

UNIVERSITY OF GOTHENBURG
DEPARTMENT OF PSYCHOLOGY

**The dynamics of Swedish police interrogations with
suspects of alcohol-related, drug-related
and serious crimes**

Hanna Langer

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Supervisor: Angelica Hagsand

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Abstract. The aim of the current study was to explore the nature of Swedish police interrogations with suspects of alcohol-related offenses, drug offenses and other, more serious offenses. The taxonomy developed by Kelly, Miller, Redlich and Kleinman in 2013, was employed to analyze the relation between technique usage, suspect cooperation, and confession/denial outcomes over time in 64 written police records. The results indicate that the interrogations adhere to scientifically sanctioned methods in some regards but that there is room for improvement. The main discovery was the low degree of technique usage found in the alcohol and drug crime interrogations. This finding was mainly attributed to a lack of documentation, which is discussed in relation to Swedish documentation policy for different crime categories.

Being arrested, incarcerated and interrogated can be stressful (Guyll, Yang, Madon, Smalarz & Lannin, 2019; Sugey & Turney, 2017) and puts the suspect in a vulnerable position. In Swedish interrogations concerning the most severe crimes there is usually a defense attorney present and the interrogation is being recorded, assuring a certain level of security for the suspect (SFS 2017:176). When it comes to minor offenses such as drug possession or driving without a license, however, these precautions are more rarely taken. The resulting lack of transparency in such cases creates a situation where any unethical interrogation methods would most likely go unnoticed. In cases of drug and alcohol-related offenses this is even more problematic since intoxication and addiction are risk factors for increased suggestibility and false confessions (Gudjonsson, Hannesdottir, Petursson & Bjornsson, 2002; Gudjonsson et. al., 2004). For this reason, it is of great importance to scrutinize police procedures when interrogating this category of suspects.

The aim of the current study was to explore the nature of Swedish police interrogations with three separate suspect groups, suspects of alcohol-related offenses, drug-related offenses and other, more serious offenses. The groups represent different categories of suspects. The drug- and alcohol-related crime groups were thought to contain high numbers of intoxicated and drug or alcohol dependent suspects, who may be vulnerable to interrogative pressure due to intoxication or withdrawal. The purpose was not to compare the groups, since they differ in terms of crime severity and length of the written records, but to study them separately to reveal patterns within each group. I have chosen an exploratory approach in this venture since interrogations with these specific suspect groups have not been studied before. Also, the current study is the first of its kind in Sweden, examining interrogation techniques in actual police interrogations.

Sweden currently differs from the neighboring Norway as well as the UK and US, where much of the interrogation research has been conducted, in that there are no clear regulations or framework for how interrogations should be carried out. However, this is about to change as a new interrogation framework is under development by the Swedish police in collaboration with researchers (Swedish Police Authority, 2018). The present

study could provide useful information on current Swedish interrogation practices and identify areas of improvement.

For the purpose of the current investigation, the taxonomy developed by Kelly, Miller, Redlich & Kleinman (2013) was adopted. It is a standardized model for assessment of interrogation techniques meant for researchers as well as practitioners. In that body of work, they introduced what they called a *meso level* of interrogation. That is, a level between the previously used dichotomous *macro level* categories of interrogation methods (such as rapport building versus confrontational or legitimate versus non legitimate methods) and the *micro level* of numerous specific interrogation techniques (such as reducing or enhancing fears, appealing to the suspects self-interest and minimizing or maximizing severity of the crime). Based on a review of previous interrogation research, Kelly and colleagues (2013) identified more than 70 techniques, which they classified into six broader categories or *domains*. The domains that emerged were: 1) Rapport and relationship building (involves the techniques active listening, showing concern, finding common ground or shared interests); 2) Context manipulation (involves the techniques conducting the interrogation in a small room, keeping the suspect isolated before the interrogation); 3) Emotion provocation (such as appealing to the suspect's self-interest or conscience, offer rationalizations); 4) Confrontation/competition (such as asking the same question repeatedly or threatening the suspect with the consequences of non-cooperation); 5) Collaboration (such as bargaining with the suspect or offering rewards for cooperation); and 6) Presentation of evidence (involves the techniques present statements from witnesses or co-suspects and identifying contradictions in the suspects story). The model (Kelly et. al., 2013; Kelly, Redlich & Miller, 2015; Kelly, Miller & Redlich, 2016) provides a holistic and dynamic approach to interrogation research where the suspects level of cooperation is taken into account and examined in relation to the progression of techniques used over time.

Scientifically sanctioned interrogation techniques

An important aim of this study was to find out if Swedish police seem to follow the recommendations made by interrogation researchers. So, let us therefore start by clarifying what has been established about effective interrogation techniques and best practice. First of all, the definition of an effective technique differs depending on what the goal is. In the Reid Interrogation Manual, the primary goal is to find out if the suspect is guilty using visual cues and if so to induce a confession (Inbau, Reid, Buckley & Jayne, 2001). This of course requires different techniques than in an information gathering, rapport building model such as PEACE (stands for Preparation and Planning; Engage and Explain; Account; Closure; Evaluate), where the primary goal is to acquire correct information (Kassin, Appleby & Perillo, 2010). Research has shown that the Reid technique is essentially flawed in that it is virtually impossible for anyone to tell a liar from a truth teller using visual cues and its use of coercive interrogation techniques is considered highly unethical (Kassin et. al., 2010). Overall, information-based approaches seem to produce a lot less false confessions than confrontational ones without a substantial drop in true confession rates (Rigoni & Meissner, 2008). Considering this, for the purposes of this study an effective interrogation technique was defined as one that contributes to eliciting truthful information.

To do this, research has shown again and again that it is key to build rapport, in the sense of establishing a functional relationship to the suspect by showing empathy and respect (Alison, Alison, Noone, Elntib & Christiansen, 2013; Holmberg & Christianson, 2002; Leahy-Harland and Bull, 2017). This can be achieved by employing active listening techniques, talking about subjects unrelated to the crime, expressing concern for the suspect and finding common ground and shared interests (Kelly et. al., 2013).

Other than rapport-based techniques, there are some methods that have proven superior in information gathering. Among them is strategic use of evidence, SUE (Hartwig, Granhag, Strömwall & Vrij, 2005). According to the SUE literature, the timing of disclosing evidence is crucial to detecting deception (Soroehinski et. al.). The technique can also be used to elicit admissions from guilty suspects (Tekin, Granhag, Strömwall, Giolla, Vrij & Hartwig, 2015). In the SUE technique the evidence is saved to be presented at a time where it is the most impactful, preferably when it contradicts the suspects statements, revealing a discrepancy in their story. In line with this, the time parameter of the Kelly et. al taxonomy of 2016 revealed that evidence was disclosed significantly later in interrogations that produced a confession. In the denial subsample, on the other hand, the evidence was lumped together in the middle as if the interrogator attempted to overwhelm the suspect with incriminating information. Investigative interviewing techniques derived from the Cognitive interview (CI), commonly used with witnesses and victims (Fisher & Geiselman, 1992) have yielded positive results in regard to lie detection. One of the main principles behind it is to add cognitive load by making the suspect keep track of lots of details, which would be easy for a truth-teller but difficult for a liar (Vrij, Granhag, Mann & Leal, 2011).

There are a few techniques that are simply counterproductive, a lot of which can be found in the confrontation and competition domain of the Kelly et. al. (2013) taxonomy. For example, showing aggression and dominance (Holmberg & Christianson, 2002). There are also a few techniques that should be avoided as they are known to produce false confessions even in average adult suspects. These include prolonged isolation, sleep deprivation, minimizing the severity of the crime (this technique can be found in the Emotion provocation of the taxonomy) and presenting false evidence (Kassin et. al., 2010).

There has been a fair amount of research as to which techniques are being used in practice and the results differ between countries depending on legislation and cultural and political factors. Even so, examinations of real-life interrogations indicate that the recommended interrogation methods are rarely used, even with proper training (Areh, Walsh & Bull, 2016) Also, a lot of coercive techniques are still being used despite warnings from the scientific community (Areh et. al., 2016; Cleary & Warner, 2016). In England and Wales the Police and Criminal Evidence Act (1984) (PACE) prohibits techniques that are considered coercive and officers are trained in the PEACE protocol, a standardized framework for ethical interviewing. This seems to be reflected in practice although some inappropriate question types and coercive techniques are still being used (Leahy-Harland & Bull, 2017; Soukara, Bull, Vrij, Turner & Cherryman, 2009).

The current study

An exploratory, archival study was done based on 69 transcriptions of interrogation records from a police department in a major urban city in the south of

Sweden. The study was made as part of a larger project at the Department of Psychology, University of Gothenburg, led by Angelica Hagsand, mapping Swedish interrogation procedures. The crimes being investigated ranged from driving under the influence and possession of drugs for personal use to murder, rape and possession of child pornography. The coding scheme and analysis were based on the taxonomy developed by Kelly et. al. (2013). The current study contributes to the interrogation literature by putting Kelly and colleagues (2013; 2015; 2016) taxonomy to the test and applying it to a Swedish context. As an addition to the work made by Kelly and colleagues (2013, 2015, 2016) the interrogations were divided into three groups, suspects of alcohol-related offenses, suspects of drug-related offenses and other, more serious offenses with mainly sober suspects (henceforth this third group will be referred to as serious crimes for the sake of readability). By dividing the suspects in this way, techniques used with suspects of less severe crimes (driving under the influence, drug use and possession) could be studied separately from more severe crimes (murder and child sexual abuse). Additionally, the alcohol and drug-related crime groups represent a category of suspects that may be extra vulnerable to suggestion due to potential intoxication or withdrawal.

The *main* purpose of this exploration was twofold. First, to investigate Swedish interrogation procedures and whether they adhere to the general recommendations made by researchers regarding effective and ethical interrogation techniques. To make a correct assessment of the quality of the interrogations, the complex and dynamic nature of interrogation needs to be taken into account. By using the taxonomy by Kelly and colleagues (2013; 2015; 2016), the interrogations could be studied in a holistic manner, examining interactions between different techniques over time, as well as how they affect suspect response. The second *main* purpose was to investigate the nature of interrogations with suspects of alcohol- and drug-related crimes as well as serious crimes unrelated to drugs or alcohol. The initial intention was to also compare the groups statistically, but that was not possible due to major differences in length of interrogation records and crime severity between the groups.

In addition, as a complement to the other questions, I wanted to compare interrogations with confession and denial outcomes to see if they differed in technique usage and suspect response. Specifically, based on previous legal psychology research, I wanted to test the assumption that rapport building techniques are positively related to confession outcomes and confrontational techniques related to denials. The research questions were:

Q1: Are the methods used in line with recommendations in legal psychology research, regarding ethical and effective interrogations?

