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Observing offenders: Incident reports by surveillance detectives, uniformed police, and civilians

Annelies Vredeveldt[1]*, Joris W. Knol[2] and Peter J. van Koppen[1]

[1]Department of Criminal Law and Criminology, VU University Amsterdam, The Netherlands

[2]Dutch National Police, Haarlem, The Netherlands

Purpose. Police officers often write reports about witnessed incidents, which may serve as evidence in court. We examined whether incident reports and identifications by police officers, and in particular specialized detectives on surveillance teams, are more complete or more accurate than reports and identifications by civilian observers.

Methods. Our sample included 46 civilians, 52 uniformed police officers, and 42 surveillance detectives. Participants viewed a 15-min video of a drug transaction and were allowed to take notes while watching. Before viewing the video, all participants received a priority list of information considered most relevant to the police investigation, which had been constructed by an expert panel. Subsequently, participants completed a questionnaire addressing different types of crime-relevant information in the incident. They also viewed target-present and target-absent lineups: Two for persons central to the drug transaction and one for a background detail.

Results. Reports of uniformed police officers and detectives on surveillance teams were significantly more complete than reports of civilians, particularly for the top-three priorities of crime-relevant information. Moreover, reports by detectives were significantly more accurate than reports by uniformed police officers and civilians. Detectives were also significantly more likely to identify the persons from the lineup, whereas civilians were significantly more likely to identify the background detail.

Conclusions. Our findings demonstrate that police officers, and in particular specialized detectives on surveillance teams, are more observant of the crime-relevant aspects of an incident than civilian observers. Theoretical and practical implications are discussed.

In the Dutch legal system, and many others around the world, a sworn statement by a police officer constitutes sufficient evidence to convict a suspect. A sworn statement from a single eyewitness, however, does not suffice, in line with the *unus testis nullus testis* rule ('one witness is no witness'). Some people think that this discrepancy between police and civilian witnesses implies that police officers are better at observing or remembering incidents than civilians are. In fact, even the Dutch Supreme Court has expressed this belief in a recent judgment (see Hoge Raad der Nederlanden, 2010). In the present study, we investigated whether there is empirical support for this belief. We compared incident

*Correspondence should be addressed to Annelies Vredeveldt, Faculty of Law, VU University Amsterdam, De Boelelaan 1105, 1081 HV Amsterdam, The Netherlands (email: anneliesvredeveldt@gmail.com).

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reports provided by civilians, uniformed police officers, and detectives on surveillance teams (who are trained in observing incidents).

Various researchers have studied whether incident reports provided by police officers are more detailed or more accurate than those provided by civilians.[1] In this respect, it is important to distinguish between observation skills and memory performance. A few previous studies concerned solely observation skills: Participants watched a video and as soon as they detected particular actions (e.g., a bicycle theft), they had to write down their observations (Ainsworth, 1981; Tickner & Poulton, 1975). This is comparable to a real-life situation in which a police officer is observing an incident and taking notes, for example when monitoring security camera footage. In contrast, most previous research concerned memory performance; that is, participants provided an incident report based solely on their memory for the event (e.g., Christianson *et al.*, 1998; Clifford & Richards, 1977; Stanny & Johnson, 2000; Verinis & Walker, 1970). This is comparable to a real-life situation in which a police officer is unable to take notes, for example during an undercover operation or a high-threat intervention. Below, we review the evidence on differences between police officers and civilians in terms of their observation skills and memory performance, respectively.

Findings on observation skills show that police officers pay attention to different aspects of incidents than civilians do. For example, Tickner and Poulton (1975) studied police officers' and civilians' abilities to detect target persons and actions during a 4-hr film of a street scene. Police officers and civilians showed equivalent performance in the detection of persons and non-criminal actions, but police officers were significantly more likely to report a theft when in fact no theft had taken place (i.e., a false alarm). In a similar study, Ainsworth (1981) found that experienced police officers, inexperienced police officers, and civilians did not differ significantly in the total number of actions they detected, but there was a significant interaction between participant group and type of action: Inexperienced police officers detected proportionately more traffic offences and fewer criminal/suspicious actions than the other two groups. Finally, Smart *et al.* (2014) showed participants a video of a traffic stop in which the driver walks out of the frame and is replaced by a different person wearing a different shirt (i.e., a change-blindness experiment; cf. Rensink, O'Regan, & Clark, 1997; Simons & Levin, 1997). They found that police officers and civilians were equally likely to detect the change in person identity, but civilians were significantly more likely than police officers to detect the change in clothing. The latter finding may be due to the fact that 68% of the civilian group consisted of females, whereas the police group was predominantly male (97%) – women tend to pay more attention to clothing than men (Kwon, 1997; Loftus, 1996; Powers, Andriks, & Loftus, 1979).

