOD

2.1 | Participants and design

2.1.1 | Interviewees

Our initial sample was composed of 48 French undergraduate students (14 men and 34 women). However, three participants were excluded because of recording failures during the interview process. The final sample consisted of 45 participants (13 men and 32 women). An a priori power analysis established with the Superpower package in R (Lakens & Caldwell, 2021) for within-between interactions on ANOVAs had indicated a necessary sample size of 70 participants to allow an effect size of $f = 0.16$ (estimated from Vrij et al. (2015) study), with $\alpha = .05$ and a 87% power. However, the size of the sample was determined by the constraints of the customs service and the number of investigators available. The participants were aged between 18 and 38 with a mean age of 19.93 ($SD = 3.73$) and all used French as their first language. All the participants received course credits and a €10 reward for their participation. They were randomly assigned within a 2 (interview: CIS vs. SI) × 2 (veracity: lie, truth) mixed design, with veracity as a within-subject variable.

2.1.2 | Confederates

Two female research assistants (aged 21 and 38 years) acted as confederates. One of them acted as an experimenter, spending most of the time during the experiment with the participant, while the other acted as a laboratory member, who was met only briefly during the 'criminal' stage of the experiment. Each experimenter learnt the two roles, which were pre-determined, and played them in equal proportions.

2.1.3 | Interviewers

This study was conducted in collaboration with a French customs service, which is a service that investigates fraud and trafficking offences and realises suspects interviews. The interviewers were 12 French volunteer customs officers: 3 women and 9 men, whose ages ranged from 30 to 61 years ($M = 48.56$, $SD = 8.38$), and who used French as their first language. They were recruited on a voluntary basis after a collaborative training project presented by their department head, who wanted some officers to be trained in interview methods. The officers had all been trained in customs missions at the National Customs School. However, this did not include training in interview methods. Their seniority within the customs service ranged from 6 to 40 years, with an average of 23.33 years of experience ($SD = 8.75$).

2.2 | Training

2.2.1 | Cognitive interview for suspects

Six interviewers received CIS training and the six remaining interviewers had no interview training (the experimenter asked them to conduct the interview as they usually did. It should be noted that they received the CIS training 3 months after the experiment was over.). The latter group was used as a control group for the current study. The distribution of interviewers to training conditions was random.

The training lasted 10 h and was given by the first author of this paper at the university. Three weeks before the training, the interviewers received an academic booklet including theoretical information on the CIS (e.g. advantages of rapport building, questioning styles and CIS mnemonics), a quiz, documents and exercises. They were asked to read and complete the booklet before the intervention took place. The training included exercises, formal presentation, and role-playing games followed by detailed feedback. In order to avoid biasing the results of the study, the trained interviewers were asked not to talk about the CIS method to the untrained interviewers until after the end of the experiment.

To assess their self-reported interviewing ability, the CIS-trained interviewers had to answer the question: 'On a 1 to 5 scale, with 1 = *not at all* and 5 = *absolutely*, how experienced do you feel in interviewing suspects?' before and after the training. A Paired-sample *t*.test showed that the interviewers trained in the CIS reported being more skilled in interviewing after the training (M = 3.38, SD = 0.52, 95% CI [2.94, 3.81]) than before it (M = 2.63, SD = 0.74, 95% CI [2.00, 3.25]), $t(5) = -4.58$, $p = .003$, $d = 3.46$.

In order to verify that the interviewers had actually used the components/strategies learnt during training, they were coded based on the audio recordings of the interviews. This coding revealed that the trained interviewers were fairly accurate in following the taught protocol (see supplemental online material for more information). Such an observation was also made in the SI. Although SI are 'instinctive' interviews conducted by untrained interviewers, and therefore normally all different, there were similarities between these practices. In general, the SI did not include a rapport building, and the interviewers asked many closed, leading, and repeated questions. In addition, they directly accused the interviewees and regularly cut them off.

2.2.2 | Lie detection

In order to limit motivational effects due to the CIS training, all the interviewers received lie detection training prior to the current study. Moreover, because the study aimed to test the potential benefit of CIS in improving lie detection among interviewers, it was necessary to ensure that the investigators had a minimum shared level of knowledge in this area.