Q2: How do the interrogation domains correlate with each other, and relate to the suspects level of cooperation, over time in interrogations with suspects of

- a) alcohol-related crimes
- b) drug-related crimes and
- c) crimes unrelated to alcohol or drugs?

Q3: How does domain usage differ between interrogations where the suspect confessed versus denied involvement?

The first research question should be considered an umbrella, enveloping the other two, and will be answered thru interpretation of the results tied to those questions. Since the current undertaking is explorative in nature, no hypotheses will be posed. However, I had some expectations based on previous interrogation research. Regarding Question 1, based on the study by Kelly and colleagues (2016), the interrogating officers were expected to put most emphasis on the Rapport and relationship building domain in the Beginning time block but to maintain some emphasis on it throughout the interrogations. This would correspond with research showing the importance of establishing rapport early in an interrogation and maintaining it at later stages in the interview (Walsh & Bull, 2012). In connection to question 2, based on the research by Kelly and colleagues (2016), suspect cooperation should be positively related to the Rapport and relationship building domain and negatively related to Confrontation/competition. Regarding the third research question, based on previous interrogation research (Holmberg & Christianson, 2002; Kelly et. al., 2016), a lower emphasis on the Confrontation/competition domain, and higher emphasis on Rapport and relationship building was expected in interrogations that produced a confession compared to denial outcomes.

Method

Sample

The sample of interrogation records ($N=69$) was provided by a police department in a major urban city in the south of Sweden for the purpose of the project which the current study is part of. The material included interrogations with three categories of suspects, based on crime type, 1) *alcohol-related crimes* (driving under the influence of alcohol, $n = 21$), 2) *drug-related crimes* (such as driving under the influence of drugs and drug possession, $n = 25$); and 3) serious crimes that were not related to alcohol or drugs (child sexual abuse, other sex crimes and murder, $n = 23$). The initial intention was to divide the sample into groups of sober, drunk and drug intoxicated suspects. This was decided against, however. One reason being that the drug and alcohol groups would then mainly contain guilty suspects due to the nature of the allegations, which would of course imply drunk driving or drug use. Also, the interrogations varied substantially in the length of the written records and crime severity between the drug- and alcohol-related crime groups and the serious crime group, which would probably have skewed the results both within and between groups. In the alcohol-related crime group, the suspect was under the influence of alcohol in 76% of the interrogations and sober in the rest. In the drug-related crime group, the suspect was under the influence of drugs in 71%, sober in 24% and under the influence of both drugs and alcohol in 5% of the interrogations. All suspect in the serious crime group were sober during interrogations. However, some of them had a history of drug or alcohol abuse. A total of five cases were excluded, three before coding and two were excluded from the analysis. Of the excluded transcripts, two only contained summaries of the interrogations, one was too short to analyze with only two sequences, one was just a review of confiscated items and in the last case the file was faulty and could not be opened. After excluding these cases, 64 transcripts with 43 different suspects remained.

The length of the full sample of interrogations varied between 4 to 107 minutes with a mean of 32 minutes. Length of the interrogations for alcohol-related crimes ranged

between 7 to 54 minutes with a mean of 27 minutes. Length of the interrogations for drug-related crimes ranged between 7 to 107 minutes with a mean of 29 minutes. Length of the interrogations for serious crimes ranged between 4 to 82 minutes with a mean of 40 minutes, so they were longer, in average, than in the other two groups. Suspect gender was male in all, but one case, and gender of the interrogating officer was predominantly male (62,5%). Only one interrogating officer was present in 81,5% of the cases and in 18,5% of the cases there were two interrogating officers present. A defense attorney was present in 2 of the 21 alcohol- and 21 drug-related crime interrogations, respectively, and in all the serious crime interrogations, in which the alleged crimes were much more severe. All the serious crime interrogations were conducted in a police station. Of the alcohol-related crime interrogations, 76,1% took place in police stations, 9,5% outdoors and the remaining interrogations were conducted in a police car (4,8%) a law firm (4,8%) and a sobering up unit (4,8%). The drug-related crime interrogations were conducted in a police station (61,9%), outdoors (9,5%), sobering up unit (9,5%), police car (4,8%), suspects home (4,8%) and unknown location (9,5%).

Procedure

The coding and analyses were based on the work by Kelly et. al. (2016) and I attempted to replicate their study as far as possible. However, I made slight adjustments in the coding frame to fit the Swedish context and some changes in the coding procedure to improve the accuracy and reliability of the instrument.

Coding interrogation methods. In previous content analyses, a five-minute interval coding procedure has been employed in order to examine change over time in investigative interviews (Bull & Soukara, 2010; Kelly et. al., 2016; Pearse & Gudjonsson, 1999). This was not possible to achieve in the current study since the interrogations were in the form of written records rather than video or audio recordings and no time stamps were available, other than the total length of the interrogations. Instead, the interrogations were divided into turn based sequences, each consisting of one exchange of question/comment and answer or non-answer. This coding method occurs in research on witness interviews (see for example Schreiber Compo, Hyman Gregory & Fischer, 2012) and allowed the current study to stay true to the intention of Kelly and colleagues (2016), to capture the dynamic nature of interrogation. The procedure resulted in a total of 3481 sequences across 64 police transcripts.

The measures of interrogation methods were based on the taxonomy of interrogation methods developed by Kelly and colleagues (2013). In accordance with that research each sequence was coded for the presence of 74 different techniques divided into six domains (see Appendix 1). The sequences where no techniques were used were coded as Direct question/statement. The statement part was added in the current study since much of what the interrogators said was phrased as statements rather than questions. The primary measure of interrogation methods in the study by Kelly and colleagues (2016) was a three-point domain emphasis scale (0 none, 1 moderate, 2 major-exclusive). The scale was intended to capture not only the presence of the domains but also to some degree the weight of the measure.

In the original study by Kelly and colleagues (2016) domain emphasis was coded for every interval and the intervals were then collided into three time periods, beginning, middle and end. In the present study, however, there were no time intervals and the

sequences varied in length. Therefore, the transcripts were divided into three equal phases upon completion of coding separate techniques, and then each time block was coded for domain emphasis. When the sequences could not be equally divided, the additional sequence was put in the middle block. The domain emphasis measure was calculated for each domain in each time block. This was done by comparing the number of interrogation techniques used in that section with the combined mean of techniques used thru the entire interrogation for a) the domain in question (number of techniques divided by number of time blocks) and b) for all domains (domain means divided by number of domains). In cases where the mean of techniques used exceeded the combined mean rounded off, a 2 was coded. In this way every domain emphasis value was calculated in relation to its own domain and to the interrogation in its entirety. This approach eliminated the seemingly subjective nature of the domain emphasis measure in the study by Kelly and colleagues (2016). Multiple domains and multiple techniques in each domain could be coded for in each sequence.

The Direct question/statement category was coded separately from the domains, since constitutes no domain itself. Instead of emphasis, percentages were coded, which were then transformed into the same three-point scale as the domain emphasis. Where Direct question/statement comprised 0,00 - 33,33 % of the sequences, it was coded as a 0, where it comprised 33,34- 66,66 %, a 2 was coded, and when it comprised 66,67 - 100,00% of the sequences, a 3 was coded.

The material for the current study was coded along with transcripts from video and audio recordings used for a parallel study ($n = 20$) by Julia Karhu, a fellow psychology Master student at the University of Gothenburg. For confidentiality reasons, we only had access to anonymized transcripts of both the video and audio recordings and the written interrogation records. The presence of interrogation techniques and domain emphasis was assessed in three steps. In the first step, I and a “blind” secondary coder coded a representative collection of 10 percent ($n = 9$) of the total number of interrogations (including the ones from the parallel study). The interrater reliability was calculated, after which discrepancies were resolved and the definitions of the codes refined. In the second step another 10 percent ($n = 8$) was coded and interrater reliability was once again calculated to assure the continued agreement between coders. Subsequently the remaining 80 percent ($n = 69$) was coded by the primary coder.

The coders were able to reach an acceptable level of reliability for all domain measures. Krippendorff's α for each domain, based on 20% of the total material, was: Rapport and relationship building $\alpha = 0.89$; Emotion provocation $\alpha = 0.90$; Context manipulation = 1.0; Confrontation and competition $\alpha = 0.80$; Collaboration $\alpha = 0.76$; Presentation of evidence $\alpha = 0.83$. Krippendorff (2011) recommended an alpha of $\geq .80$. Lombard, Snyder-Duch and Bracken (2002) argued that levels below .70 could be accepted when evaluating measures with particularly complex coding instruments. The instrument used in the present study is decidedly complex, with up to 74 interrogation techniques to code for at any given time. Considering that, the achieved level of reliability should be considered high.

In their study from 2016, upon completing the coding procedure, Kelly and colleagues decided to exclude two of the six domains and focus on four primary domains: rapport and relationship building; presentation of evidence; emotion provocation and confrontation/competition. The decision to exclude *context manipulation* and *collaboration* from the analysis was based on the fact that they were seldom used as well as potential conceptual and operational problems. Since the sample in the present case

consisted of written records, rather than video or audio files, the context manipulation techniques regarding the physical space were not observable and the techniques in the domain overall appeared only a couple of times. Therefore, the context manipulation domain was excluded here as well.

Coding suspect response. In addition to techniques used over time in the interrogations, Kelly and colleagues (2016) considered the suspects response. Most previous interrogation research has only focused on whether the suspect confessed. The measure of suspect response provides an additional dimension of suspect behavior that adds to the understanding of interrogation as a dynamic interaction between the interrogating officer and the suspect. In Kelly and colleagues' study (2016), suspect response was coded in five-minute intervals since the suspects level of cooperation can vary across an interrogation. The same method was used in the current study, coding for degree of cooperation for each of the turn-based sequences. Answers and statements provided by the suspect were coded on a continuum from *cooperation* to *resistance*, as suggested by Kelly and colleagues (2016). They initially coded suspect response on two dimensions (cooperation and resistance). However, they found the variables strongly related and decided to combine them to a single measure to account for collinearity issues. This resulted in nine possible outcomes, which were subsequently transformed into the five levels of cooperation that were used in the current study, 1) strong resistance; 2) weak resistance; 3) neutral; 4) weak cooperation; 5) strong cooperation. The original dimensions of cooperation and resistance were used as guidelines when coding the five levels of cooperation. A neutral level of cooperation in this case would therefore mean either that a suspect is not cooperative and not resistant, or that the suspect is equally cooperative and resistant and that the two opposites cancel each other out.

Suspect response was coded separately from interrogation techniques by a different coder. To determine the precision of the instrument, 20 percent of the material was used to calculate interrater reliability. The coding was carried out in three steps. First 10 ($n = 9$) percent of the total material was coded by a primary and secondary coder, after which reliability was calculated and the coders discussed the coding to resolve any discrepancies. The initial descriptions of the codes were refined. Upon completion of this, another 10 percent ($n = 8$) was coded and once again interrater reliability was calculated to assure continued agreement between the coders. When this was done the primary coder went on to code the rest of the material. An acceptable level of interrater reliability, based on 20% of the total material, was achieved (Krippendorff's $\alpha = .81$). For the analysis, mode values were used instead of means since the mode values were considered to better represent the variation in the data.