Studies of police officers' and civilians' memory for observed incidents have yielded somewhat mixed findings. Some researchers found no overall difference between police and civilians in memory reporting about witnessed incidents (Smart *et al.*, 2014; Stanny & Johnson, 2000; Verinis & Walker, 1970), whereas other researchers found that police officers remembered significantly more correct information than civilians (Christianson

[1]*Of course, the term 'civilians' is rather vague. In fact, most previous studies included only undergraduate students in their civilian samples (Ainsworth, 1981; Lindholm, Christianson, & Karlsson, 1997; Smart, Berry, & Rodriguez, 2014; Stanny & Johnson, 2000; Thomassin & Alain, 1990; Tickner & Poulton, 1975). A few studies included teachers (Christianson, Karlsson, & Persson, 1998; Verinis & Walker, 1970) or a combination of students and individuals with other occupations (Kalteis, 2013). One previous study involved 16 civilians who were stationary on the street (e.g., 'road sweepers, doormen, people at bus stops, news sellers'; Clifford & Richards, 1977, p. 505).*

et al., 1998; Clifford & Richards, 1977; Thomassin & Alain, 1990; Yuille, 1984). An explanation for these mixed findings may be that police officers remember some types of details better than civilians, but not other types of details. Specifically, police officers have been found to report more crime-relevant information, such as descriptions of perpetrators, weapons, or vehicles, but not more peripheral information, such as descriptions of non-perpetrators and contextual information (Kalteis, 2013; Lindholm *et al.*, 1997; Smart *et al.*, 2014). In sum, police officers outperform civilians in reporting crime-relevant information, but not in reporting other types of information.

Most research to date has focused either on observation skills or on memory performance. However, incident reports are often based on a combination of the police officer's memory and his notes about the incident. For example, uniformed police officers may write down a licence plate number at the scene or make a note of a suspect's description. Similarly, detectives may take notes during crime scene investigations and during real-time observations from afar. Surprisingly few researchers have examined incident reports that are based on a combination of memory and external memory aids, such as notes. To our knowledge, only one, unpublished, study has involved this type of incident reports. Marshall and Hanssen (1974, as cited in Ainsworth, 1981) found that 'police officers noted and remembered more details from a short film than civilians who viewed the same incidents. However, police officers also recalled many more incorrect facts' (Ainsworth, 1981, p. 232).

The present study extends previous research by examining the quantity and quality of incident reports based on a combination of memory and notes. Before viewing a videotaped drug transaction, participants received a priority list, constructed by an expert panel, of the most important details for criminal investigations of drug offences (e.g., vehicles, phones, persons). After watching the video, participants were questioned about various crime-relevant aspects of the incident. This way, we attempted to simulate as closely as possible a typical observation task faced by the police.

In addition to describing what happened during a witnessed incident, another important task faced by both civilian and police witnesses is person identification. On various surveys conducted in the 1980s, the majority of lay people and legal professionals endorsed the belief that identification evidence provided by police officers is more reliable than that provided by civilians (e.g., Loftus, 1984; Yarmey, 1986; Yarmey & Jones, 1983). To date, this belief is not supported by the empirical evidence. Most studies reveal no differences between police officers and civilians in overall identification accuracy (Christianson *et al.*, 1998; Lindholm *et al.*, 1997; Smart *et al.*, 2014). The only difference between groups is that police officers are more likely than civilians to incorrectly identify someone from a lineup in which the target is absent (i.e., a false alarm; Kalteis, 2013; Smart *et al.*, 2014; Thomassin & Alain, 1990; see also Yuille, 1984). Although police officers may be more likely to make false-positive errors on target-absent lineups, all these studies consistently show that police officers are no better or worse than civilians at identifying a perpetrator from a lineup in which the target is present. This is perhaps not surprising in light of evidence that training does not improve face recognition performance (e.g., Woodhead, Baddeley, & Simmonds, 1979). In the present study, participants were asked to identify two perpetrators and one background detail from target-present and target-absent lineups.

In the Netherlands, specialized surveillance teams are trained to conduct observations during criminal investigations. There are approximately 700 surveillance detectives in the Netherlands, who have all undergone the same training. This training consists of a 3-week course on specialized driving skills (e.g., observing while driving, following without being

noticed) and a 13-week course on other aspects of conducting observations, such as behaving inconspicuously, using (hidden) video- and audio-recording equipment, and writing down observations in an accurate, precise, and complete manner. To assess whether surveillance detectives' training and experience is associated with better incident reports, we compared surveillance detectives to uniformed police officers and civilians.

One previous, unpublished, study on event recall and lineup identifications (Kalteis, 2013) also included a group of detectives, although those detectives were not specialized in conducting observations. Kalteis found that detectives reported more correct crime-relevant information than civilians, with uniformed police officers performing in-between the other two groups. We predicted that our data would reveal a similar pattern, with surveillance detectives providing the most complete and accurate reports, followed by uniformed police officers and then civilians. Additionally, Kalteis found that uniformed police officers were less accurate on a person identification task (28%) compared with detectives (47%) and civilians (45%), because they made more incorrect identifications on target-absent lineups (see also Smart *et al.*, 2014; Thomassin & Alain, 1990). In line with these findings, we predicted that uniformed police officers in our study would make more incorrect identifications on target-absent lineups than the other two groups.