The training lasted 4 h and was given by the first author of this paper on the university premises. Three weeks before the training, the interviewers received an academic booklet including theoretical information on deception detection (e.g. 'pitfalls and opportunities' presented in the scientific literature; Vrij et al., 2008), a quiz, documents and exercises. They were asked to read and complete the booklet before the intervention took place. The training included exercises and role-playing games followed by detailed feedback.

2.3 | Procedure

It should be noted that for the purposes of the following procedure, the motivational incitement of the participants to lie, the interview length, the contextual background given to the interviewer, and the lie detection assessment were inspired by the study conducted by Vrij et al. (2015), which aimed to compare a trained and an untrained group of interviewers. Their procedure was then adapted to the context of our study.

2.3.1 | Interviewees

The participants were recruited on a voluntary basis by asking them to enter their names on a list posted in the laboratory. After arriving at the university, the interviewees completed an informed consent form and were then told that

they would perform a series of actions, and then help us to analyse customs interviewers' lie detection abilities by lying them about some of these actions.

This series of actions constituted a complete scenario consisting of four sequences lasting about 8 min each. The complete scenario lasted about 32 min, and the participants had to tell the interviewers the whole scenario after having lived it.

Because we wanted participants of our study to mimic real-life suspects who may lie about some aspects of the to-be-remembered event and tell the truth about other aspects, each participant was instructed to tell the interviewers the truth about two of the four sequences they experienced and to lie about the other two sequences.

So that it is not always the same sequences, for all the participants, which are the object of a lie or of the truth, we carried out a counterbalancing. To do this, we created a true version and a deceptive version of each sequence (see Table 1). We then created four possible combinations of truthful and deceptive sequences, corresponding to four possible scenario versions (see Table 2).

For example, a participant who lived scenario C had to go with a confederate to pick up a document in an unknown room of the university, then sat in a corridor and completed a logic questionnaire, then read a text describing the truthful car park sequence and had to imagine s/he performed it so s/he can convince the interviewer that s/he really did so, and finally met a confederate to exchange an envelope with cash, but s/he was asked to pretend that s/he completed the quiz and convince the interviewer.

The interviewees were equipped with video-recording spy glasses during all the sequences so that the experimenters could check the veracity of their interview statements. The glasses were worn on the nose of the participants, and recorded what they saw with an angle of 180°. Thus, it was possible to observe their movements through the different buildings, and also the objects and people they met. Moreover, the glasses also recorded the sound, allowing to hear the various noises and conversations to which they were exposed.

After the first part of the experiment, the participants were told that the purpose of the study was to assess the ability of customs officers to detect lies. The participants were thus informed that, to this end, they would be interviewed about the event and have to lie about its 'lie sequences' and tell the truth about the 'truth sequences'. In order to enhance motivation during the interviews, they were also told that it was important to convince the officers that they were telling the truth, and that they would receive a €10 reward if they were successful in doing so. Moreover, they were told that if the interviewers were not convinced, they would have to send an e-mail dissertation on their lying skills. The aim of this methodological choice was to mimic the real-life situation of a suspect as much as possible (i.e. more motivated to lie than to tell the truth about their wrongdoing because of the potential consequences they may face).

The interviewees were taken to the interrogation room and interviewed. They were then debriefed and they all received a €10 reward for their participation.

TABLE 1 True and deceptive version of each of the 4 sequences corresponding to a complete scenario

	Truthful version	Deceptive version
Sequence 1	The participant goes with a confederate to pick up a transcript in an unknown room of the university	The participant reads a text about this event and has to imagine s/he performed it, so s/he can convince the interviewer that s/he really did so
Sequence 2	The participant sits in a corridor and completes a logic questionnaire	The participant is asked to steal a transcript from a professor's office, but s/he will have to convince the interviewer that s/he completed the logic questionnaire
Sequence 3	The participant goes with a confederate to record a licence plate number in the university car park	The participant reads a text about this event and has to imagine s/he performed it so s/he can convince the interviewer that s/he really did so
Sequence 4	The participant sits in a corridor and completes a general knowledge quiz	The participant meets a confederate to exchange an envelope with cash, but s/he will have to convince the interviewer that s/he completed the quiz