Analysis

The primary variables analyzed in the current study were levels of domain usage and suspect cooperation. The analyses were made separately for the three suspect categories. No statistical comparison between the alcohol and drug-related crime groups and the serious crime group were made due to major differences in severity of the crimes and length of the interrogation records. To get an outline of the interrogations, a basic descriptive analysis was conducted and visually presented in graphs, examining the change in domain usage and suspect cooperation over time. To examine relations between the five domains, and the effect of each domain on the level of suspect cooperation,

bivariate correlations were examined across the three time periods, for each group. When examining the relationship between domain usage and suspect cooperation, the former was treated as the independent variable, and the latter the dependent variable. However, the causality may work in both directions. Non-parametric tests had to be used for the correlations since the data was measured on an ordinal level. To answer the third question of how interrogation methods may differ depending on confession or denial outcomes, planned contrasts were carried out with the variables of interest, Rapport and relationship building, Confrontation/competition and Suspect cooperation. Independent sample t-tests were conducted, and Cohen's *d* effect sizes calculated for the domain emphases and Suspect cooperation at each time block. This comparison had to be made with the full sample of interrogations since the ratio of confessions to denials in the separate groups were not even. Therefore, some subgroups of confession/denial would have been too small to analyze statistically if the comparisons were made for each group separately. A Bonferroni correction was applied when interpreting these results to account for the intra correlation of each variable across the time periods (the same correction that was made in the original study by Kelly et. al., 2016). Therefore, the threshold of statistical significance is $p \leq .017$ in these analyses.

Ethical considerations

The material in the present study contained sensitive information and some of the data was confidential due to the serious nature of the crime. The involved police agency agreed to share the requested information with the restriction that only one researcher would take part of the original documents. Consequently, the interrogation records were transcribed and anonymized and designated ID numbers. All potentially sensitive, personal and classified information was removed. Additionally, all coders signed non-disclosure agreements. A list with the ID numbers and matching interrogation records was created and kept in an encrypted archive according to the university's standard procedures for classified information. Hence, I only had access to the anonymized transcriptions of the interrogation records. It was agreed that all the data would be destroyed upon completion of the project. The anonymized transcripts were handled with due caution during the coding procedure and kept in password protected archives.

Results

Domain usage and suspect cooperation over time in interrogations with suspects of alcohol-related, drug-related, and serious crimes

In this section, descriptive statistics, and correlation coefficients for the relations between different interrogation domains, and between domain emphasis and Suspect cooperation, is presented over time for the three suspect categories (serious, alcohol-related, drug-related crimes). Since the answer to the first research question, if the techniques used adhere to scientifically sanctioned methods, is based on interpretation of the results linked to the two other questions, it is not presented separately here but will be addressed in the discussion.

Serious crimes. Means for domain emphasis and suspect cooperation in the serious crime group, with interrogations regarding murder and sex crimes ($n = 22$), are displayed in Figure 1 ($n = 22$). This should be considered a visual representation of the descriptive statistics and does not show correlations between domains. Correlations between interrogation domains and Suspect cooperation are presented separately in Table 1.

Level of Suspect cooperation is represented by the solid line in Figure 1. Observing its relation to emphasis on the different domains over time, the interactive component of interrogations can be examined. Suspect cooperation was stable near the neutral level through the interrogations (Block 1 $M = 3.23$, $SD = 0.75$; Block 2 $M = 3.18$, $SD = 0.66$; Block 3 $M = 3.18$, $SD = 0.66$), which is illustrated in Figure 1 (A 3 on the Suspect cooperation scale could mean that suspect is not cooperative and not resistant or that the suspect is both strongly cooperative and strongly resistant in the coded sequence). Despite what previous research has shown, no significant correlations between Suspect cooperation and emphasis on the Rapport and relationship building domain were found in any of the time blocks, on the .017 alfa level used in this study. However, all the correlations between the Rapport building domain and Suspect cooperation were positive, as expected. Level of Suspect cooperation was negatively related to both the Emotion provocation domain and Confrontation/competition in all time blocks (see Table 1), which could indicate that these techniques negatively impact cooperation, as previous research would suggest. Alternately, it could be a sign that a low level of suspect cooperation causes the interrogator to use more confrontational and emotion provoking techniques.

Observing Figure 1, we can see that presentation of evidence was the most popular domain, followed by Rapport and relationship building, Confrontation/competition and Emotion provocation. The least emphasis was shown on the Collaboration domain. Figure 1 shows that Presentation of evidence was the same in beginning and end blocks with a slight peak in the middle block ($M = 1.18$, $SD = 0.8$; $M = 1.32$, $SD = 0.84$; $M = 1.18$, $SD = 0.66$). Emphasis on the Rapport and relationship building domain was lowest in the beginning of the interrogations and peaked in the middle (Block 1 $M = 0.77$, $SD = 0.75$; Block 2 $M = 1.09$, $SD = 0.87$; Block 3 ($M = 0.91$, $SD = 0.75$), in contrast to legal psychology research, claiming the importance of establishing early rapport. The Confrontation/competition domain shows an increasing emphasis over time ($M = 0.73$, $SD = 0.83$; $M = 0.91$, $SD = 0.92$; $M = 1.0$, $SD = 0.87$). The Emotion provocation domain was relatively stable over time ($M = 0.64$, $SD = 0.79$; $M = 0.59$, $SD = 0.85$; $M = 0.68$, $SD = 0.84$). Emphasis on Collaboration was strongest in the beginning and end portions of interrogations, with a dip in the middle block ($M = 0.64$, $SD = 0.79$; $M = 0.18$, $SD = 0.39$; $M = 0.36$, $SD = 0.49$).

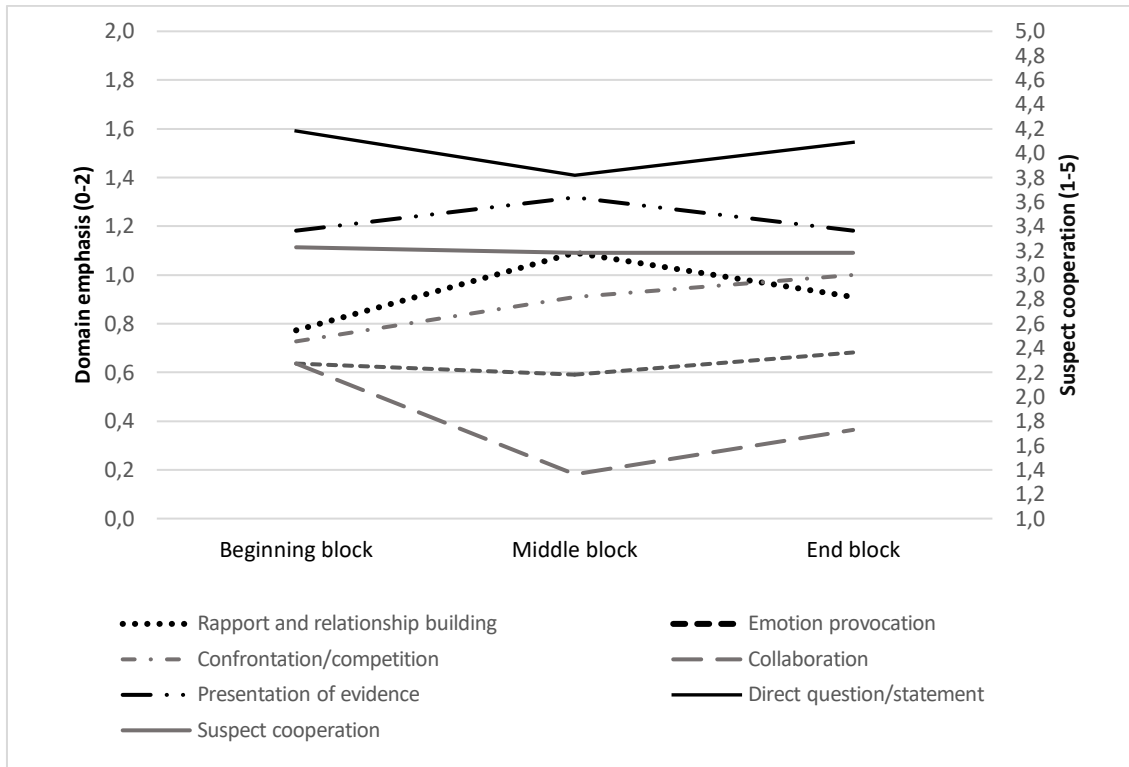


Figure 1. Domain emphasis and suspect cooperation in interrogations with suspects of serious crimes ($n = 22$).

Looking at correlations between the interrogation domains, on different points in time, gives us a better understanding of the nature of interrogation, as we observe how the techniques are used in relation to each other. All correlations between interrogation domains for serious crimes can be found in Appendix 2, Table 1. Negative correlations between the Rapport and relationship building and Confrontation/competition domains can be found in all time blocks, which suggests they are not commonly used together (Block 1 $r_s = -.369$, $p = .091$; Block 2 $r_s = -.171$, $p = .448$; Block 3 $r_s = -.289$, $p = .192$). The rapport and relationship building domain was negatively correlated to Presentation of evidence in all three time blocks, significantly so in the second time block (Block 1 $r_s = -.298$, $p = .191$; Block 2 $r_s = -.574$, $p < .005$; Block 3 $r_s = -.248$, $p = .265$). Again, suggesting that the techniques are not commonly used in the same part of the interrogation. Emotion provocation was significantly correlated to Confrontation/competition in the middle ($r_s = .576$, $p = .005$) and end ($r_s = .614$, $p = .002$) blocks, meaning that these techniques were commonly used together. Presentation of evidence significantly correlated with Confrontation/competition in the first time block ($r_s = .688$, $p < .001$) but not in the other blocks (see Appendix 2, Table 1). This could mean that a high emphasis on confrontational techniques is related to early presentation of evidence.

A line for Direct question/statement was added to the figure to illustrate how frequently no techniques were used in the sequences. The difference between emphasis on Direct question/statement (all time blocks $M = 1.52$, $SD = 0.64$) and Presentation of evidence (all time blocks $M = 1.23$, $SD = 0.76$), was not significant on the .017 level ($Z = -2.236$, $p = .025$), meaning that there was not more emphasis on Direct questions than on the most preferred interrogation domain. 69% of the sequences in this group were coded

as Direct question/statement, which means that 31% of the sequences contained one or more interrogation techniques from one or more domains. The group contained mostly denial outcomes ($n = 18$) with only a few confession outcomes ($n = 4$). Number of sequences per interrogation in the serious crime subsample ranged between 16 and 359 with a mean of 129 sequences.