Method

Participants

Our sample included 46 civilians with no police experience (17 students and 29 government employees), 52 uniformed police officers from a police unit in the Netherlands with a minimum of 3 years' experience as a police officer, and 42 detectives from various surveillance teams around the Netherlands with a minimum of 3 years' experience as a surveillance detective. The sample of civilians was predominantly female (78%), whereas the samples of uniformed police and detectives was predominantly male (75% and 72%, respectively), $\chi^2(2) = 33.65$, $p < .001$, Cramer's $V = .49$. There was also a significant age difference between groups, $F(2, 137) = 9.24$, $p < .001$, $\eta^2 = .12$: Uniformed police officers were youngest on average ($M = 32$ years, $SD = 7$), followed by civilians ($M = 37$ years, $SD = 13$) and detectives ($M = 41$ years, $SD = 8$). On average, detectives had 20 years' police experience ($SD = 9$), with 9 years' experience as surveillance detective ($SD = 7$). Uniformed officers had 9 years' police experience on average ($SD = 6$). Thus, our sample mirrored the real-life situation in which detectives on surveillance teams typically have more professional experience than uniformed police officers do.

Materials

Participants watched a 15-min video created specifically for this research. It showed a drug transaction between three sellers and three buyers. Part of the transaction took place outside in the parking lot of a hotel, and another part inside in the hotel lobby. The actors arrived and left in various cars, had in-person and phone conversations, and transferred bags and papers. The audio in the video contained solely background noise – viewers could not hear what the actors said. In the top right corner of the screen, a running time display (hours, minutes, seconds, centiseconds) indicated at what times the various events took place. Figure S1 shows a video still of the transaction in the hotel lobby.

Prior to constructing the questionnaire about the video, we consulted a panel of forensic experts, consisting of four prosecutors in the Netherlands and three project leaders from the Department of Serious Crime at a police unit in the Netherlands. All panel members had extensive experience with drug cases in which observations by surveillance detectives typically play a role. We showed our video to each panel member individually and asked: 'What information in this video would you consider to be most important from the perspective of a criminal investigation?' (for similar approaches, see Roberts & Higham, 2002; Vredeveldt, Tredoux, Nortje, *et al.*, 2015). Each panel member provided as many responses as they wished and ordered their responses in terms of priority. After all panel members had been surveyed, the researchers tallied all the priorities mentioned by the panel members and constructed a final priority list (i.e., responses that were mentioned most frequently as a high priority were put at the top of the list). This resulted in the following list of priorities, from most important to least important: (1) licence plates and descriptions of vehicles, (2) person identifications, (3) time stamps, (4) use of mobile phones, (5) person descriptions, (6) individuals' actions, (7) descriptions of objects, and (8) relationships between individuals.

Based on the priority list, we constructed a questionnaire about the videotaped incident. At the start of the questionnaire, we included a brief introduction to identify the main suspect in the incident ('The film starts in the parking lot. After a while, John van Houten arrives in a vehicle, parks the vehicle, and goes into the hotel'.).[2] The questionnaire contained 38 questions about the incident addressing the priorities identified above. Seventeen of these questions required only a single-word response (e.g., 'What time did they leave the hotel?' or 'Who carried the suitcase?') and 21 questions required a more elaborate response (e.g., 'Describe the brand, type, colour, and license plate of the car that John van Houten was driving'. or 'Describe the driver's appearance, in terms of age, ethnicity, height, clothes, and accessories'.). Person descriptions were asked only for actors who did not appear in the lineups.

To address the second priority on the list (person identifications), the questionnaire included two person identification lineup tasks – one for a drug buyer and one for a drug seller. It also included a lineup for a background detail in the video (i.e., a painting in the hotel lobby; see Figure S2). All lineups contained six photographs and two additional response options: 'The target is not present' and 'I don't know'. Participants were instructed not to guess and to only select a photo if they actually recognized the target. There were two versions of each lineup: One in which the target was present and one in which the target was absent. The eight versions of the questionnaire, with different combinations of target-present and target-absent lineups, were randomly distributed among participants.

Procedure

The data were collected during various sessions in meeting rooms and classrooms around the Netherlands. Participants were seated at a table and the video was projected on a screen. Before watching the video, all participants were informed about the priority list constructed by the expert panel and asked to pay particular attention to the items on the list. Participants received a pen and paper and were allowed to take notes during the

[2] *All instructions and questions were in Dutch. The examples presented in the article are translations by the authors.*

video. Participants viewed the video once, after which they completed the questionnaire. Participants were not allowed to talk to each other at any point during the session.

Data coding

To evaluate incident reports, we examined the amount and accuracy of provided information. To assess the amount, we counted the number of details that participants wrote down in response to the questions in each category. To assess accuracy, we calculated the proportion of provided details that was correct. To evaluate performance on the lineup tasks, we examined overall accuracy on the lineup task (achieved by correctly identifying the target on a target-present lineup or by responding 'the target is not present' on a target-absent lineup). In addition, we conducted a more detailed analysis of all potential responses on target-present and target-absent lineups, respectively.

Results

Amount

A 3 (Group: civilians, police, detectives) × 7 (Type: vehicle, time, phone, person, action, object, relationship) mixed analysis of variance (ANOVA) on the number of reported details revealed significant main effects of Group, $F(2, 137) = 18.39$, $p < .001$, $\eta^2 = .21$, and Type, $F(4.38, 600.60) = 452.74$, $p < .001$, $\eta^2 = .76$, and a significant interaction between Group and Type, $F(8.78, 600.60) = 3.73$, $p < .001$, $\eta^2 = .01$. The significant effect of Type simply reflected that there was more information to provide about certain things in the video (e.g., persons) than about other things (e.g., phones). The effect of Group and the interaction between Group and Type are of greater theoretical and practical interest, however, and are explored below.