TABLE 2 Four counterbalanced scenario versions

	Sequence 1	Sequence 2	Sequence 3	Sequence 4	*n*
Scenario A	Truthful	Deceptive	Truthful	Deceptive	12
Scenario B	Deceptive	Deceptive	Truthful	Truthful	11
Scenario C	Truthful	Truthful	Deceptive	Deceptive	11
Scenario D	Deceptive	Truthful	Deceptive	Truthful	11

2.3.2 | Interviewers

After arriving at the university, pairs of customs officers (both trained or both untrained to CIS) were assigned to an interrogation room in the same way as when they are used to conducting interviews in the field. They were told that a mock-crime had been committed in the university (i.e. that a transcript had been stolen from a teacher's office and sold for money) and that they had to find out what happened by interviewing students. Each customs officer in each pair of interviewers had to interview four participants. In these four interviews, only the interviewer talked with the interviewee, while the other officer just listened. They were asked to interview the mock-perpetrator for a maximum of 45 min in the light of the length of the scenario experienced by the participants. The actual average length of the interviews was finally 24 min and 36 s (SD = 7.14). In the SI condition, the interviews were longer (M = 27.97; SD = 6.27; 95% CI [25.12, 30.82]) than in the CIS condition (M = 21.69; SD = 3.58, 95% CI [20.19, 23.21]), $t(44) = 4.04$, $p < .001$, $d = 1.28$.

The interviewers and interviewees gave their prior consent for the interviews to be audio-recorded. The officers were not aware of which scenario had been played out by the mock-suspects. The interviewers were given the contextual background to the events (cf. Appendix A) to enable them to organise their interview as they would do in a real case. When the interview was over, the officers had to assess whether the interviewee was lying or telling the truth for each of the four sequences. The pair of investigators deliberated together before giving a common judgement for each sequence, in a dichotomous manner (e.g. this sequence about the car park is truthful or is deceptive). The number of errors was counted for each of the four participants interviewed by the same interviewer (min.: 0, max.: 16). More precisely, two types of errors were possible: 'truth' errors (thinking that the sequence is deceptive when it is actually truthful) and 'deception' errors (thinking that the sequence is truthful when it is actually deceptive). Moreover, the correct answers were counted in the same way: the 'truth' correct answers (thinking that the sequence is truthful when it is in reality truthful) and the 'deception' correct answers (thinking that the sequence is deceptive when it is in reality deceptive).

2.4 | Coding of the statements

The interviews were audio-recorded and transcribed verbatim. All the details reported by the participants were coded by the first author of the study, with one point being given for each detail. They were only scored the first time they were reported (repeated details were ignored). In a way that is consistent with the CI literature (Holliday et al., 2011; Stein & Memon, 2006), each detail was classified into one of the following four categories: actions (details describing something that the participant or another person did, e.g. 'I walked'), objects (details describing an object, e.g. 'the logic test sheet'), locations (details describing a location, e.g. 'the third floor corridor'), and persons (details describing the participants themselves or another person, e.g. 'the small experimenter'). Video records were used to code the quality of details in the truthful parts of the statements. Each detail was coded as correct (i.e. describing something that corresponded exactly to what actually occurred), incorrect (i.e. wrongly describing something that actually happened) or confabulated (i.e. describing something that did not occur at all).

Twenty-three interviews (i.e. 51.11%) were coded by a second independent coder in order to assess coding reliability. A series of two-way mixed intraclass correlations (ICC) revealed a high degree of reliability between the two raters for all the measures (all ICC (1,2) ≥ 0.78).

Moreover, the number of questions asked was also coded. The analyses showed that three times as many questions were asked in the standard interviews, (M = 173.52, SD = 55.60, 95% CI [148.21, 198.83]), than in the CIS (M = 47.63, SD = 24.14, 95% CI [37.43, 57.82]), $t(44) = 9.62$, $p < .001$, $d = 3.07$. The number of questions will be taken into account in order to calculate the ratio of the number of recalled details to the number of questions asked.