Table 1

Correlations between interrogation domain emphasis and Suspect cooperation over time in interrogations with suspects of serious crimes.

Domain emphasis	Suspect cooperation Block 1	Suspect cooperation Block 2	Suspect cooperation Block 3
Rapport and relationship building Block 1	0,240	0,291	0,408
Rapport and relationship building Block 2	0,110	0,416	0,043
Rapport and relationship building Block 3	0,417	0,336	0,279
Emotion provocation Block 1	-0,306	-0,313	-0,158
Emotion provocation Block 2	-0,100	-0,411	-0,282
Emotion provocation Block 3	-0,014	-0,001	-0,251
Confrontation/competition Block 1	-0,361	-0,241	-,477*
Confrontation/competition Block 2	-0,118	-,438*	-0,347
Confrontation/competition Block 3	-0,046	-0,067	-0,336
Collaboration Block 1	-,507*	-0,402	-,450*
Collaboration Block 2	0,130	0,000	0,093
Collaboration Block 3	0,283	0,097	0,022
Presentation of evidence Block 1	-,496*	-,669**	-,467*
Presentation of evidence Block 2	-0,023	-0,251	-0,112
Presentation of evidence Block 3	0,240	0,292	0,129

Note: * Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.017 level (2-tailed).

Alcohol-related crimes. Observing Figure 2, where interrogations regarding alcohol-related crimes ($n = 21$) are presented, it can be noted that domain usage, overall, is much lower than in the serious crime group. It is in fact so low that it is hard to draw any conclusions from it. The suspect cooperation line is steady around 3.9, indicating a rather high level of cooperation but the lines representing domain emphasis are all in the lowest end of the scale, with values below 0.4. No significant correlations between the domain emphasis values and Suspect cooperation were found on the .017 level and the indicated correlations were weak (see Appendix 2, Table 1), possibly due to the low domain usage found in this group. Presentation of evidence was the most favored domain. Emphasis on the domain was at its medium in the beginning of interrogations ($M = 0.19$, $SD = 0.51$), declined in the middle ($M = 0.1$, $SD = 0.3$) and peaked in the end block ($M = 0.33$, $SD = 0.58$), in accordance with research stating the superiority of late evidence presentation over early and stepwise presentation. Presentation of evidence was significantly correlated with Confrontation/competition in the beginning block ($r_s = .516$, $p < .017$). Collaboration was the second most used domain. It displays a similar trajectory

to the Presentation of evidence domain, with low emphasis in the beginning ($M = 0.05$, $SD = 0.22$), no usage in the middle block, and a peak in the end block ($M = 0.29$, $SD = 0.46$). The third most frequent domain was Confrontation/competition with a slight emphasis on the beginning ($M = 0.05$, $SD = 0.22$) and end ($M = 0.05$, $SD = 0.22$) blocks and no usage in the middle. It displayed a significant positive correlation to Presentation of evidence in the beginning block ($r_s = .516$, $p = .017$). Emotion Provocation was only used in the middle block ($M = 0.05$, $SD = 0.22$) and Rapport and relationship building was only used in the end block ($M = 0.05$, $SD = 0.22$). For all correlations between different domains and between domain emphasis and Suspect cooperation in this group, see Appendix 2, Table 2.

The emphasis on Direct question/statement, represented by the solid black line in Figure 2, was much higher than on the domains in this subsample. A Wilcoxon Signed-ranks test indicated significantly higher emphasis on Direct question/statement (all time blocks $M = 1.87$, $SD = 0.42$) than on Presentation of evidence (all time blocks $M = 0.21$, $SD = 0.48$), the most emphasized domain in this group ($Z = -7.152$, $p < .001$). Direct questions/statement constituted 91% of the sequences, which means that interrogation techniques were only used in 9% of the sequences. Number of sequences in the alcohol-related crime subsample ranged between 6 and 35 with a mean of 12 sequences. The group contained both interrogations with confession ($n = 12$) and denial outcomes ($n = 9$).

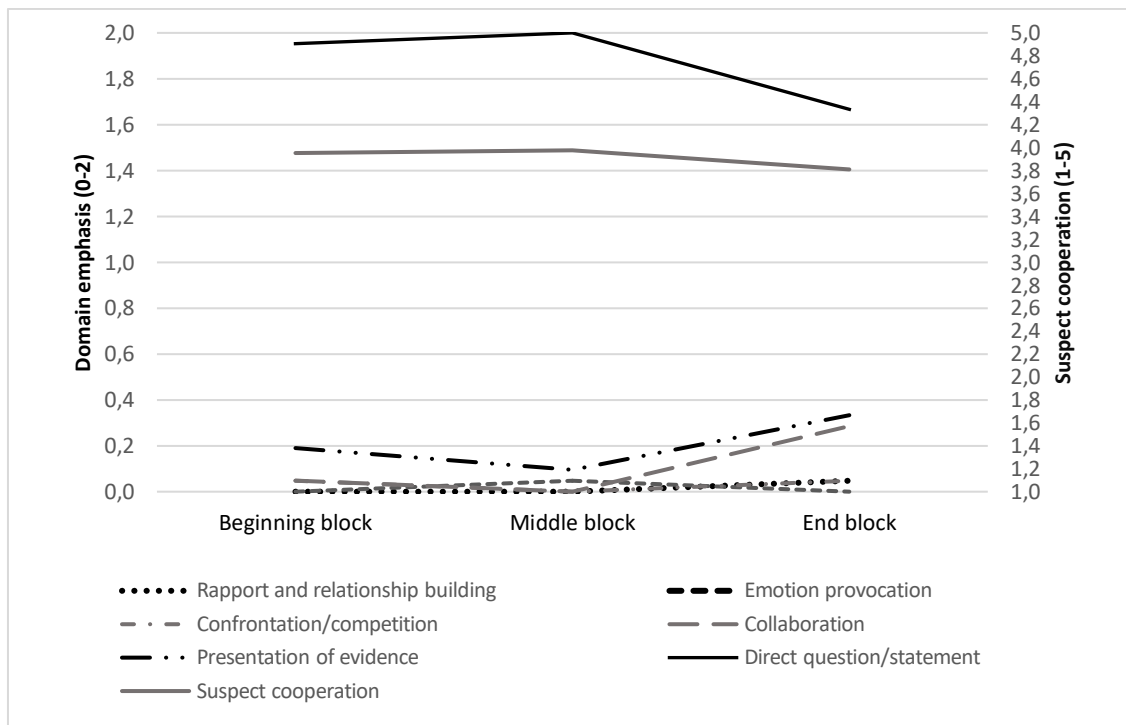


Figure 2. Domain emphasis and suspect cooperation in interrogations with suspects of alcohol-related crimes ($n = 21$).

Drug-related crimes. The interrogations for drug-related crimes ($n = 21$) are displayed in Figure 3, which is visually similar to the figure of alcohol-related crimes. And again domain usage, overall, was too low to make any sense of the data. Suspect cooperation was lowest in the beginning of interrogations ($M = 3.26$, $SD = 1.11$), peaked

in the middle ($M = 3.71$, $SD = 0.72$) and declined somewhat in the end block ($M = 3.62$, $SD = 0.72$). No significant correlations between domain emphasis and Suspect cooperation were found on the .017 level. Domain usage was slightly higher than in the alcohol-related crime interrogations, but no significant differences were found between the groups. As was the case in the alcohol group, Presentation of evidence was the most common domain and its line follows the same trajectory as in the alcohol subsample (Block 1 $M = 0.29$, $SD = 0.64$; Block 2 $M = 0.19$, $SD = 0.4$; Block 3 $M = 0.33$, $SD = 0.58$). Collaboration was the second most common domain, like it was in the alcohol interrogations, and the lines once again follow the same trajectory (Block 1 $M = 0.1$, $SD = 0.3$; Block 2 $M = 0.05$, $SD = 0.22$; Block 3 $M = 0.19$, $SD = 0.4$). Confrontation/competition was the third most common domain, as was also the case in the alcohol subsample. Its emphasis was at its highest in the beginning ($M = 0.1$, $SD = 0.44$) and end ($M = 0.1$, $SD = 0.3$) of interrogations with a decrease in the middle ($M = 0.05$, $SD = 0.22$). It was positively correlated to Presentation of evidence at almost significant levels in all time blocks (Block 1 $r_s = .512$, $p = .018$; Block 2 $r_s = .461$, $p = .035$; Block 3 $r_s = .475$, $p = .03$), suggesting that the domains are commonly used together. The Rapport and relationship building domain was only present in the middle of interrogations ($M = 0.05$, $SD = 0.22$) and emotion provocation was not used at all. For all correlations between different domains and between domain emphasis and Suspect cooperation in this group, see Appendix 2, Table 3.

Figure 3 displays a much higher emphasis on Direct question/statement than on the domains in this subsample. A Wilcoxon Signed-ranks test indicated significantly higher emphasis on Direct question/statement (all time blocks $M = 1.84$, $SD = 0.045$), compared to Presentation of evidence (all time blocks $M = 0.27$, $SD = 0.54$), the most emphasized domain in this group ($Z = -6.815$, $p < .001$). Direct question/statement constituted 92% of the sequences which means that interrogation technique usage occurred in only 8% of the sequences. Number of sequences in the drug-related crime subsample ranged between 5 and 59 with a mean of 19. The group predominantly contained interrogations with confession outcomes ($n = 17$) and only a few with denial outcomes ($n = 4$).