The significant difference between groups was further examined with three simple ANOVAs (Bonferroni-corrected $\alpha = .017$). There was no significant difference in the amount of reported information between uniformed police officers ($M = 64.12$, $SD = 9.43$) and detectives ($M = 67.21$, $SD = 9.01$), $F(1, 92) = 2.61$, $p = .110$, $d = 0.34$, 95% CI [−0.08, 0.74]. However, civilians ($M = 54.70$, $SD = 11.92$) reported significantly less information than uniformed police, $F(1, 96) = 19.02$, $p < .001$, $d = 0.88$, 95% CI [0.47, 1.30], and detectives, $F(1, 86) = 30.42$, $p < .001$, $d = 1.18$, 95% CI [0.72, 1.63]. Thus, both groups of police professionals reported more information overall than untrained civilians.

Figure 1 illustrates the interaction between Group and Type of information. We followed up the interaction with Games–Howell *post-hoc* tests. Compared with civilians, detectives reported significantly more about vehicles ($p < .001$), times ($p < .001$), phones ($p = .005$), objects ($p = .002$), and relationships ($p = .002$), but an equivalent amount about persons ($p = .244$) and actions ($p = .999$). Compared with civilians, uniformed police officers reported significantly more about vehicles ($p < .001$), times ($p = .002$), phones ($p = .009$), persons ($p = .008$), and relationships ($p = .017$), but an equivalent amount about actions ($p = .096$) and objects ($p = .999$). Additionally, detectives reported significantly more about vehicles ($p = .028$) and objects ($p < .001$), than uniformed police officers. There were no other significant differences between the two professional groups (all ps > .499). In sum, both professional groups reported considerably more information than civilians about the top-three priorities for incident

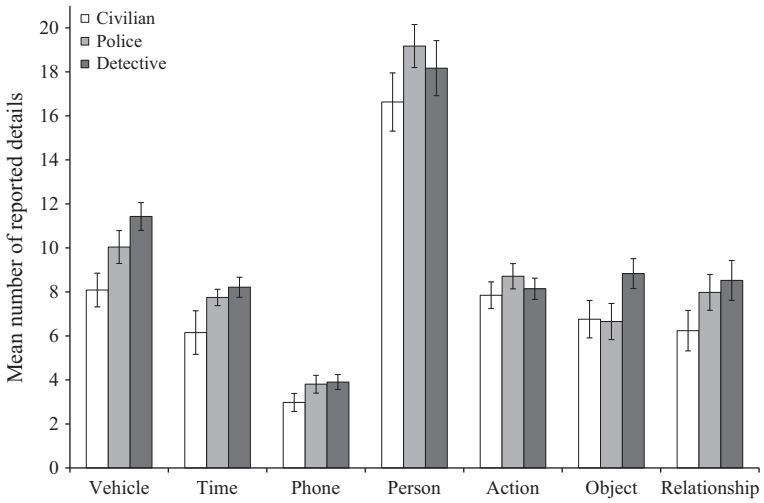

Figure 1. Mean number of details in different information categories reported by civilians, uniformed police officers, and surveillance detectives. Error bars represent 95% confidence intervals.

reports about the drug transaction (i.e., excluding identification tasks): Vehicles, times, and phones.

Accuracy

We also analysed the accuracy of reported information (i.e., proportion correct). Prior to analysis, we applied a square-root transformation to the data to reduce negative skew and leptokurtosis. A 3 (Group: Civilians, police, detectives) × 7 (Type: Vehicle, time, phone, person, action, object, relationship) mixed ANOVA on the accuracy of reported details revealed significant main effects of Group, $F(2, 125) = 11.34$, $p < .001$, $\eta^2 = .15$, and Type, $F(5.06, 632.84) = 119.32$, $p < .001$, $\eta^2 = .48$, but no significant interaction between Group and Type, $F(10.13, 632.84) = 1.19$, $p = .292$, $\eta^2 = .01$.

Three simple ANOVAs (Bonferroni-corrected $\alpha = .017$) revealed no significant difference in accuracy between civilians ($M = 0.77$, $SD = 0.09$) and uniformed police officers ($M = 0.79$, $SD = 0.06$), $F(1, 96) = 2.49$, $p = .118$, $d = 0.32$, 95% CI [−0.08, 0.72]. However, detectives ($M = 0.84$, $SD = 0.08$) were significantly more accurate than civilians, $F(1, 86) = 14.39$, $p < .001$, $d = 0.81$, 95% CI [0.37, 1.24], and uniformed police, $F(1, 92) = 9.03$, $p = .003$, $d = 0.62$, 95% CI [0.21, 1.04]. Thus, surveillance detectives provided more accurate reports than both untrained civilians and uniformed police officers.

Figure 2 shows the accuracy of different types of information reported by each group. Because there was no significant interaction between Group and Type, we did not conduct *post-hoc* tests for accuracy.