3 | RESULTS

3.1 | Position of the participant in the interview set and influence of the scenarios

Each interviewer conducted four successive interviews, each involving different participants. In order to check the potential effect of the participant's position in the series of interviews depending on the type of interview used, three 2 (interview: SI vs. CIS) x 4 (interviewee position: 1 vs. 2 vs. 3 vs. 4) ANOVAs were conducted, with both factors as between-subject variables. There was no significant effect of position on the total number of details (i.e. the sum of correct, erroneous and confabulated details) and the number of correct details provided, Fs ≤ 0.59, ps ≥ .624. There was also no effect of the interaction between interview style and interviewee position on the total number of details and the number of correct details, Fs ≤ 1.59, ps ≥ .208.

In addition, the participants experienced one of the four versions of the scenario (depending on the counterbalancing). To check the effect of this variable on the main measures, three 2 (interview: SI vs. CIS) × 4 (scenario counterbalancing: A vs. B vs. C vs. D) ANOVAs were conducted, with both factors as between-subject variables. There was no significant effect of the scenario counterbalancing on the total number of details and the number of correct details, Fs ≤ 1.37, ps ≥ .266. There was also no effect of the interaction between interview style and scenario counterbalancing on the total number of details and the number of correct details, Fs ≤ 0.70, ps ≥ .561.

The interviewee position and scenario counterbalancing variables were therefore not included in the subsequent main analyses. All results for the main effects of interview style are discussed below.

3.2 | Total number and type of details recalled

A series of 2 (interview: CIS vs. SI) x 2 (veracity: truth, lie) mixed ANOVAs with the last factor as a within-subject variable were conducted on the total number and type of details recalled. Descriptive statistics and analyses are presented in Table 3.

Overall, the analysis revealed a significant main effect of interview style, with CIS eliciting more details than SI. Furthermore, there was a main effect of the interview style on the number of details recalled in relation to actions, objects, and locations, with CIS eliciting more such details than SI. However, no significant effect of interview style was observed on the number of details recalled in relation to persons.

The analysis also revealed a significant main effect of veracity, with the truthful parts of the statements containing more details than the deceptive parts. Furthermore, there was a main effect of veracity on the action, object, and person-related details recalled, with the truthful parts of the statements containing more details of these types than the deceptive parts. No significant main effect of veracity was observed for location-related details.

No overall significant effect of the interaction between interview style and veracity was found for the total number of details, $F(1, 45) = 0.52$, $p = .477$. However, a significant interaction effect was observed for action details,

TABLE 3 Quantity of details in function of interview style and veracity

	Interview style									Veracity								
	CIS			SI						Truthful			Deceptive					
Type of details	*M*	*SD*	*CI*	*M*	*SD*	*CI*	*F*	*p*	*d*	*M*	*SD*	*CI*	*M*	*SD*	*CI*	*F*	*p*	*d*
Total	130.71	30.82	[117.69, 143.72]	101.24	31.25	[87.16, 115.60]	10.01	.003	0.97	64.65	19.33	[58.02, 69.63]	52.31	17.15	[48.05, 58.35]	27.88	<.001	1.61
Actions	34.29	10.16	[30.00, 38.58]	23.33	6.73	[20.27, 26.40]	17.63	<.001	1.28	15.47	5.82	[13.72, 17.22]	13.71	5.85	[11.95, 15.47]	4.25	.045	0.63
Objects	65.75	22.05	[56.64, 75.06]	53.19	18.60	[44.73, 61.66]	4.20	.046	0.63	34.69	14.07	[30.46, 38.92]	25.20	9.81	[22.25, 28.15]	29.61	<.001	1.63
Locations	20.88	6.99	[17.92, 23.83]	14.86	6.56	[11.87, 17.84]	8.79	.005	0.91	9.00	3.72	[7.88, 10.12]	9.07	5.07	[7.54, 10.59]	0.001	.978	0.00
Persons	9.79	3.89	[8.15, 11.43]	9.86	5.29	[7.45, 12.26]	0.010	.962	0.00	5.49	3.02	[4.58, 6.40]	4.33	2.71	[3.52, 5.15]	4.96	.033	0.67

TABLE 4 Quantity of correct, erroneous and confabulated details in truthful statements