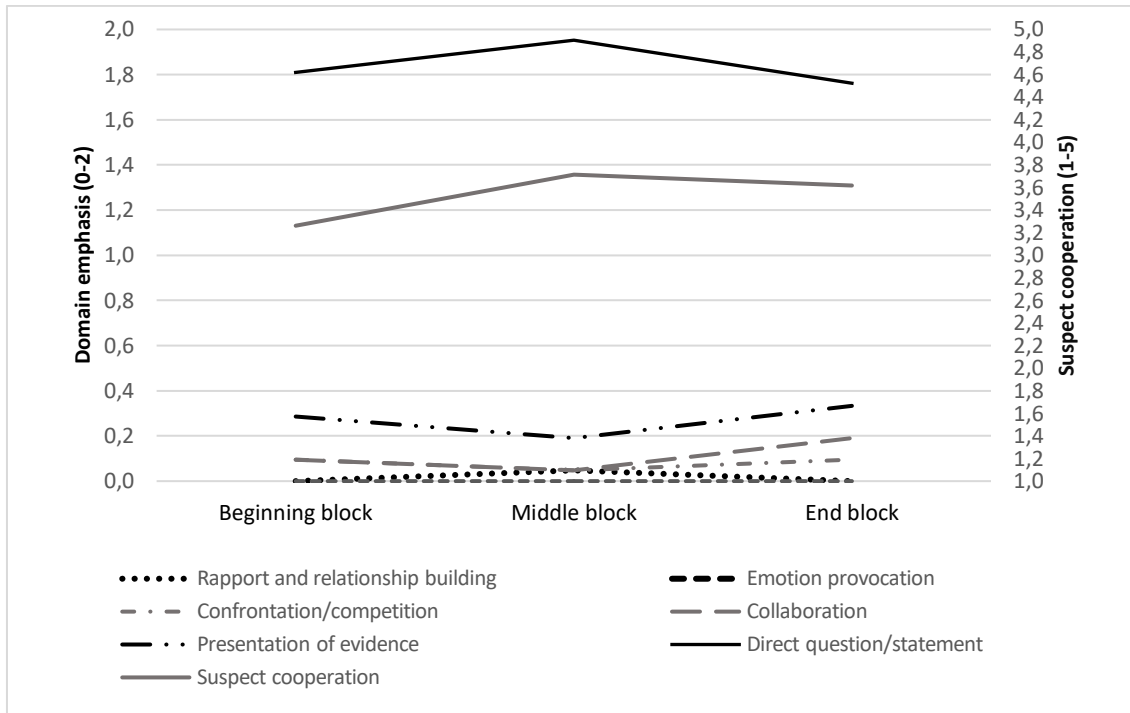


Figure 3. Domain emphasis and suspect cooperation in interrogations with suspects of drug-related crimes ($n = 21$).

Domain emphasis and suspect cooperation over time in interrogations with confession versus denial outcomes

To answer the question of differences in domain usage in interrogations where the suspect confessed versus denied, the full sample was divided by outcome into two groups, confession ($n = 33$) and denial ($n = 31$). Post hoc power calculations were performed using the G Power software (Faul, Erdfelder, Lang & Buchner, 2007), which revealed a large risk of type 2 errors with small to medium effect sizes. The power analysis indicated a 77 % chance of detecting large effect sizes (as defined by Cohen, 1992) with an alpha level of .017. For an 80 % chance of detecting small and medium effect sizes, a total sample size of 1046 or 170, respectively, would have been needed.

Descriptive statistics. Means for domain emphasis are visually displayed in Figure 4 for confession outcomes and Figure 5 for denial outcomes. All means and standard deviations can be found in Table 2. The descriptive analysis revealed that overall Suspect cooperation was higher in the confession subsample, in line with previous research that has identified cooperation as a predictor of confession outcomes. Domain emphasis, on the other hand, was higher in the denial than in the confession subsample on all domains across all time blocks. The only exception being Collaboration in the end block. This was expected to be the case with the confrontational domain but not with Rapport and relationship building. Figure 2 displays a peak in Rapport and relationship building in the middle block of the confession subsample and is relatively stable in the denial subsample. In Figure 2, emphasis on Confrontation/competition emphasis appears to be substantially lower in the confession group. Direct question/statement made up 87% of the sequences in the confession subsample, and 80% of the sequences in the denial subsample. This means that 13% of the sequences in the confession subsample and 20%

in the denial subsample contained one or more interrogation techniques from one or more domains.

Planned contrasts. Independent t-tests revealed that emphasis on Rapport and relationship building was significantly higher in the denial subsample, in the beginning ($t = -2.587, p = .014, d = 0.65$) and end ($t = -3.364, p = .002, d = 0.85$) blocks. This finding was unexpected since it seems to contradict previous interrogation research linking rapport building techniques to cooperation and confessions. The opposite of what was found in these results. No significant differences in Confrontation/competition were found between the confession and denial groups on the .017 level, which could be due to the very low power in this measure.

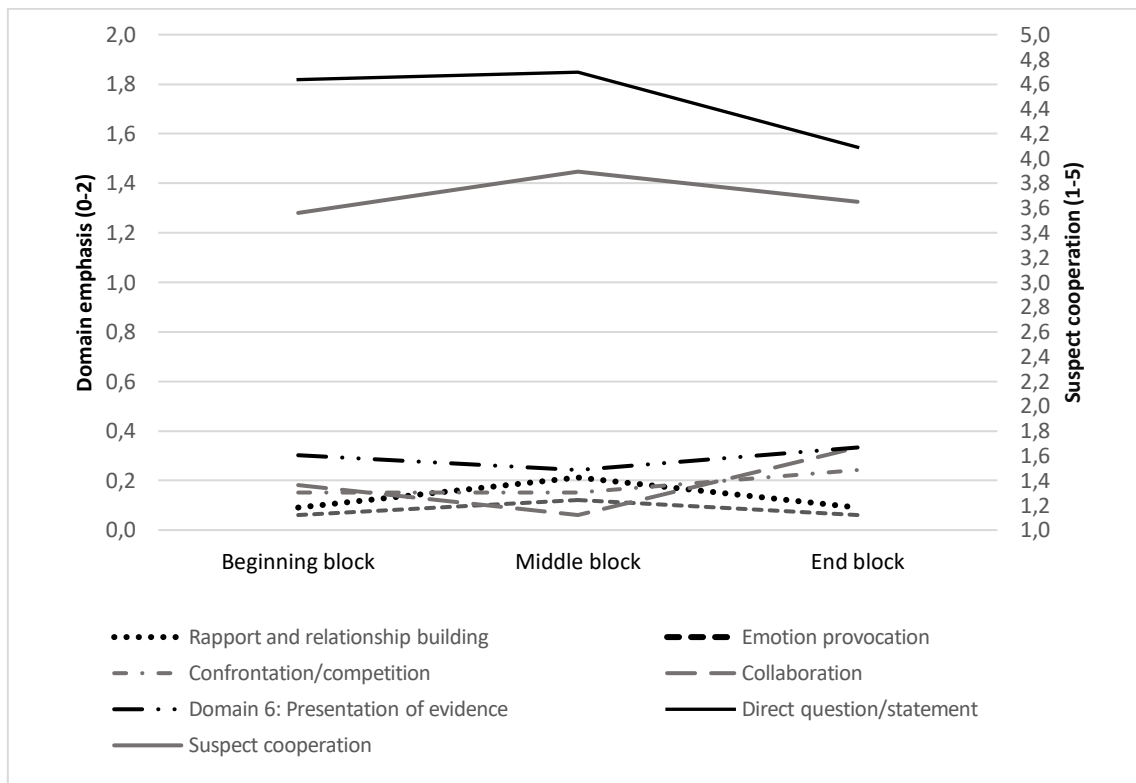


Figure 4. Domain emphasis and suspect cooperation in interrogations with confession outcomes ($n = 33$).

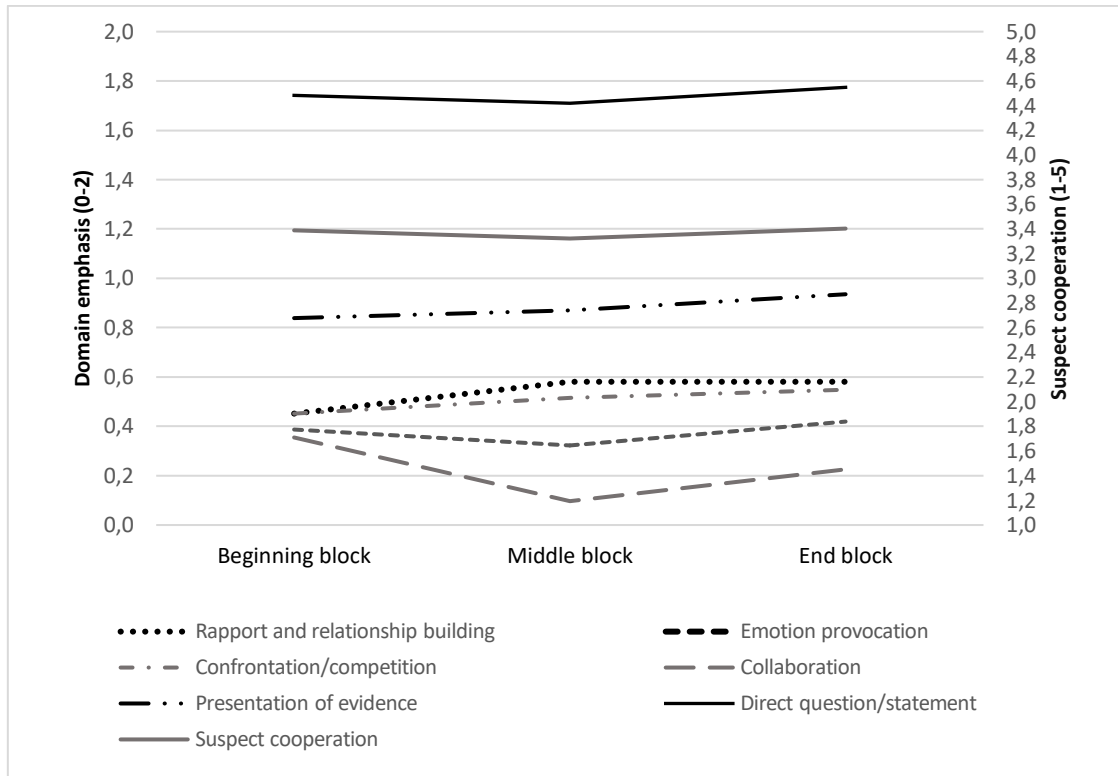


Figure 5. Domain emphasis and suspect cooperation in interrogations with denial outcomes ($n = 31$).

Table 2

Means and standard deviations for domain emphasis, suspect cooperation and direct question/statement for interrogations with confession and denial outcomes.

	Beginning Block		Middle Block		End Block	
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
	Confession	Denial	Confession	Denial	Confession	Denial
Rapport and relationship building	0.09 (.29)	0.45 (.72)	0.21 (.59)	0.58 (.81)	0.09 (.38)	0.58 (.72)
Emotion provocation	0.06 (.24)	0.39 (.72)	0.12 (.48)	0.32 (.65)	0.06 (.24)	0.42 (.76)
Confrontation/competition	0.15 (.51)	0.45 (.72)	0.15 (.44)	0.52 (.85)	0.24 (.56)	0.55 (.81)
Collaboration	0.18 (.46)	0.35 (.66)	0.06 (.24)	0.09 (.30)	0.33 (.48)	0.23 (.43)
Presentation of evidence	0.30 (.68)	0.84 (.82)	0.24 (.50)	0.87 (.92)	0.33 (.54)	0.94 (.77)
Suspect cooperation	3.56 (.95)	3.39 (.92)	3.89 (.56)	3.32 (.75)	3.65 (.66)	3.40 (.66)
Direct question/statement	1.81 (.46)	1.74 (.43)	1.85 (.44)	1.71 (.43)	1.55 (.71)	1.77 (.43)

Discussion

So, do the methods used in this sample of Swedish interrogations with suspects of alcohol-related, drug-related, and serious crimes measure up to scientific standards? In answer to the first research question, the results indicate that the methods used follow recommendations from legal psychology researchers in some regards but not others. First, Rapport and relationship building was the second most emphasized domain in the serious crime group, in line with legal psychology research that has declared this a key element in effective interrogations (Alison et.al., 2013; Holmberg & Christianson, 2002; Leahy-Harland and Bull, 2017). However, its use was lowest in the beginning of interrogations, in contrast to research that states the importance of establishing early rapport (Kelly et.al. 2013, Walsh & Bull, 2012). It is possible, though, that small talk occurred before the official interrogations began and was therefore not recorded and/or written down. It should be noted that attempts at building rapport are not always successful and it is especially hard in interrogations with suspects, where there is a built in conflict. In the current study, rapport building techniques did not have a significant effect on the suspects level of cooperation. In the alcohol and drug-related crime groups, very few instances of Rapport and relationship building were found. But this might be due to a lack of documentation rather than lack of usage, which I will get back to later.

In the serious crime group, emphasis on the Presentation of evidence domain peaked in the middle of interrogations. The same peak was found in the study by Kelly and colleagues (2016), who suggested that the detectives may have attempted to overwhelm the suspect with evidence in the middle. Furthermore, I found that early disclosure seemed to be favored in some interrogations and late in others. In the alcohol and drug-related crime groups, Presentation of evidence peaked in the end of interrogations. According to the SUE literature, late disclosure of evidence is superior both in detecting lies, acquiring accurate information and getting confessions from guilty suspects, compared to early and gradual disclosure (Hartwig et. al., 2005; Sorochinski et. al., 2014; Tekin et. al., 2015). While the late presentation in the alcohol and drug-related crime groups could be strategic in some cases, it is also likely that it is situational. Crimes related to intoxication are special in terms of the direct nature of the evidence, and it is possible that the late Presentation of evidence in these cases was caused by the delay between arrest and getting the test results. Also, many of these interrogations were conducted outdoors or in a police car, which of course leaves less room for planning. And even if most of the interrogations were conducted inside a police station it is possible that they started before the test results were obtained.

Confrontational interrogation techniques were popular in all groups, which is problematic since an accusatorial interrogation strategy is considered a risk factor for false confession (Meissner et. al., 2014). Use of confrontational techniques increased over time in the serious crime subsample. This might suggest that the interrogators grew frustrated or impatient through the interrogations, causing them to use more confrontational interrogation techniques.

Collaboration emphasis was strongest in the beginning of the serious crime interrogations and in the end and beginning of the alcohol and drug-related crime interrogations. The technique by far most frequently used in this domain was to *allow the suspect to regain or assert control over the situation*, which was achieved by asking for a free recall or asking what the suspect wanted to talk about. The technique is common in the investigative interviewing practice, and is thought to be effective in suspect

interrogations, in terms of lie detection, since liars accounts are less detailed than truth tellers during free recall (Vrij, Mann, Jundi, Hillman & Hope 2014). In the Cognitive interview for suspects, CIS (Geiselman), the suspect is encouraged to share a lot of information before the interrogator challenges the story. Therefore, using the technique in the beginning time block should be preferred to using it in the end block. In addition to generating information and detecting lies, the method is seen as an ethical way of interviewing suspects (Van Hasselt & Burke, 2017).

The results in the serious crime group indicated that the interrogations that contained a high emphasis on Confrontation/competition were the same that had an early focus on Presentation of evidence. Additionally, Confrontation/competition was negatively correlated with Rapport and relationship building in all time blocks in the serious crime group, indicating that they were rarely used together. Emotion provoking techniques, on the other hand, were commonly used together with confrontational ones. It is possible that these results reflect differences in interrogation style between a more rapport-based approach and a confrontational one. According to legal psychology research, the former is to prefer if the goal is acquiring accurate information and true confessions

Interrogations with suspects of drug- and alcohol-related crimes

Interestingly, the results for the two groups with alcohol- and drug-related crimes were very similar, with no statistical difference between them. This indicates that these crimes are processed similarly. What stood out in the analysis of the two groups was, as discussed earlier, the relatively late emphasis on evidence presentation, the habit of asking suspects for a free account, and the lack of rapport building techniques.

Documentation procedure with different crime categories. Compared to the serious crimes, domain usage was very low in the drug- and alcohol-related crime groups. Some domains were barely used at all. This circumstance appeared to be linked to the difference in severity of the crimes between the groups, which resulted in longer and more detailed interrogations in the serious crime subsample. But was this the entire explanation? The most interesting result was not part of the original research questions but I find that it needs to be discussed in relation to the low domain usage in the alcohol- and drug-related crime groups. As mentioned earlier, there were large differences in the length of *the written interrogation records* between the serious crime group and the other two groups. When looking at the *actual length of the interrogations*, however, they told a completely different story. The interrogations in the alcohol- and drug-related crime groups were shorter, but not in any way enough to match the difference in length of interrogation records between the groups. A 1-hour interrogation resulted in a mean of 27 sequences in the alcohol-related crime group, 39 sequences in the drug-related crime group and 193 sequences in the serious crime group. Besides, the sequences (question and answer) were longer in the serious crime group, so assuming everything was written down in all interrogations it should be the other way around, fewer sequences in one hour in the serious crime group.

Hence, differences in documentation procedures, rather than actual technique usage, appears to be the main explanation for the big difference found in domain usage between the groups. Going back to the original material, many of the records in the alcohol- and drug-related crime groups appeared to be mere summaries, void of detail.

What happened during all that undocumented time in the interrogations for the drug- and alcohol-related crimes? No one can know, except for the people directly involved in the interrogations. In the records for the serious crimes, on the other hand, the conversation seemed to be written down word for word. This could very well be the case since those records were based on audio and visual recordings. No recordings were available in the drug and alcohol-related crime samples, which could explain the discrepancy between length of interrogations and the length of the written records in those groups.

An alternative explanation could be the difference in confession/denial rates between the groups. A majority of the interrogations in the serious crime group had denial outcomes while the drug-related crime group mostly contained confession outcomes. Perhaps more technique usage was required with the denial group since the suspects were more resistant to sharing information. However, this would not explain the equally big discrepancy in domain emphasis between the serious crime group and the alcohol-related crime group, which contained a more balanced number of confession/denial outcomes. Another explanation could be that the suspects in the alcohol- and drug-related crime groups were intoxicated, which impaired their communicative abilities. Although, the difference in number of sequences per hour seems too great for that to be the full explanation. So the main reason still seems to be difference in length of the written records, which was likely due to the fact that the alcohol- and drug-related crime interrogations were not recorded. The finding is concerning since the lack of transparency may cause any unethical interrogation methods to go unnoticed (Kassin et. al., 2010). Additionally, most of the suspects in the alcohol- and drug-related crime interrogations waived their right to a defense attorney, because of the less serious nature of these crimes. The absence of an attorney, to look out for the suspects interests, in these cases, makes proper documentation even more crucial.

So why the difference in recording procedures between the serious crime group and the drug- and alcohol-related crime groups? Part of the explanation could be that it is inconvenient for the officers to record interrogations in the field. But still, most of the interrogations in the drug- and alcohol-related crime groups were conducted in a police station, where they should have access to recording equipment. Considering this, it is more likely a question of policy, where it is customary to record serious crime interrogations but not interrogations regarding less severe crimes. In Swedish law there are no clear rules as to which interrogations should be recorded and even a recorded interrogation does not need to be transcribed in its entirety (SFS 2017:176). According to the Ministry of justice there are mainly two reasons for *not* recording interrogations with less severe crimes. First, a recording is not needed for an investigation or trial, and second, there is not a big enough legal security risk for the suspect to warrant the extra resources needed for recording and transcribing. I would argue, however, that there is a risk for the suspects psychological wellbeing even in cases of less serious crimes, such as the ones in the drug and alcohol-related crime groups in the current study, when being subjected to unethical interrogation methods. I propose that mandatory recording could be a safeguard against unjust interrogation procedures also regarding less severe crimes.

In 2016, the Swedish Ministry of Justice proposed that documentation should be improved by more regular recording of interrogations, to increase the transparency in investigations (Government referral, 2016-10-27). The arguments for more regular recording of interrogations are many. For example, the reduced need to take notes allows detectives to focus more of their attention on the suspect and the increased transparency makes it easier to make sure that investigations are handled correctly (Sullivan, 2008).

But there are also problems, among them financial costs and evidentiary consequences of a failure to comply (Sullivan, 2008). The Swedish Ministry of justice recognize that there are problems but state that the benefits, in regard to legal security, outweigh the risks (Government referral, 2016-10-27).

In recent years there has been some development in text to speech software and speech can now be transformed into text with a high degree of accuracy (Ziman, Heussner, Fitzpatrick Field & Manning, 2018), so it does not necessarily entail a lot of extra work to document an interrogation in its entirety. Text to speech software is available in 120 different languages, including Swedish (Iancu, 2019), making it a viable option.

The difference between interrogations with confession and denial outcomes

The main finding in the comparison of the confession and denial subsamples was that domain emphasis on all domains across all time blocks was higher in the denial than in the confession subsample, with the exception of collaboration in the end block. Despite this, suspect cooperation was higher in all time blocks in the confession group. This finding goes against previous research that has shown that higher levels of rapport building techniques are linked to suspect cooperation and confession outcomes (Alison et. al., 2013, Kelly et. al., 2016, Leahy-Harland & Bull, 2017). The way the results in the current study could be interpreted is that the more cooperative a suspect is the less need for interrogation techniques overall, also ones that usually facilitate cooperation. However, the results may be misleading due to differences between the alcohol-related, drug-related, and serious crime groups. The serious crime group, with a lot more technique usage, contained mostly denial outcomes which potentially skewed the results in favor of the denial subsample.

Limitations and evaluation of the taxonomy

The taxonomy. The interrogation taxonomy proved useful to examine the nature of the interrogations and evaluate the methods used. However, some problems emerged along the way. Presentation of evidence contained both effective and ineffective, ethical, and not ethical techniques grouped together. Also, by observing usage of the domain over time, strategic use of evidence, an arguably important method in suspect interrogation research, can be inferred but not confirmed. Kelly and colleagues (2013) argued that the SUE technique was not included since it is considered a lie detection, rather than information gathering, technique and in an archival study there is no ground truth as to whether the suspect is lying. However, the method has recently been proven effective in obtaining information and confessions as well (Tekin et. al., 2015). Another aspect that was not included in the original taxonomy was that of question types. The Direct question/statement category contained both leading questions, open-ended questions and statements. Since one of the goals in the current study was to assess the quality of the interrogations, it might have benefited from a micro level approach, where question types are included. An example of this can be found in a study by Leahy-Harland and Bull (2017).

In the study by Kelly et al (2016), suspect cooperation was measured along two dimensions of cooperation and resistance. Due to collinearity issues this measure was

then transformed into the five-point measure that was used in the current study. This combined measure turned out to be conceptually problematic since the neutral value was coded both for truly neutral responses and occasions when two extremes cancelled each other out. Hence the same value represented two different types of suspect behavior and therefore a lot of the variation was potentially missed. Perhaps percentages would be more useful than a subjective assessment of suspect cooperation. I also found myself questioning the usefulness of the domain emphasis measure since percentages of domain usage would showcase more of the variation. Also scale measure would allow a higher level of analysis than the current ordinal domain emphasis measure.

The proportion of Direct questions, which was coded for when none of the available techniques were used, was high in all groups, which makes me wonder if there are more interrogation techniques hidden in this category. One technique that I did find during coding, that was not included in the original taxonomy or in the current study, was to Prompt speculation. That is to ask or demand that the suspect speculates about what might have happened. This happened quite often in the serious crime interrogations. It was often accompanied with the explicit notion that if the suspect himself (almost all suspects were male) did not do it, he must provide a plausible alternative explanation. It was often phrased as “If you are innocent, you must have speculated about who could have done it”. So not providing an alternative explanation was interpreted as a sign of guilt. Another possible technique that emerged was Taunting or provoking the suspect. This often happened in a way that could not be categorized into one of the domains. But it was distinct enough that it should probably be coded as a technique.

Limitations. The data was collected for a larger project before planning the current study. It was not perfectly suited for the purposes of this investigation. First, dividing the interrogations by sober, drunk and drug intoxicated suspects, as was the original plan, was not possible due to the major difference in seriousness of the crimes and ,consequently, length of records between the crime categories. However, such problems are to be expected when doing an archival study, where one has less control of the original data. The advantage of an archival study is that we can analyze real police and suspect behavior in a natural setting, which is hard to do in a laboratory experiment.

The confessions occurred, for the most part, early in the interrogations which made the comparison between the confession and denial groups less relevant. That is, instead of interrogation techniques being used, leading up to a confession, the suspect would confess first and then be subjected to interrogation techniques. Hence, the higher level of suspect cooperation could be due to the fact that they already confessed in many cases. However, after a confession was made, interrogation techniques would be used to get additional information from a reluctant suspect.

Because domain emphasis was measured on an ordinal level, nonparametric tests, with less power than traditional ones, were used. In addition, the significance level was corrected from .05 to .017 to avoid type 1 errors. A conventional significance level would of course have yielded more statistical power, but this was not worth risking false positive results. On the other hand, one could argue that the significance level should be even lower, divided by the number of correlations or comparisons. However, the analysis in this study was based on the one by Kelly and colleagues (2016), where the same adjustment was made. They divided the alfa level by three, correcting for intra correlation of each variable across the three time periods. Since this was an attempt to replicate their study the significance level was set accordingly, allowing comparisons to be made. It goes without saying that no definite conclusions or generalizations should be drawn from

this one study. But it shows that more research regarding interrogations with suspects of drug- and alcohol-related crimes, as well as documentation and recording procedures, is required.

Conclusions and future research

The interrogations studied here were divided into three suspect categories based on crime types, two of which included crimes related to substance use and consequently possible intoxication and dependence. It was concluded that the interrogations with suspects of drug and alcohol-related crimes were poorly documented, which could imperil legal security for the suspects. I propose that mandatory recording of interrogations (with the suspects consent) could be a procedural safeguard against unjust interrogation methods. While it might not be possible today for financial and practical reasons, technological advancements make it a conceivable goal down the road. The results in this study give us an indication of the nature of interrogations with intoxicated or drug and alcohol dependent suspects, many of whom are questioned for alcohol and drug-related crimes. For future research, exploring interrogations with these potentially vulnerable groups of suspects is an important task. Also, a comparison between groups of sober, drunk and drug intoxicated suspects, as was originally intended here, would be interesting. Thus far, only survey studies have been made on the issue of interrogation methods with these suspect groups.

The interrogation methods used were in line with legal psychology research to some extent, one example being the technique of asking for a free account or asking the suspect what they want to talk about, which was often employed in the beginning of interrogations. But there is still room for improvement, such as the high and increasing emphasis on confrontational techniques throughout the serious crime interrogations. The recent collaboration between police and researchers, investigating Swedish interrogation standards, is promising. Hopefully, this study can help guide future efforts to research and develop national guidelines for interrogation procedures with these categories of suspects.

References

- Alison, L. J., Alison, E., Noone, G., Elntib, S., & Christiansen, P. (2013). Why tough tactics fail and rapport gets results: Observing rapport-based interpersonal techniques (ORBIT) to generate useful information from terrorists. *Psychology, Public Policy, and Law*, *19*(4), 411-431. doi:10.1037/a0034564
- Areh, I., Walsh, D., & Bull, R. (2016). Police interrogation practice in Slovenia. *Psychology, Crime & Law*, *22*(5), 405–419. doi:10.1080/1068316X.2015.1114113
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*(1), 155-159. doi: 10.1037/0033-2909.112.1.155
- Cleary, H. M. D., & Warner, T. C. (2016). Police training in interviewing and interrogation methods: A comparison of techniques used with adult and juvenile suspects. *Law and Human Behavior*, *40*(3), 270–284. doi:10.1037/lhb0000175
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*, 175-191
- Fisher, R. P., & Geiselman, R. E. (1992). Memory-enhancing techniques for investigative interviewing: The cognitive interview. Springfield: Charles C Thomas, Publisher.
- Government referral. 20116-10-27. *Misstänkta rätt till insyn i förundersökningar*. Retrieved from: regeringen.se/4aafaf/contentassets/b915a557c9c4403599614b51ed36cfc4/misstanktas-ratt-till-insyn-i-forundersokningar
- Gudjonsson, G. H., Hannesdottir, K., Agustsson, T. I., Sigurdsson, J. F., Gudmundsdottir, A., Iordardottir, I., . . . Petursson, H. (2004). The relationship of alcohol withdrawal symptoms to suggestibility and compliance. *Psychology, Crime & Law*, *10*(2), 169-177. doi:10.1080/10683160310001609979
- Gudjonsson, G., Hannesdottir, K., Petursson, H., & Bjornsson, G. (2002). The effects of alcohol withdrawal on mental state, interrogative suggestibility and compliance: An experimental study. *Journal of Forensic Psychiatry*, *13*(1), 53-67. doi:10.1080/09585180210122682
- Guyll, M., Yang, Y., Madon, S., Smalarz, L., & Lannin, D. G. (2019). Mobilization and resistance in response to interrogation threat. *Law and Human Behavior*, *43*(4), 307-318. doi:10.1037/lhb0000337
- Hagsand, A., Stenman, B., & Sundqvist, J. (2020, april 6). Fler brott kan klaras upp med hjälp av alkoholpåverkades vittnesmål. *Dagens Juridik*. Retrieved from: <https://www.dagensjuridik.se/debatt/fler-brott-kan-klaras-upp-med-hjalp-av-alkoholpaverkades-vittnesmal/>.
- Hartwig, M., Granhag, P., Strömwall, L. A., & Vrij, A. (2005). Detecting deception via strategic disclosure of evidence. *Law and Human Behavior*, *29*(4), 469-484. doi:10.1007/s10979-005-5521-x
- Holmberg, U., Christianson, S. Å., & Tomkins, A. J. (2002) Murderers' and Sexual Offenders' Experiences of Police Interviews and Their Inclination to Admit or Deny Crimes. *Behavioral Sciences & the Law* *20*(1-2), 31-45.
- Home Office UK (2020). Interviewing suspects Version 7.0 (published for Home Office staff). London: Home Office.
- Iancu, B. (2019). Evaluating Google Speech-to-Text API's Performance for Romanian e-Learning Resources. *Informatica Economica*, *23*(1), 17-25.
- Inbau, F. E., Reid, J. E., Buckley, J. P., & Jayne, B. C. (2001). *Criminal interrogation and confessions (4th ed.)*. Gaithersberg, MD: Aspen.

- Kassin, S. M., Appleby, S. C., & Perillo, J. T. (2010). Interviewing suspects: Practice, science, and future directions. *Legal and Criminological Psychology, 15*(1), 39-55. doi:10.1348/135532509X449361
- Kassin, S., Drizin, S., Grisso, T., Gudjonsson, G., Leo, R., & Redlich, A. (2010). Police-Induced Confessions: Risk Factors and Recommendations. *Law and Human Behavior, 34*(1), 3-38.
- Kelly, C. E., Miller, J. C., Redlich, A. D., & Kleinman, S. M. (2013). A taxonomy of interrogation methods. *Psychology, Public Policy, and Law, 19*(2), 165-178. doi:10.1037/a0030310
- Kelly, C., Redlich, A., & Miller, J. (2015). Examining the Meso-Level Domains of the Interrogation Taxonomy. *Psychology, Public Policy, and Law, 21*(2), 179-191.
- Kelly, C., Miller, J., & Redlich, A. (2016). The Dynamic Nature of Interrogation. *Law and Human Behavior, 40*(3), 295-309.
- Krippendorff, K. (2011). Computing Krippendorff's alpha-reliability. Philadelphia: Annenberg School for Communication Departmental Papers. Retrieved from http://repository.upenn.edu/asc_papers/43
- Leahy-Harland, S., & Bull, R. (2017). Police Strategies and Suspect Responses in Real-Life Serious Crime Interviews. *Journal of Police and Criminal Psychology, 32*(2), 138-151.
- Lombard, M., Snyder-Duch, J., & Bracken, C. C. (2002). Content analysis in mass communication: Assessment and reporting of intercoder reliability. *Human Communication Research, 28*, 587-604.
- Meissner, C. A., Redlich, A. D., Michael, S. W., Evans, J. R., Camilletti, C. R., Bhatt, S., & Brandon, S. (2014). Accusatorial and information-gathering interrogation methods and their effects on true and false confessions: A meta-analytic review. *Journal of Experimental Criminology, 10*(4), 459-486. doi:10.1007/s11292-014-9207-6
- Olseryd, J. (2015). Alkohol- och drogpåverkan vid misshandel, hot, personrån och sexualbrott (Report from Brottsförebyggande rådet, BRÅ). Stockholm: BRÅ. Available for download: www.bra.se.
- Rigoni, M., & Meissner, Christian A. (2007). *Is It Time for a Revolutionary Technique in the Interrogation Room? Empirically Validating the Influence of Inquisitorial Techniques on True and False Confessions*. ProQuest Dissertations and Theses.
- Santtila, P., Alkiora, P., Ekholm, M., & Niemi, P. (1999). False confession to robbery: The rules of suggestibility, anxiety, memory disturbance and withdrawal symptoms. *Journal of Forensic Psychiatry, 10*(2), 399-415. doi:10.1080/09585189908403692
- SFS 1951:649. Penal law on certain traffic offenses. Stockholm: Ministry of Justice.
- SFS 1968:64. *Penal Law on Narcotics*. Stockholm: Ministry of Justice.
- SFS 2017:176. Code of Judicial Procedure. Stockholm: Ministry of Justice.
- Sorochinski, M., Hartwig, M., Osborne, J., Wilkins, E., Marsh, J., Kazakov, D., & Granhag, P. (2014). Interviewing to detect deception: When to disclose the evidence? *Journal of Police and Criminal Psychology, 29*(2), 87-94. doi:10.1007/s11896-013-9121-2
- Soukara, S., Bull, R., Vrij, A., Turner, M., & Cherryman, J. (2009). What really happens in police interviews of suspects? Tactics and confessions. *Psychology, Crime & Law, 15*(6), 493-506.
- Sugie, N., & Turney, K. (2017). Beyond incarceration: Criminal justice contact and mental Health. *American Sociological Review, 82*(4), 719-743.
- Sullivan, T. P. (2008). Recording federal custodial interviews. *The American Criminal Law Review, 45*(4), 1297. Retrieved from <https://search-proquest-com.ezproxy.ub.gu.se/docview/230347995?accountid=11162>

- Swedish Police Authority. (2018). Polisens årsredovisning 2018. [The Police's yearly report 2018]. Retrieved from: <https://polisen.se/siteassets/dokument/polisens-arsredovisning/polisens-arsredovisning-2018.pdf>
- Tekin, S., Granhag, P., Strömwall, L., Giolla, E. M., Vrij, A., & Hartwig, M. (2015). Interviewing strategically to elicit admissions from guilty suspects. *Law and Human Behavior, 39*(3), 244-252. doi:10.1037/lhb0000131
- Van Hasselt, V. B., & Bourke, M. L. (2017). *Handbook of Behavioral Criminology*. Cham: Springer International Publishing.
- Vrij, A., Granhag, P., Mann, S., & Leal, S. (2011). Outsmarting the liars: Toward a cognitive lie detection approach. *Current Directions in Psychological Science, 20*(1), 28-32. doi:<http://dx.doi.org.ezproxy.ub.gu.se/10.1177/0963721410391245>
- Vrij, A., Mann, S., Jundi, S., Hillman, J., & Hope, L. (2014). Detection of concealment in an information-gathering interview. *Applied Cognitive Psychology, 28*(6), 860-866. doi:10.1002/acp.3051
- Walsh, D., & Bull, R. (2012). Examining Rapport in Investigative Interviews with Suspects: Does its Building and Maintenance Work? *Journal of Police and Criminal Psychology, 27*(1), 73-84.
- Ziman, K., Heusser, A. C., Fitzpatrick, P. C., Field, C. E., & Manning, J. R. (2018). Is automatic speech-to-text transcription ready for use in psychological experiments? *Behavior Research Methods, 50*(6), 2597-2605. doi: 10.3758/s13428-018-1037-4

Appendix 1.

Coding frame for interrogation domains and techniques

The coding frame was adopted from Kelly et. al. (2013), translated, and slightly adjusted for the Swedish context.

1) Rapport och relationsbyggande	2) Kontext-manipulering	3) Känsl-provokation	4) Konfrontation och konkurrens	5) Samarbete	6) Presentation av bevis
1. Hitta delade intressen eller erfarenheter	1. Bedriva förhöret i ett litet rum	1. Tilltala den misstänktes egenintresse (relaterat till straff och rättsprocessen)	1. Understryka auktoritet och överlägsen expertis gentemot den misstänkta	1. Erbjud materiella belöningar för samarbete	1. Konfrontera den misstänkta med verkliga bevis på dennes inblandning
2. Identifiera och tillgodose basala behov	2. Flytta förhöret från en formell lokal till en mer neutral miljö	2. Vädja till den misstänkta samvete	2. Utmana den misstänkta värderingar	2. Förhandla med den misstänkta	2. Konfrontera den misstänkta med fabricerade eller medvetet ogrundade bevis på inblandning
3. Låta den misstänkta spela rollen som lärare	3. Flytta förhöret från en neutral miljö till en mer formell lokal	3. Appellera till den misstänkta religion	3. Hota den misstänkta med konsekvenserna av att inte samarbeta	3. Vädja till viljan att samarbeta	3. Bluffa den misstänkta med påstådda bevis på inblandning
4. Presentera sig själv i annan roll än den som förhørsledare	4. Hålla den misstänkta isolerad innan förhöret	4. Förhöra personen medan hen är väldigt stressad	4. Uttrycka otålighet, frustration eller ilska	4. Låta den misstänkta ta eller återfå kontrollen	4. Identifiera inkonsekvens i den misstänkta berättelse
5. Beröra den misstänkta på ett vänligt sätt	5. Rubba den misstänkta genom att manipulera det fysiska utrymmet	5. Erbjud moralisk rationalisering	5. Lura den misstänkta	5. Erbjud immateriella belöningar (uppmuntran, respekt) för samarbete	5. Avslöja bevis för den misstänkta för att visa att hen inte kan bidra med användbar information, tills hen så småningom gör det
6. Försöka bli den misstänkta livlina	6. Beakta tid på dygnet	6. Utnyttja chocken över att ha blivit tillfångatagen	6. Dölja den misstänkta öde	6. Presentera ett scenario där det är förhørsledarens "jobb" att korrekt framställa den misstänkta som skyldig eller oskyldig till sina överordnade	6. Använda polygraf eller andra fysiologiska mätningar

7. Visa sympati med den misstänkta och hans situation	7. Beakta sitt utseende	7. Appellera till positiva känslor för individer eller organisationer	7. Ställa samma fråga om och om igen		7. Presentera ett utlåtande från ett vittne eller någon annan
8. Uttrycka sig på samma sätt som den misstänkta	8. Beakta var förhållanden och den misstänkta stolar står i förhållande till varandra	8. Appellera till negativa känslor för individer eller organisationer	8. Ställa en rad frågor i snabb följd utan att låta den misstänkta svara (gäller inget svar eller avbrutet svar)		8. Använda visuella hjälpmedel
9. Utöva aktivt lyssnande (ögonkontakt, nicka, sammanfatta)	9. Skapa en kulturellt tilltalande miljö	9. Identifiera och förstärk rädslor (relaterat till straff och rättsprocessen)	9. Inte tillåta nekanden från den misstänkta		9. Referera till den misstänkta kriminella bakgrund
10. Rättfram ärlighet	10. Beakta effekten av särskilda färger eller ljud	10. Reducera rädsla	10. Inte tala med den misstänkta, bara stirra på den misstänkta		10. Summera bevisen
11. Avpersonifiera situationen	11. Lämna den misstänkta ensam i rummet en stund	11. Smickra	11. Förolämpa den misstänkta		
12. Icke-brottsrelaterat samtal	12. En förhållsledare (eller annan professionell) kommer in i rummet	12. Ingjut hopplöshet	12. Good cop / bad cop		
	13. Förhållsledare lämnar rummet	13. Självuppfattning	13. Direkt anklagelse om inblandning		
		14. Likartad berättelse	14. Anklaga den misstänkta för att vara någon hen inte är		
			15. Nedvärdera eller avfärda information som den misstänkta ger		
			16. Missförstå den misstänkta egna ord		
			17. Ställa oväntade / alternativa frågor		

			18. Beröra den misstänkta på ett ovänligt sätt		
			19. Fångens dilemma		

Appendix 2

Correlation Matrices for the three suspect categories

Table 1.

Correlation matrix for domain emphasis and suspect cooperation in interrogations with suspects of serious crimes

	Block	Rapport and relationship building			Emotion provocation			Confrontation/competition			Collaboration			Presentation of evidence			Suspect cooperation		
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Rapport and relationship building	1				-.058			-.369			-.389			-.289			.240		
	2					.080			-.171			.515			-.574*			.416	
	3						.176			-.289			-.040			-.248			.279
Emotion provocation	1	-.058						.433			-.126			.255			-.306		
	2		.080						.576*		.468				.136			-.411	
	3			.176						.269		.346				.008			-.251
Confrontation/competition	1	-.369			.433						.089			.688**			-.361		
	2		-.171			.576*						.040			.345			-.438	
	3			-.289			.269						.111			-.019			-.336
Collaboration	1	-.389			-.126			.089						.413			-.507*		
	2		.515			.468			.040						-.319			.000	
	3			-.040			.346			.111						.365			.022
Presentation of evidence	1	-.289			.255			.688**			.413						-.496		
	2		-.574*			.136			.345			-.319						-.251	
	3			-.248			.008			-.019			.365						.129
Suspect cooperation	1	.240			-.306			-.361			-.507*			-.496					
	2		.416			-.411			-.438			.000			-.251				
	3			.279			-.251			-.336			.022			.129			

* Significance level < 0.017 ** Significance level < 0.001

Table 2.
Correlation matrix for domain emphasis and suspect cooperation in interrogations with suspects of alcohol-related crimes

	Block	Rapport and relationship building			Emotion provocation			Confrontation/competition			Collaboration			Presentation of evidence			Suspect cooperation			
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
Rapport and relationship building	1																			
	2				-															
	3																			
Emotion provocation	1	-																		
	2		-																	
	3			-																
Confrontation /competition	1	-			-															
	2		-																	
	3			-.050																
Collaboration	1	-			-															
	2		.354																	
	3			.354																
Presentation of evidence	1	-			-															
	2		-																	
	3			-.140																
Suspect cooperation	1				-															
	2		-																	
	3			.093																

* Significance level < 0.017 ** Significance level < 0.001. In many cases, no correlation analysis could be made because no techniques were used in one or both domains.

Table 3

Correlation matrix for domain emphasis and suspect cooperation in interrogations with suspects of drug-related crimes

	Block	Rapport and relationship building			Emotion provocation			Confrontation/competition			Collaboration			Presentation of evidence			Suspect cooperation		
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Rapport and relationship building	1				-			-			-			-			-		
	2					-			-.050			-.050			-.108				-.548*
	3						-						-						
Emotion provocation	1	-																	
	2		-																
	3			-															
Confrontation/competition	1	-			-						-.073			.512					-.362
	2		-.050			-							-.050		.461				.091
	3			-			-									.475			-.202
Collaboration	1	-			-						-.073				.215				.234
	2		-.050			-										-.108			-.548*
	3			-			-						-.157					-.234	.088
Presentation of evidence	1	-			-						.512			.215					-.223
	2		-.108			-									-.108				.198
	3			-			-									-.234			-.387
Suspect cooperation	1	-			-										-.223				
	2		-.548*			-										.198			
	3			-														-.387	

* Significance level < 0.017 ** Significance level < 0.001. In many cases, no correlation analysis could be made because no techniques were used in one or both domains.