Person lineups

We aggregated the data from the two person lineups – one for a buyer and one for a seller – to increase statistical power. We first assessed overall accuracy on the person lineups, which is achieved either by making a correct identification on a target-present lineup, or

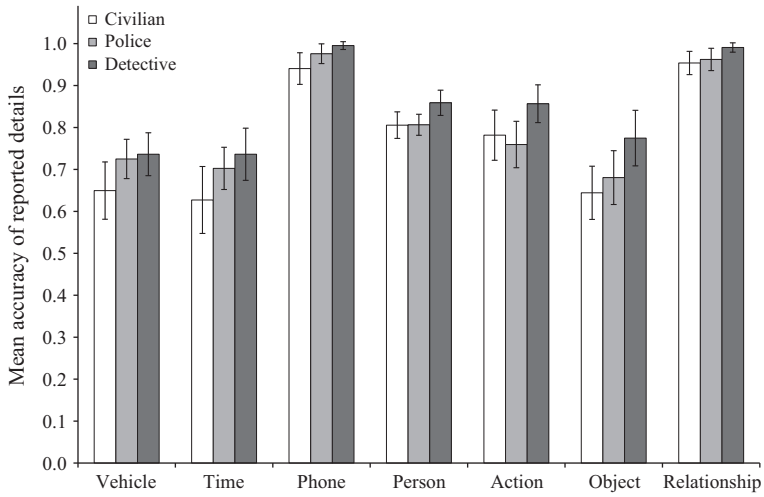

Figure 2. Mean accuracy of details in different information categories reported by civilians, uniformed police officers, and surveillance detectives. Error bars represent 95% confidence intervals.

by correctly rejecting a target-absent lineup. A chi-square test revealed no significant effect of Group on person lineup accuracy, $\chi^2(2) = 0.32$, $p = .866$, Cramer's $V = .03$. In all groups, participants achieved approximately 30% accuracy (civilians: 30%; uniformed police officers: 28%; detectives: 31%).

To assess performance on the person lineup tasks further, we examined all potential responses on the target-absent and target-present lineups separately (see Table 1). Separate analyses for the responses on each type of lineup revealed that Group did not significantly affect responses on target-absent lineups, $\chi^2(4) = 5.60$, $p = .235$, Cramer's $V = .14$. Thus, our hypothesis that uniformed police officers would make more incorrect identifications from target-absent lineups than the other two groups was not supported. However, Group did have a significant effect on responses on target-present lineups, $\chi^2(6) = 13.54$, $p = .034$, Cramer's $V = .23$. Table 1 shows that, for target-present lineups, the most popular response for detectives was to identify the target, whereas the most popular response for civilians was to say 'don't know'. For uniformed police officers, there was a relatively even spread of different types of responses on the target-present lineups.

Painting lineup

When asked to identify the painting in the hotel lobby from a lineup (see Figure S2), civilians were significantly more accurate (76%) than uniformed police officers (46%) and detectives (48%), $\chi^2(2) = 10.79$, $p = .005$, Cramer's $V = .28$. Separate analyses for responses on target-present and target-absent lineups revealed that Group had a significant effect on responses for target-present lineups, $\chi^2(6) = 20.10$, $p = .002$, Cramer's $V = .37$, but not target-absent lineups, $\chi^2(4) = 6.32$, $p = .182$, Cramer's $V = .22$. Table 1 shows that most civilians identified the painting correctly, whereas only half of the police professionals identified the painting. Among police professionals who did not make a correct identification, detectives were more likely to say 'don't know', whereas uniformed police officers were more likely to make an incorrect decision (i.e., a foil identification or saying that the painting was not in the lineup).

Table 1. Number of correct identifications (of the target), foil identifications (of another lineup member), "not there" responses and "don't know" responses for target-present and target-absent lineups. Data for the person lineups are aggregated from two lineups – one for a buyer and one for a seller

	Group					
	Civilian		Uniformed police		Detective	
	N	%	*N*	%	*N*	%
Person lineups						
Target-present						
Correct identification	8	20	11	24	18	43
Foil identification	5	13	11	24	5	12
Not there	7	18	12	26	10	24
Don't know	20	50	12	26	9	21
Target-absent						
Foil identification	13	26	21	38	14	33
Not there	19	39	17	30	8	19
Don't know	17	35	18	32	20	48
Painting lineups						
Target-present						
Correct identification	18	85	16	55	11	50
Foil identification	0	0	4	14	1	5
Not there	2	10	4	14	0	0
Don't know	1	5	5	17	10	45
Target-absent						
Foil identification	3	12	4	17	2	10
Not there	17	68	8	35	9	45
Don't know	5	20	11	48	9	45

Gender differences

We found no significant gender differences in the overall amount of information reported (male: $M = 63.23$, $SD = 10.58$; female: $M = 60.30$, $SD = 12.29$), $t(138) = 1.52$, $p = .132$, $d = 0.26$, 95% CI [−0.08, 0.59], nor in the accuracy of reported information (male: $M = 0.80$, $SD = 0.07$; female: $M = 0.79$, $SD = 0.09$), $t(138) = 0.89$, $p = .374$, $d = 0.15$, 95% CI [−0.18, 0.49]. Similarly, analyses of covariance including gender as a covariate revealed no significant effects of gender and confirmed all findings from the main ANOVAs. The only significant effect involving gender was an interaction between gender and type of detail for the amount of information reported, $F(4.59, 624.55) = 9.02$, $p < .001$, $\eta^2 = .05$. Games–Howell *post-hoc* tests showed that men remembered significantly more about vehicles ($p < .001$) and phones ($p = .028$) than women, with no other significant gender differences (all $ps > .069$).