		Interview style								
		CIS			SI					
Type of details		*M*	*SD*	*CI*	*M*	*SD*	*CI*	*t*	*p*	Cohen's d
Total	Correct details	70.21	21.42	[61.17, 79.25]	56.59	14.84	[48.96, 64.22]	−2.26	.015	0.72
	Errors	3.58	1.77	[2.84, 4.33]	3.24	2.86	[1.76, 4.71]	−0.48	.331	0.16
	Confabulations	0.67	1.05	[0.22, 1.11]	0.53	0.62	[0.21, 0.85]	−0.48	.331	0.16
Actions	Correct details	13.08	4.83	[11.05, 15.12]	9.53	3.18	[7.89, 11.27]	−2.65	.012	0.85
	Errors	0.13	0.34	[-0.02, 0.27]	0.18	0.39	[-0.03, 0.38]	0.45	.656	0.14
	Confabulations	0.25	0.53	[0.03, 0.47]	0.19	0.39	[-0.02, 0.38]	−0.48	.631	0.16
Objects	Correct details	40.88	16.20	[34.03, 47.72]	32.29	9.62	[27.35, 37.24]	−2.12	.21	0.63
	Errors	2.79	1.99	[1.95, 3.64]	2.82	2.29	[1.64, 4.00]	0.05	.963	0.14
	Confabulations	0.21	0.41	[0.03, 0.38]	0.35	0.61	[0.04, 0.66]	0.91	.369	0.29
Locations	Correct details	9.71	4.20	[7.94, 11.58]	7.53	2.59	[6.14, 8.92]	−1.88	.034	0.60
	Errors	0.13	0.45	[-0.06, 0.31]	0.12	0.33	[-0.05, 0.29]	−0.06	.955	0
	Confabulations	0.08	0.28	[-0.04, 0.20]	0	0	[0, 0]	−1.45	.162	0.39
Persons	Correct details	4.71	2.63	[3.59, 5.82]	5.82	3.69	[3.92, 7.72]	1.13	.265	0.36
	Errors	0.55	0.78	[0.21, 0.87]	0.12	0.33	[-0.05, 0.29]	−2.38	.012	0.67
	Confabulations	0.13	0.34	[-0.02, 0.27]	0	0	[0, 0]	−1.81	0.042	0.49

$F(1, 45) = 5.87$, $p = .020$, $d = 0.74$. Truthful parts of the statements contained more action details ($M = 18.92$, $SD = 5.15$, 95% CI [16.74, 21.09]) than the deceptive parts ($M = 15.37$, $SD = 6.29$, 95% CI [12.72, 18.03]), in the CIS-gathered statements, $t(24) = 3.23$, $p = .002$, $d = 1.35$, but not in the SI-gathered statements (truthful: $M = 11.02$, $SD = 3.67$, 95% CI [9.85, 13.19], deceptive: $M = 11.81$, $SD = 4.67$, 95% CI [9.64, 13.98]), $t(21) = 0.25$, $p = .803$, $d = 0.11$. There were no interaction effects between interview style and veracity on the recalled object, location, or person-related details, Fs < 0.854, ps > .360.

Considering the number of questions asked, the ratio of gathered details was 3.65 details per question for the CIS (130.71 details for an average of 47.63 questions asked), and 0.58 details per question for the SI (101.24 details for an average of 173.52 questions asked).

3.3 | Accuracy of truthful statements

To compare the accuracy of the gathered statements, the effect of interview style on the number of correct, erroneous and confabulated details reported in truthful parts was analysed with an independent samples *t*.test (the deceptive parts were not concerned, as they were entirely inaccurate). Descriptive statistics and analyses of these results are presented in Table 4.

There was a significant main effect of interview style on the number of correct details recalled, with CIS statements containing more correct details than SI statements. Furthermore, there was a main effect of interview style on the number of correctly recalled action, object, and location details, with CIS significantly outperforming SI. There was no difference between CIS and SI for correct person-related details.

Overall, there was no significant difference between CIS and SI on the number of erroneous or confabulated details produced. However, there was a significant main effect of interview style on the number of erroneous and confabulated person-related details produced, with CIS eliciting more errors and confabulations than SI. There were no differences between CIS and SI for the erroneous and confabulated details produced in relation to actions, objects and locations.

The accuracy rates (correctly recalled details as a proportion of total details provided) were, respectively, 93.86% versus 93.96% for CIS and SI, and were not significantly different, $t(44) = 0.08$, $p = .935$.

3.4 | Interviewers' lie detection skills

In total, the CIS-trained interviewers made 10 lie detection errors, whereas the untrained officers made 11 errors. The interviewers' lie detection accuracy rates were calculated by dividing the number of correctly identified truthful/deceitful sequences by the total number of sequences in the statements. These rates were, respectively, 89.58% and 83.82% for CIS and SI, and did not differ significantly, $t(44) = -0.78$, $p = .235$.

Furthermore, the number of errors made by CIS-trained interviewers and SI interviewers did not differ for truth errors and deception errors. It was the same for truth correct judgements, Fs ≤ 0.69, ps ≥ .410. However, analyses revealed a difference in deception correct judgements: CIS-trained interviewers gave more deception correct judgements ($M = 1.83$, $SD = 0.38$, 95% CI [1.67, 1.99]), compared to SI interviewers ($M = 1.47$, $SD = 0.80$, 95% CI [1.06, 1.88]), $t(44) = -1.74$, $p = .049$, $d = 0.62$.

4 | DISCUSSION

The aim of the study was to provide knowledge about the benefits of the CIS used by field professionals, compared to officers using their own interview techniques. The broad hypothesis of this study was that CIS-trained customs officers would gather more detailed statements from the participants compared to the untrained officers using SI, without increasing the number of erroneous and confabulated details. The results of our study support this hypothesis, and are described more precisely in the sections below.

4.1 | Details gathering

As expected, the analyses revealed that the customs officers collected more details when using the CIS than the standard interview. These results provide information about the advantage of the CIS for details gathering compared to a SI conducted by professional interviewers. More precisely, the CIS made it possible to gather 29% more details than the SI. In terms of quantity of details, the increase was high for the following categories: the actions, objects, and locations (respectively 32%, 19% and 29% more with CIS). These results are consistent with observations made concerning the benefit of using CI rather than SI for witnesses/victims in terms of the quantity of gathered details (Colomb et al., 2013; Memon et al., 2010).

However, we did not observe any such increase for person-related details. This result has already been found in studies of CI used for witnesses/victims, and even for lying witnesses. In the study by Bembibre and Higueras (2011), CI revealed fewer person-related details than SI, but as many object and more action details. The authors explained that these results could be due to the general context of criminal investigations, in which it seems more important for interviewees to describe actions (elements that could inculpate or exonerate a suspect), rather than people and their physical appearance (Bembibre & Higueras, 2011; Milne & Bull, 2002). It is also possible that the absence of

improvement for the person details category is due to the event chosen for this study. Indeed, the participant was alone in most of the scenario events: only one of the sequences involved an interaction with an unknown person, and not all the participants had to meet this person. A floor effect could therefore explain this lack of difference.

Despite this issue concerning person-related details, the overall increase for details quantity is all the more noteworthy when we consider that the interview duration was shorter with the CIS than with the SI. These results for interview lengths are due to the number of questions asked by the interviewers across the conditions. Indeed, SI contained more than three times as many questions as CIS. Considering that the CIS made it possible to obtain 29% additional details, the details/questions ratio (i.e. 6.29 times more details with the CIS) highlights a high increase for details gathering with this interview method. These results reflect prior observations from SI which have been analysed in the literature. Indeed, SI contains very few open-ended questions and many closed-ended questions, the answers to which are not very informative. Interviewers therefore spend a lot of time during the interview asking questions in an attempt to obtain more details, sometimes in vain (Snook et al., 2012). These findings are of interest to field investigators in that the majority of professionals cite time constraints as a barrier to the application of lengthy protocols, such as the Cognitive Interview (Dando et al., 2008).