Chi-square tests revealed no significant gender difference for accuracy on the person lineups (men: 29% accurate; women: 31% accurate), $\chi^2(1) = 0.17$, $p = .690$, Cramer's $V = .02$, but females were significantly more accurate (69%) than males (47%) on the painting lineup task, $\chi^2(1) = 6.79$, $p = .010$, Cramer's $V = .22$. This overall effect was driven by responses on the target-absent lineups, $\chi^2(4) = 13.31$, $p < .001$, Cramer's $V = .44$: Females (71%) were more likely than males (27%) to correctly state that the target painting was not in the lineup.

Discussion

The present study compared observation performance for civilians, uniformed police officers, and specialized surveillance detectives. Detectives and uniformed police officers reported significantly more information about a videotaped drug transaction than civilians. Moreover, detectives were significantly more accurate than the other two groups. Thus, our hypothesis that detectives would provide the most complete and accurate reports, followed by uniformed police officers and then civilians, was supported. Differences between police professionals and civilians were most pronounced for the top priorities in crime-relevant information (as identified by a panel of forensic experts). Detectives were more likely than the other two groups to correctly identify the persons involved in the drug transaction from a target-present lineup, whereas civilians were more likely to correctly identify a painting in the background.

There are at least three potential explanations for differences in observation performance between police officers and civilians: Information, training, and experience. These explanations are not mutually exclusive. In previous research designs, information was confounded with training and experience (i.e., police participants always had more information, more training, and more experience than civilian participants). In the present study, we eliminated the confounding effect of information by providing all participants with instructions regarding what aspects of the incident to focus on (i.e., a priority list of crime-relevant aspects). Nevertheless, we found that detectives and uniformed police officers reported significantly more information than civilians, particularly about the top priorities from an investigative perspective: Vehicles, times, and phones (see Kalteis, 2013; Lindholm *et al.*, 1997; Smart *et al.*, 2014; for similar findings). This suggests that 'experienced police officers, because of their professional knowledge and experience of violent crime situations, are more able to isolate and analyse information from crime-relevant incidences than the general public' (Yarmey, 1998, p. 239). It is difficult to separate the relative influences of training and experience, because officers trained to be detectives on surveillance teams are typically also more experienced than uniformed officers. Nevertheless, it would be advisable for future studies to disentangle these influences by comparing groups of police officers that have received the same amount of training but differ in terms of experience, or vice versa (cf. Bull & Reid, 1975; Yuille, 1984).

In line with previous research, there was no difference in person identification accuracy between civilians and uniformed police officers (Christianson *et al.*, 1998; Lindholm *et al.*, 1997; Smart *et al.*, 2014). However, detectives on surveillance teams were significantly more likely to recognize persons in target-present lineups. Their superior performance was not due to specific training on how to recognize faces, as the surveillance training course does not include face recognition training. Moreover, even if detectives had received such training, the available evidence shows that training or instructions generally do not improve the ability to recognize faces (e.g., Malpass, 1981; Smith & Vela, 1992; Vredeveldt, Tredoux, Kempen, & Nortje, 2015; Woodhead *et al.*, 1979). Nevertheless, detectives' superior performance on the person lineups may have been due to a more general form of training and experience: That is, knowing what (or in this case, whom) to focus on and maintaining that focus while observing. The data for the painting lineup support this idea: Detectives were so focused on the target persons that many of them did not pay attention to the painting in the hotel lobby, even though it was rather hard to miss (see Figure S2). In contrast, the vast majority of civilians was able to identify the painting. Clearly, despite the explicit instruction to focus on crime-relevant

details, civilians were still taking in background information. This suggests that the ability to tune out irrelevant information (i.e., top-down modulation; cf. Gazzaley & Nobre, 2012) may be improved with training or expertise, or both.

We found no support for our hypothesis that uniformed police officers would make more false alarms on the target-absent lineups compared with the other two groups (cf. Kalteis, 2013). Nevertheless, on every single lineup (target-absent and target-present; person and painting), uniformed police officers made numerically (but not significantly) more false identifications than detectives and civilians. Thus, to some extent, our findings confirm the trend observed in previous studies that uniformed police officers are relatively likely to make a false alarm (Kalteis, 2013; Smart *et al.*, 2014; Thomassin & Alain, 1990; Tickner & Poulton, 1975; see also Yuille, 1984). It is conceivable that this trend was not significant in the present study due to low statistical power (i.e., there were few incorrect identifications overall).

One limitation of the present study was that our three participant groups differed on more than just their occupation. The gender imbalance in the Dutch police force (Jettinghoff, Van den Berg, & Grootscholte, 2013) was reflected in our sample: Three-quarters of both police groups was male. In contrast, three-quarters of our civilian sample was female. There is some evidence that gender differences may affect observation or memory. Female eyewitnesses are generally more accurate than their male counterparts, particularly when asked to describe others' appearance (e.g., Areh, 2011; Horgan, Mast, Hall, & Carter, 2004; Powers *et al.*, 1979; Rehnman & Herlitz, 2007; but see Yarmey, Jacob, & Porter, 2002). In contrast, in the present study, detectives were more complete and accurate than civilians, despite the fact that most detectives were male, whereas most civilians were female. This suggests that the current findings are not the result of gender differences, but rather occurred *in spite of* general gender differences. Covariate analyses confirmed that the differences between occupational groups could not be explained by participant gender. We found only two gender differences: Men remembered more about vehicles and phones than women, and women were more likely to correctly indicate that the painting was not in the target-absent lineup. Perhaps, a far-fetched explanation for the latter finding could be that the painting depicted a woman wearing a dress and heels (see Figure S1) – women have been found to more accurately remember female-oriented details than men (Christiaansen, Ochalek, & Sweeney, 1984; Lindholm & Christianson, 1998; Powers *et al.*, 1979).

The present study was designed to assess the type of observation task typically encountered by the police; that is, observers know what to look for (thanks to their training and experience) and usually have the opportunity to take notes (e.g., write down a licence plate number). Because the study was not designed to assess eyewitness memory performance, it does not necessarily provide a realistic depiction of civilians' ability to report about a crime. In real life, witnesses are not informed about the priorities for a criminal investigation before witnessing a crime, they typically do not have the opportunity to take notes during the crime, and they do not usually complete a written questionnaire about the witnessed crime (except when completing a Self-Administered Interview; cf. Gabbert, Hope, & Fisher, 2009). Hence, civilians' performance on the observation task in our study may be used for comparisons with police professionals, but should not be interpreted as an accurate representation of eyewitness performance in general.

Detectives on surveillance teams are trained to report crime-relevant information as completely and accurately as possible. The present findings show that surveillance detectives are indeed observation experts: Their reports were more complete than

civilians' reports, more accurate than both civilians' and uniformed police officers' reports, and they were more likely to recognize target persons from a lineup than both other groups. Of course, our findings do not mean that detectives' reports are always reliable, but they do indicate that detectives on surveillance teams are more observant of the crime-relevant aspects of an incident than the average civilian observer.

In sum, we found some support for the popular belief that police professionals are better at reporting about events than civilians are. Does this mean that the distinction between sworn police statements and civilian witness testimony in the Dutch legal system is justified? It is not our place to answer that question – that decision remains under the purview of legislators. Nevertheless, we do believe that legislators' decisions should be informed by scientific findings. Our study provides some much needed empirical data on differences in incident reports by surveillance detectives, uniformed police officers, and civilians.

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References

Ainsworth, P. B. (1981). Incident perception by British police officers. *Law and Human Behavior*, *5*, 231–236. doi:10.1007/BF01044766

Areh, I. (2011). Gender-related differences in eyewitness testimony. *Personality and Individual Differences*, *50*, 559–563. doi:10.1016/j.paid.2010.11.027

Bull, R. H. C., & Reid, R. L. (1975). Recall after briefing: Television versus face-to-face presentation. *Journal of Occupational Psychology*, *48*, 73–78. doi:10.1111/j.2044-8325.1975.tb00301.x

Christiaansen, R. E., Ochalek, K., & Sweeney, J. D. (1984). Individual differences in eyewitness memory and confidence judgments. *The Journal of General Psychology*, *110*, 47–52. doi:10.1080/00221309.1984.9709946

Christianson, S.-A., Karlsson, I., & Persson, L. G. W. (1998). Police personnel as eyewitnesses to a violent crime. *Legal and Criminological Psychology*, *3*, 59–72. doi:10.1111/j.2044-8333.1998.tb00351.x

Clifford, B. R., & Richards, V. J. (1977). Comparison of recall by policemen and civilians under conditions of long and short duration of exposure. *Perceptual and Motor Skills*, *45*, 503–512. doi:10.2466/pms.1977.45.2.503

Gabbert, F., Hope, L., & Fisher, R. (2009). Protecting eyewitness evidence: Examining the efficacy of a self-administered interview tool. *Law and Human Behavior*, *33*, 298–307. doi:10.1007/s10979-008-9146-8

Gazzaley, A., & Nobre, A. C. (2012). Top-down modulation: Bridging selective attention and working memory. *Trends in Cognitive Sciences*, *16*, 129–135. doi:10.1016/j.tics.2011.11.014

Hoge Raad der Nederlanden (2010). *Identification by police officers, 9th February 2010*. (ECLI:NL:PHR:2010:BK6146). Retrieved from http://deeplink.rechtspraak.nl/uitspraak?id=ECLI:NL:PHR:2010:BK6146

Horgan, T. G., Mast, M. S., Hall, J. A., & Carter, J. D. (2004). Gender differences in memory for the appearance of others. *Personality and Social Psychology Bulletin*, *30*, 185–196. doi:10.1177/0146167203259928

Jettinghoff, K., Van den Berg, D., & Grootscholte, M. (2013). *Arbeidsmarktanalyse politie 2013*. Den Haag, the Netherlands: CAOP Research & Europa.

Kalteis, M. (2013). *Sind Polizeibeamte besser? Eine empirische Untersuchung zu Identifizierungsleistungen von Polizeibeamten und Studierenden*. (Magistra der Naturwissenschaften). Wien, Austria: Universität Wien. Retrieved from http://othes.univie.ac.at/31151/

Kwon, Y.-H. (1997). Sex, sex-role, facial attractiveness, social self-esteem and interest in clothing. *Perceptual and Motor Skills*, *84*, 899–907. doi:10.2466/pms.1997.84.3.899

Lindholm, T., & Christianson, S. (1998). Gender effects in eyewitness accounts of a violent crime. *Psychology, Crime, and Law*, *4*, 323–339. doi:10.1080/10683169808401763

Lindholm, T., Christianson, S.-A., & Karlsson, I. (1997). Police officers and civilians as witnesses: Intergroup biases and memory performance. *Applied Cognitive Psychology*, *11*, 431–444. doi:10.1002/(SICI)1099-0720(199710)11:5 < 431:AID-ACP470 > 3.0.CO;2-9

Loftus, E. F. (1984). Eyewitnesses: Essential but unreliable. *Psychology Today*, *18*, 22–26.

Loftus, E. F. (1996). *Eyewitness testimony*. Cambridge, MA: Harvard University Press.

Malpass, R. S. (1981). Training in face recognition. In G. Davies, H. Ellis & J. Shepherd (Eds.), *Perceiving and remembering faces* (pp. 271–285). London, UK: Academic Press.

Powers, P. A., Andriks, J. L., & Loftus, E. F. (1979). Eyewitness accounts of females and males. *Journal of Applied Psychology*, *64*, 339–347. doi:10.1037/0021-9010.64.3.339

Rehnman, J., & Herlitz, A. (2007). Women remember more faces than men do. *Acta Psychologica*, *124*, 344–355. doi:10.1016/j.actpsy.2006.04.004

Rensink, R. A., O'Regan, J. K., & Clark, J. J. (1997). To see or not to see: The need for attention to perceive changes in scenes. *Psychological Science*, *8*, 368–373. doi:10.1111/j.1467-9280.1997.tb00427.x

Roberts, W. T., & Higham, P. A. (2002). Selecting accurate statements from the cognitive interview using confidence ratings. *Journal of Experimental Psychology: Applied*, *8*, 33–43. doi:10.1037/1076-898X.8.1.33

Simons, D. J., & Levin, D. T. (1997). Change blindness. *Trends in Cognitive Sciences*, *1*, 261–267. doi:10.1016/S1364-6613(97)01080-2

Smart, S. M., Berry, M. A., & Rodriguez, D. N. (2014). Skilled observation and change blindness: A comparison of law enforcement and student samples. *Applied Cognitive Psychology*, *28*, 590–596. doi:10.1002/acp.3021

Smith, S. M., & Vela, E. (1992). Environmental context-dependent eyewitness recognition. *Applied Cognitive Psychology*, *6*, 125–139. doi:10.1002/acp.2350060204

Stanny, C. J., & Johnson, T. C. (2000). Effects of stress induced by a simulated shooting on recall by police and citizen witnesses. *The American Journal of Psychology*, *113*, 359–386. doi:10.2307/1423364

Thomassin, L., & Alain, M. (1990). Performance of witnesses when giving evidence and making eyewitness identification. *Canadian Police College Journal*, *14*, 233–246.

Tickner, A. H., & Poulton, E. C. (1975). Watching for people and actions. *Ergonomics*, *18*, 35–51. doi:10.1080/00140137508931438

Verinis, J. S., & Walker, V. (1970). Policemen and the recall of criminal details. *Journal of Social Psychology*, *81*, 217–221. doi:10.1080/00224545.1970.9922443

Vredeveldt, A., Tredoux, C. G., Kempen, K., & Nortje, A. (2015). Eye remember what happened: Eye-closure improves recall of events but not face recognition. *Applied Cognitive Psychology*, *29*, 169–180. doi:10.1002/acp.3092

Vredeveldt, A., Tredoux, C. G., Nortje, A., Kempen, K., Puljević, C., & Labuschagne, G. N. (2015). A field evaluation of the Eye-Closure Interview with witnesses of serious crimes. *Law and Human Behavior*, *39*, 189–197. doi:10.1037/lhb0000113

Woodhead, M. M., Baddeley, A. D., & Simmonds, D. C. V. (1979). On training people to recognize faces. *Ergonomics*, *22*, 333–343. doi:10.1080/00140137908924617

Yarmey, A. D. (1986). Perceived expertness and credibility of police officers as eyewitnesses. *Canadian Police College Journal*, *10*, 31–52.

Yarmey, A. D. (1998). Police as witnesses. *Expert Evidence*, *6*, 237–239. doi:10.1023/A:1008826227184

Yarmey, A. D., Jacob, J., & Porter, A. (2002). Person recall in field settings. *Journal of Applied Social Psychology*, *32*, 2354–2367. doi:10.1111/j.1559-1816.2002.tb01866.x

Yarmey, A. D., & Jones, H. P. T. (1983). Is the psychology of eyewitness identification a matter of common sense? In S. M. A. Lloyd-Bostock & B. R. Clifford (Eds.), *Evaluating witness evidence: Recent psychological research and new perspectives* (pp. 13–40). Chichester, UK: Wiley.

Yuille, J. C. (1984). Research and teaching with police: A Canadian example. *Applied Psychology*, *33*, 5–22. doi:10.1111/j.1464-0597.1984.tb01412.x

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Supporting Information

The following supporting information may be found in the online edition of the article:

Figure S1. Video still of the transaction in the hotel lobby.

Figure S2. Target-present painting lineup.