As expected, analyses of the truthful parts of the statements revealed an improvement in the gathering of correct details with the CIS (23% more details), without any increase in the number of errors and confabulations. More precisely, the beneficial effect of CIS was found on action, object, and location details. However, and as in the analysis of the amount of details, this improvement in the number of correct details was not present for person-related details. In addition, the analyses revealed an increase in the number of errors and confabulations affecting the descriptions of persons in CIS compared to SI, even if the volume of incorrect information was globally very low (i.e. less than one item per interview). In the literature, person-related details have already been found to be a category that is affected by many errors. In a study by Sauerland et al. (2014), in which participants were asked to produce a free recall preceded by a report-everything mnemonic, the person-related details category exhibited a lower accuracy rate (71.55%) than the other event-related categories of details (i.e. action, object and location details: 94.39%). Indeed, Meissner et al. (2007) showed that the person-related details category was of particular interest to the interviewers and that the latter tended to ask more leading and repeated questions on this subject, despite their training in interview methods such as the CI. However, these observations do not explain why the number of errors on person-related details is higher in CIS than in SI. Future research should explore this phenomenon more closely and analyse the joint impact of the interviewers' interest in this category of detail, the type of questions arising from this interest and instructions such as those present in the CIS (e.g. *Mental context reinstatement*) on the potential for person-related errors and confabulations.

In suspect interviews, it is also useful to be able to detect deception in a statement. Lie detection studies generally show that truthful statements contain more details than deceptive ones (Bogaard et al., 2019; Masip et al., 2005). As expected, this is the case in the present study, in which the total number of details was higher in the truthful parts (20% more details) than in the deceptive parts of the statements. In particular, the truthful parts contained more action, object, and person-related details. However, the truthful parts did not include more location details than the deceptive ones. This phenomenon may be due to a strategy adopted by the participants in order to produce credible lies. Indeed, although they could not anticipate the objects, actions and people they were going to meet during this experiment, the students knew the university's rooms, corridors, stairs and car park (where the experiment took place). Therefore, the deceptive parts could include as many location details as the truthful parts because the participants could describe the places precisely, even if they had not been there that day.

Furthermore, and with regard to the action details, an interaction effect between veracity and interview style highlighted the fact that a difference between truth and lies was only present for the statements gathered with the CIS (and not for the statements in response to the SI). In view of the recommendation made in the study by Masip et al. (2005), according to whom verbal cues to deception are particularly visible in 'information gathering style' interviews, these results suggest that action details could be considered as a verbal truth/lie discriminant criterion to be integrated into verbal lie detection tools such as the Reality Monitoring list (see Izotovas et al., 2018).

Apart from the number of actions, the results did not indicate any other effect of an Interview Style × Veracity interaction on the details gathered. This means that the observed increase in the quantity of details obtained with the CIS (compared to the SI) also concerned the deceptive statements. This is potentially problematic from the perspective of interviewers, who may be misled by more detailed lies. Indeed, there are many misleading beliefs about lying (Bond & DePaulo, 2006). Although the quantity of information is a criterion of the CBCA list, which allowed for some accuracy in discriminating lying and truthfulness (Vrij, 2005), more recent studies have shown that a strategy sometimes used by liars is to mix lying and truthfulness in their statements, which tends to result in more detailed lying parts (Verigin et al., 2019). Thus, interviewers should be informed that a testimony gathered using the CIS is likely to be more detailed, even when it is untrue.

4.2 | Deception detection

We expected that the CIS-trained interviewers would be better lie-detectors than the untrained ones, given that Geiselman (2012) has already stated that the interview method would facilitate lie detection. The results did not show a significant difference in the number of errors made in lie detection as a function of the type of interview. This could be due to the fact that there were only very few lie detection errors: 10 errors for the CIS trained officers and 11 errors for the untrained ones, corresponding to accuracy rates of 89.58% and 83.82%, respectively. These are among the highest accuracy rates to have been found in deception detection studies and they may be related to the repetition of interviews regarding the same events and to the material evidence provided. Firstly, each pair of customs officers had to interview eight participants, and the officers were therefore able to construct an idea of the four scenarios acted out by the interviewees. This does not reflect the procedure in real cases. Secondly, items of material evidence were given to the interviewers in the study, as in Vrij et al. (2015). For example, two pictures - one of the room and one of the car - were given to the interviewers, thus making it possible for them to know when the interviewees were lying about these two aspects. In further studies, less critical evidence, or no evidence at all, should be given to the interviewers in order to make it possible to analyse their real deception detection abilities.

However, considering the type of detection judgements, results showed a benefit of CIS in identifying deception. More precisely, CIS-trained interviewers made more correct deception judgements than SI interviewers, which could be interpreted as CIS more clearly identifying deceptive statements compared to SI. These results would be in line with those described by Geiselman (2012), who found that interviewers using the CIS were good at identifying deception as the interview progressed. However, if the CIS made it easier to identify deceptive statements, this would not explain the lack of significant differences observed for deception errors and truth errors in our study. Indeed, if the CIS improves the possibility of detecting deceptive parts, it should also make it possible to avoid mistaking deceptive parts for truthful parts, and mistaking truthful parts for deceptive ones. However, this is not the trend found in the present study. In any case, our small sample size does not allow us to draw conclusions from these analyses and to obtain a sufficient Cohen's d (Lakens & Caldwell, 2021). A replication of the study focussing on interviewers' lie detection skills, with a larger sample size, would allow for analysis of the results for this particular issue.

4.3 | Limitations

As described in the previous section, the first limitation of our study was the small sample size. Indeed, as in the study conducted by Vrij et al. (2015) with police officers, practical constraints meant that the sample size was small and thus that the effect sizes in our analyses of the results were also small. A replication of the study with a larger sample size would increase the effect sizes associated with the significant results.

A second major limitation of our study is the absence of a third comparison group, using for example, another interview protocol than the CIS. Indeed, the results presented here suggest a benefit of the CIS protocol on the

number of gathered details. However, we compared a group of interviewers trained in an interview protocol with a group of untrained interviewers. It is then possible that another interview method could have the same beneficial effects as the CIS. To investigate this question, further replications of this study should include a third group, such as interviewers trained in the PEACE protocol (Walsh & Bull, 2010) or in the structured interview (i.e., CIS without the Mental Context Reinstatement, Report-Everything, Drawing and Reverse Order mnemonics).

In addition, the majority (71%) of the participants in this study were women, and all of the participants were first-year psychology students. Since this sample is not representative of the population typically interviewed in customs suspect interviews, this study should be replicated with a more heterogeneous population. However, studies have shown that CI (for witnesses/victims) remain effective when used with populations of different ages or socio-economic status. For example, Stein and Memon (2006) pointed out that CI improved the amount of correct information gathered, without increasing the number of errors, from people with a low level of education. Furthermore, a study by Wright and Holliday (2007) showed similar results in terms of information gathering compared to standard interviews when a CI was used with individuals of various ages (young adults, adults and elderly persons). Even so, it would be necessary to confirm these results with suspects, since the studies previously cited involved witnesses and victims.

Finally, as discussed below, the interviews in this study were adapted to the customs environment, since the participating investigators belonged to a customs service with specific missions (i.e. mostly drugs and money-related crimes). Thus, the training provided and the study conducted should be repeated with other law enforcement agents, such as police officers. Indeed, the dynamics of other crimes, such as murder or violent crime, may lead to differences in information gathering and the obtaining of confessions. For example, suspects of non-violent crime are more likely to confess their crimes and provide information about them, whereas drug trafficking suspects tend to give few details and are less likely to confess (Deslauriers-Varin, Lussier, & St-Yves, 2011). In addition, customs officers have generally been the object of little interest on the part of researchers and have received little training in the area of suspect interviews (Granhag et al., 2014). Thus, customs officers' SI include behaviours that can be detrimental to information gathering, such as asking a large number of questions, interrupting the interviewees, portraying oneself as an authoritative figure, maximising, and so on (Noc & Ginet, 2020). Further studies should be conducted to compare the benefit of CIS in standard police interviews, for example,

CONFLICT OF INTEREST

All authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

DATA AVAILABILITY STATEMENT

Data used for statistical analyses are not available for free access as they are subject to a legal agreement between the customs administration and the university. In case of a request, a written agreement must be obtained from the judicial institution. Thus, the data that support the findings of this study could be available from the corresponding author upon reasonable request.

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APPENDIX A

Contextual Backgrounds Given to the Interviewers.

Two criminal events were committed inside the University: a transcript has been stolen from a professor's office, and this document has been sold in exchange for cash. You are going to interview four suspected students. Each of the students may have committed one of these crimes, or both of them, or no crime at all.

Your objective is to find out the truth about what happened. To do this, you will conduct four 45-min interviews with these students. After the interviews, you will have to judge if each student is guilty or not of the crimes described. You will also have to judge which parts of her/his statement were truthful, and which parts were deceptive.

Two pictures are available to help you prepare your interviews: