

DETERMINANTS OF GUILTY SUSPECTS' BEHAVIOR IN
INVESTIGATIVE INTERVIEWS

Evidence-Disclosure Tactics and Question Content

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Dedicated to my grandmothers, Kamala and Sharada

ABSTRACT

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Research in the Strategic Use of Evidence (SUE) paradigm has shown that guilty suspect's verbal behavior is a product of the counter-interrogation strategies suspects employ based on the prior knowledge they believe interviewers hold about their crime-related activities. This thesis proposes a broader understanding of these constructs that influence guilty suspects' behavior. **Study Ia** ($N=140$) tested four SUE-based interviewing tactics to influence counter-interrogation strategies and elicit statement-evidence inconsistencies. A mock crime paradigm was used consisting of three activities as part of a single crime carried out by mock-suspects. Evidence-disclosure tactics were manipulated as Early Disclosure (evidence disclosed early in the interview), Strategic Disclosure (late disclosure based on suspect's statement), Non-Disclosure (evidence was not disclosed throughout the interview) and Direct Questioning (a question only about the critical aspect of the crime asked without evidence disclosure). No differences were found between the conditions in the predicted direction. On further analysis, it was found that suspects used forthcoming strategies and stayed close to the truth about non-critical (less incriminating) activities of the crime but used avoidance or denial strategies regarding the critical aspect (highly incriminating) of the crime irrespective of the interview condition. As a follow-up, **Study Ib** ($N=216$) was designed to test if this finding would be replicated. The mock crime with four activities was designed so that it consisted of two non-critical (non-incriminating) activities and two critical (highly incriminating) activities. Three interview conditions from study I-a were used, namely: Early Disclosure, Strategic Disclosure and Non-Disclosure. As predicted, it was found that suspects stayed close to the truth with non-incriminating activities of the crime but used avoidant and denial strategies regarding the incriminating activities. In **Study II** ($N=370$) question content factors influencing guilty suspects' Perceived Interviewer Knowledge (PIK) were tested. Three factors were tested: Topic Discussion (whether a specific crime-related activity was discussed in the interview), Level of Specificity (the amount and type of crime-related details within questions), and Stressor (emphasis on crime-related details in the questions). Based on psycholinguistic theories, it was predicted that Topic Discussion and higher amount of specific correct crime related details would increase PIK. Additionally, it was predicted that incorrect details and stressors would reduce PIK. However, there was only support for predictions regarding Topic Discussion. Finally, **Study III** ($N=232$) was developed based on the theory and findings of Study II. Topic Discussion, Level of Specificity (modified from Study II) and a new factor- Level of Suspicion were tested. It was predicted and found that Topic Discussion increased PIK as observed in Study II. It was also predicted that high Level of Suspicion in questions would increase PIK, but

there was no support for this prediction. However, there was partial support for the predictions regarding Level of Specificity in that, high specificity questions induced higher PIK when the topic was discussed. Overall, the findings shed light on the complex nature of guilty suspects' cognitive processes also provide a nuanced understanding of the perceived interviewer knowledge construct that is critical to the behavioral outcome of suspects.

Keywords: police interviews, investigative interview, strategic use of evidence, suspect strategies, investigative questions

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SWEDISH SUMMARY

Strategic Use of Evidence (SUE) är en empiriskt etablerad intervjueteknik för att frammana tecken på lögn och sanning, vilket faciliterar insamlingen av tillförlitlig information. Tekniken utgår ifrån tillgängliga bevis eller information om den misstänktes inblandning i ett brott för att samla in ny information eller för att frammana verbala tecken på falskhet. SUE-systemet är baserat på ett antal teoretiska konstrukt som används för att förstå de underliggande mekanismerna hos misstänkta beteende. Att förstå dessa konstrukt är inte bara viktigt för att utveckla bevis-utlämnande taktiker för olika utfall bland förhör med misstänkta, men underlättar även för en flexibel användning av dessa taktiker i olika kontext. Konstrukten beskriver de olika strategierna och kognitiva aktiviteterna hos den misstänkte i relation till intervjuaren. Tre av konstrukten är relaterade till den misstänkte, närmare bestämt *uppfattning om bevisen*, *motstrategier under förhör* och *verbal respons*. Den misstänktes uppfattning om bevisen handlar om den mängd av tidigare kunskap eller bevis som den misstänkte tror att intervjuaren har med hänsyn till den misstänktes delaktighet i ett brott; motstrategier under förhör syftar på de strategier som misstänkta använder under förhör för att framstå som oskyldiga; verbal respons syftar på den misstänktes utsagor och den information de bidrar med baserat på deras uppfattning om bevisen och motstrategierna. Grundidén med SUE som ramverk är att under intervjun guidas den misstänktes uppfattning om bevisen av olika bevis-utlämnande taktiker, vilket i sin tur påverkar deras motstrategier och deras verbala respons anpassas.

Tidigare studier har integrerat de teoretiska konstrukten av ramverket SUE för att planera och testa olika intervju-taktiker och deras utfall. Dock har det bedrivits relativt lite forskning som har utforskat hur dessa underliggande konstrukt inom SUE-ramverket fungerar. Det vill säga, hur de tre konstrukten fungerar i relation till varandra och vilka determinanter, utöver bevis-utlämnande, som kan påverka dessa konstrukt. Som nämnts är det viktigt att förstå mekanismerna bakom misstänkta beteende eftersom detta skulle tillåta forskare och intervjuare att förbättra existerande tekniker för att optimera intervju-utfall.

Syftet med denna avhandling var att öka vår förståelse kring underliggande mekanismer och relationer mellan misstänkta uppfattning om bevisen, motstrategier och verbala respons. Tanken var att det fanns mer bakom processen som skapar relationen mellan de tre konstrukten och att det kunde finnas ytterligare faktorer som kunde påverka konstrukten. För att förstå de ytterligare faktorer som kunde påverka förhållningarna testades följande: (a) intervju taktiker från SUE-ramverket för att få en förståelse av skyldiga misstänkta motstrategier och verbala respons (Studie Ia & Ib); och (b) frågeinnehålls faktorer (utan bevis-utlämnande) som kunde påverka skyldiga misstänkta uppfattning av intervjuarens kunskap (Studie II och III).

Syftet med Studie Ia var att testa hur olika bevis-utlämnande taktiker skulle påverka skyldiga misstänkta motstrategier under förhör och hur detta i sin tur skulle uttryckas som motsägelser mellan utsaga och bevis i deras verbala beteende.

Fyra av intervjutaktikerna testades: Tidigt avslöjande av bevis, strategiskt avslöjande av bevis, inget avslöjande av bevis och direkt utfrågning. Baserat på de teoretiska stöden för SUE och tidigare fynd så förväntades tidigt avslöjande av bevis-taktiken frammana låga motsägelser mellan utsaga och bevis. Det var även förväntat att den strategiska avslöjande-taktiken skulle få fram skiftningar i motstrategier under förhör vilket skulle leda till låga motsägelser mellan utsaga och bevis. Taktikerna inget avslöjande av bevis och direkt utfrågning förväntades få fram stora motsägelser mellan utsaga och bevis. Resultaten gav inte stöd till prediktionerna och utfallet av denna studie var något oväntad. Vi fann att de misstänkta var tillmötesgående med information i alla intervjusituationer gällande vissa delar av brottet medan de undanhöll information om de kritiska delarna av brottet i alla intervjusituationer. En förklaring kan vara att den låga graden av kompromettering i vissa delar av brottet gjorde misstänkta mer tillmötesgående om dessa delar medan de höll tillbaka information om de mer komprometterande delarna av brottet. Det vill säga, misstänkta bedömde kostnaden av att dela med sig av delar av information inom brottet.

Syftet med Studie Ib var att testa om fynden från Studie Ia kunde bli konceptuellt replikerade. Det vill säga, om kostnaden av att dela med sig av information påverkar relationen mellan utsage- beviskonsistens och uppfattad kunskap hos intervjuaren. Det testades huruvida skyldiga misstänkta, som en funktion av intervju-taktikerna, skulle undanhålla information som är komprometterande i sin natur och avslöja information som inte är komprometterande men som ändå var en del av brottet. För att göra detta användes tre av taktikerna från Studie Ia: Tidigt avslöjande, strategiskt avslöjande och inget avslöjande. Det predicerades att skyldiga misstänkta skulle vara tillmötesgående med information och vara konsistenta med bevis gällande icke komprometterande brottsrelaterad information. Utöver det så predicerades det att skyldiga misstänkta skulle vara högt inkonsistenta med bevis kring komprometterande brottsrelaterad information. Prediktionerna fick stöd och gav ljus åt den komplexa beslutsfattareprocessen hos skyldiga misstänkta genom att bedöma utlämnande-kostnad.

Syftet med Studie II och Studie III var att utforska konstruktet uppfattning om bevisen som en funktion av fråge-innehåll. Uppfattning om bevisen har tidigare testats som ett utfall av olika bevis-utlämnande och undanhållande strategier. Det var dock antaget att det var högst troligt att skyldiga misstänkta aktivt skulle söka information om tidigare bevis som intervjuaren hade angående deras roll i brottet genom innehållet av frågor även utan bevis-utlämnande. Koncepten tillhörande *relevans teori*, en psykolinguistisk teori som förklarar hur människor drar slutsatser angående

tidigare kunskap om det ämne som personen som ställde frågan har, antogs för designen och prediktionerna i denna studie. Baserat på koncepten i relevans teorin testades fyra huvudsakliga innehållsfråge-faktorer i studierna: (1) Ämnes diskussion (huruvida en specifik brottsrelaterad aktivitet var frågad om), (2) Nivå av specification (mängd brottsrelaterade detaljer i frågan), (3) Stressor (emfas på en specifik brottsrelaterad detalj), och (4) Nivå av misstänksamhet (inkluderar fråge-innehåll som indikerar hög eller låg misstänksamhet). Det generella utfallet av dessa studier var att skyldiga misstänkta antog högre uppfattning av bevisen när intervjuaren diskuterade ett brottsrelaterat ämne, det vill säga Ämnes diskussion, oberoende av det specifika innehållet i frågorna. Således kunde bara omnämmandet av ett ämne eller en aktivitet relaterad till brottet driva upp den misstänktes uppfattning om bevisen.

Tre viktiga slutsatser kan dras från dessa studier. Först av allt, en djupgående analys av de underliggande konstrukten stärker inte bara den existerande teorin men förser den även med en robust grund för att konstruera intervjutekniker. För det andra, den dynamiska miljö som existerar mellan intervjuaren och den misstänkta innebär komplexa processer som kräver djupare granskning. Det vill säga, intervjuare borde göra en medveten ansträngning i att förstå de mekanismer som misstänkta drivs av för att kunna optimera intervjuens utfall. Samtidigt borde de ta hänsyn till det faktum att misstänkta även aktivt kan fokusera på att förstå intervjuarens taktiker för att effektivt övertyga dem om att de är oskyldiga. För det tredje, även om konstrukten som studerats i denna avhandling formar grunden för SUE tekniken, så är dessa konstrukt applicerbara på andra scenarier som kan eller inte kan använda sig av bevis. Faktum är att det är viktigt för utövare att fokusera på att förstå konstrukten som används för att bygga upp tekniker, för att kunna anpassa denna förståelse i olika intervjusituationer.

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Meghana Srivatsav
Gothenburg, September 2019

PREFACE

This thesis is based on the following three studies, which are referred to by their Roman numerals:

- I. Srivatsav, M., Granhag, P. A., Strömwall, L. A., Luke, T. J., Vrij, A. (2019). *What to reveal and what to conceal: An empirical examination of guilty suspects' strategies*. Manuscript under review.
- II. Srivatsav, M., Luke, T. J., Granhag, P. A., Vrij, A. (2019). *How do the questions asked affect suspects' perception of interviewer's prior knowledge?* Manuscript under review.
- III. Srivatsav, M., Luke, T. J., Granhag, P. A., Vrij, A. (2019). *How does question content influence guilty suspects' inferences about what the interviewer knows?* Manuscript.

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INTRODUCTION

One of the main intentions of conducting suspect interviews is to collect relevant and critical crime-related information (Roberts, 2012). However, interviewers can elicit different types and amount of information depending on the type of interviewing technique used. For example, research has found that establishing rapport with the suspect tends to elicit pertinent information in comparison to techniques that are adversarial in nature (Evans et al., 2013; Gudjonsson, 2003). While earlier interviewing techniques were accusatory in nature and focused mainly on obtaining confessions (e.g. Inbau, Reid, Buckley & Jayne, 2011; O'Hara & O'Hara, 2003; Moston & Stephenson, 1992), there has been a shift in the recent past in some parts of the world, towards an ethical, non-accusatory, information and evidence gathering approaches rather than confessions (Bull, 2014; Gudjonsson 2007b; Milne & Bull, 1999). Research has indicated that interviewing suspects with an information gathering approach in comparison to coercive, confession-driven approach yields more reliable outcomes (Alison et al, 2013; Meissner, Redlich, Bhatt, & Brandon, 2012; Meissner et al., 2014; Walsh & Bull, 2015).

One of the integral aspects of suspect interviewing has been the use of *evidence*, i.e. information regarding the suspects' involvement or role in the crime, held by the interviewer, to gather critical information. Interviewers tend to generally have some amount of evidence or prior information regarding the suspect's possible involvement in the crime before the interview (Wagenaar, van Koppen & Crombag, 1993; Hartwig, Granhag, Strömwall, & Kronkvist, 2006). Earlier, interviewers used the evidence held against the suspect in order to obtain confessions (Gudjonsson, 2003). However, more recently researchers have focused on how to use evidence in a strategic manner to gather reliable information rather than confessions (see Hartwig 2005; Bull & Soukara, 2010).

In light of using evidence effectively in interviews, Hartwig (2005) suggested a more comprehensive technique called the Strategic Use of Evidence (SUE) technique. The SUE technique (Granhag & Hartwig, 2008) is empirically established as an interviewing technique to elicit cues to deception that aid with gathering reliable information (Vrij & Fisher, 2016). The technique relies on available evidence or information about the suspect's involvement in a crime to gather new information or to elicit verbal cues to deceit (Granhag & Hartwig, 2015). Researchers have focused on how evidence can be used to (a) corroborate existing information (Tekin, Granhag, Strömwall, & Vrij, 2016) (b) evaluate the veracity of statements made by the suspect (Dando et al., 2011) and assess verbal cues to deceit within the suspects' statements (Hartwig et al., 2005) in the form of statement-evidence inconsistencies (Clemens, Granhag & Strömwall, 2011) (c) obtain admissions (Tekin, Granhag, Strömwall, 2014) and confessions (Walsh & Bull, 2012).

Specifically, researchers have looked at when during the interview should the evidence be disclosed to effectively detect deception and gather critical information. While some studies showed that disclosing evidence late in the interview in comparison to early disclosure was more effective in detecting deception (Sellers & Kebbel, 2011; Smith & Bull, 2014), later studies have shown that a gradually drip-feeding the evidence throughout the interview might be more effective (Dando & Bull, 2011; Dando, Bull, Ormerod, & Sandham, 2015; Hartwig et al., 2011; Lingwood & Bull, 2013; Walsh & Bull, 2015; Walsh et al., 2016).

Background and Aims of the Thesis

The SUE framework is based on a set of theoretical constructs that are used to understand the underlying mechanisms of suspect behavior (Figure 1). Understanding these constructs is important not only to develop evidence-disclosure tactics for various suspect-interviewing outcomes but also allow for a flexible use of the tactics in various contexts. The constructs describe the different strategies and cognitive activities of the suspect in relation to the interviewer. Three of the constructs are related to the suspect namely- *perceived interviewer's knowledge* (PIK), *counter-interrogation strategies* and *verbal behavior* (Granhag et al., 2008). PIK refers to the amount of prior knowledge or evidence the suspect thinks the interviewer holds regarding the suspects' role in crime; counter-interrogation strategies refer to the strategies suspects employ during interviews in order to appear innocent; verbal behavior refers to the suspects' statements and the information they provide based on their PIK and counter-interrogation strategies. These constructs will be further explained in the following sections and explored in the empirical studies in this thesis.

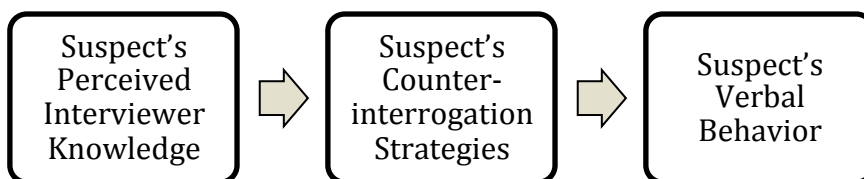


Figure 1.

Relationship between the SUE principles (adopted from Granhag & Hartwig, 2015).

The basic idea of the SUE framework is that during the interview different evidence-disclosure tactics guides the suspects' PIK, consequently influencing their counter-interrogation strategies and conditioning their verbal behavior (Figure 1- Granhag et al., 2015). Previous studies have integrated the theoretical constructs of the SUE framework to devise and test various interviewing tactics and their

outcomes (e.g., Hartwig et al., 2005; Hartwig, et al., 2006; Clemens et al., 2010; Jordan, Hartwig, Wallace, Dawson, & Xhihani, 2012; Luke et al., 2013; Tekin, 2016). However, there is relatively little research that has explored how these underlying constructs within the SUE framework function. That is, how the three constructs function in relation to each other and what determinants, other than the disclosure of evidence, could influence these constructs. As mentioned, understanding the mechanisms of suspect behavior is important since this would allow researchers and interviewers to improve existing techniques in order to optimize interview outcomes.

The aim of this thesis was to advance our understanding about the underlying mechanisms and relationships of suspects' PIK, counter-interrogation strategies and verbal behavior. Previously, Tekin (2016) provided empirical support to the causal relationships between the three constructs. The idea behind this thesis was that there was more to the processes underlying the relationship between these constructs. For example, it was not clear if the level of incriminating detail available in the crime influences the suspect's counter-interrogation strategies and verbal behavior. The studies in this thesis were also designed to explore determinants other than evidence-disclosure that could influence PIK. Specifically, the content in investigative questions was explored using psycholinguistic concepts, to understand how alterations in the content could influence guilty suspect's PIK. Here, *question content* refers to the phrasing of the investigative questions, for instance, the amount of crime-related details within the question, questioning about a specific crime-related activity, and if the tone of questioning is accusatory or neutral.

While Tekin (2016) tested different SUE interviewing tactics and their outcomes on both innocent and guilty suspects, I focused on the behavior and strategies of guilty suspects and did not include innocent suspects. This was because the behavioral and strategic constructs that I was interested in were more prominently observable in guilty suspects. For example, PIK would seem to be of a bigger concern to a guilty suspect since they need to tread carefully while revealing or concealing incriminating information from the interviewer. Also in terms of counter-interrogation strategies, most innocent suspects tend to be forthcoming with information but guilty suspects tend to vary with their strategies based on the interviewer's tactics (Hartwig, Granhag, & Luke, 2014). However, there may be some cases where innocent suspects have committed a separate unlawful act, but have not committed the crime itself, they may conceal information regarding the unlawful acts out of fear of incriminating themselves, and in order to maintain their self-presentation (Colwell et al., 2018; Clemens & Grolig, 2019)

As mentioned, I posited that additional factors could be influencing the causal relationship between PIK, counter-interrogation strategies and verbal behavior of guilty suspects. In order to understand the additional factors that could influence interview outcomes, the following was tested: (a) the interviewing tactics from the SUE framework to get an understanding of guilty suspects' counter-interrogation strategies and verbal behavior (Studies Ia & Ib); and (b) question content factors (without disclosure of evidence) that could influence guilty suspects'

perceived interviewer knowledge (Studies II and III).

In the following sections, I will present the theoretical underpinnings and past research on the SUE that is relevant to the empirical studies in the thesis. In the next section, the psycholinguistic concepts of *relevance* theory will be reviewed. This forms the basis for two of the empirical studies and predictions in this thesis. In the remaining sections the findings from the studies will be summarized in light of the theoretical underpinnings, followed by a discussion of limitations and future directions.

Theory underpinning the Strategic Use of Evidence Framework

The Strategic Use of Evidence framework draws substantially from the *self-regulation* theory (see Carver & Scheier, 2012). The SUE framework specifically focuses on the cognitive strategies suggested by the theory regarding how people regulate their behavior to attain desired outcomes and avoid aversive consequences. These strategies have been explained for both innocent and guilty suspects (see, Hartwig et al., 2014). However since the focus of this thesis is on guilty suspects, the perspectives on innocent suspects will be excluded. In cases where guilty suspects decide not to confess to the crime, the desired outcome for a guilty suspect would be to convince the interviewer that they are innocent; while an undesired outcome is that the interviewer would ascertain their culpability. Suspects would view an interview as threatening due to the possibility of being found guilty, and due to the uncertainty regarding how to respond to the interviewer without knowing what information the interviewer already holds against them (Hartwig et al., 2014).

Two cognitive-control strategies suggested by the self-regulation theory has been explored within the SUE framework as relevant to guilty suspects (a) how they control the information they hold, and (b) how they make decisions regarding what information to reveal and conceal (Hartwig et al, 2014). Since guilty suspects hold critical information regarding their involvement in the crime, the major threat for them is that the interviewer will find out this information. Hence suspects employ self-regulatory strategies in order to withhold this information from the interviewer and convince the interviewer that they are innocent. The strategies employed by guilty suspects mainly intend to conceal critical, incriminating information. For this purpose, guilty suspects actively make decisions regarding what information to reveal and what to conceal in order to convince the interviewer of their innocence. These strategies that the guilty suspects employ to conceal incriminating information are referred to as information-management strategies (Hartwig et al. 2010).

Guilty Suspects' Information Management Strategies

As mentioned earlier, one of the major goals of guilty suspects is to convince an interviewer that they are innocent. Thus, an ongoing threat to many suspects is that the interviewer perceives the suspect as a liar. Therefore, they are motivated to conceal critical information due to the possible aversive consequences

of revealing incriminating details. However, in order to appear credible and convince the interviewer of their innocence, the suspect might provide some account while actively withholding critical information (Hartwig et al., 2014).

For this purpose, suspects have to make decisions regarding the amount of information they want to reveal, if they have to tell the truth or lie to the interviewer. Guilty suspects will consider what parts of the crime they want to be truthful about and what should be concealed, as well as how to merge this information together as a convincing account. Consequently, striking this balance between what to reveal and what to conceal is crucial for many guilty suspects. This decision-making process is governed by the suspect's evaluation of the consequences, and their perceptions about the prior information or evidence held by the interviewer regarding their role in crime (i.e., PIK; Yang, Gyll, & Madon, 2016; Hartwig et al., 2014). That is, suspects make decisions about what parts of the information to reveal in order to appear credible, and how to respond to the interviewer's questions without contradicting the information they might already hold against the suspect. Suspects mainly manage the critical information using two broad strategies: (a) avoid mentioning critical information and provide a vague response, or (b) deny their role completely.

Perceived Interviewer Knowledge

Perceived interviewer knowledge (PIK) refers to the amount of information or evidence the suspect thinks the interviewer holds against them. Guilty suspects tend to report forming a hypothesis about the prior information held by the interviewer about their role in the crime (Moston & Engelberg, 2012; Hartwig, Granhag, & Strömwall, 2007). PIK is posited to be an important determinant of a guilty suspect's verbal behavior (i.e. the suspect's statements as a response to the interviewer's questions). That is, if the suspect perceives that the interviewer holds a lot of information, they tend to be forthcoming and reveal more information; if they perceive that the interviewer does not hold much information, they tend to withhold and reveal less information (Granhag & Hartwig, 2015; Granhag, Clemens, & Strömwall, 2009; Strömwall, Hartwig, & Granhag, 2006). Thus, the response strategy of the suspect determines the amount of critical crime-related information that the suspect decides to disclose (Granhag, Hartwig, Mac Giolla & Clemens, 2015).

Previous studies have shown that interviewers can alter suspects' perceptions regarding the evidence or prior information they hold by disclosing or withholding the evidence during the interview (Granhag et al., 2015; Granhag; Granhag, Rangmar & Strömwall, 2015). Based on the tactics employed by the interviewer, guilty suspects can overestimate or underestimate the prior information held by the interviewer (Hartwig et al., 2014). For instance, when the interviewer discloses evidence, suspects can estimate the interviewers' prior knowledge in comparison to when the interviewer does not disclose any evidence. If the interviewer does not disclose any evidence; suspects may not be able to estimate the

exact amount of information the interviewer holds against them. This could lead them to either overestimate the evidence held by the interviewer leading them to be forthcoming, or underestimate the evidence leading them to given statements that are inconsistent with the evidence held by the interviewer¹. Hence, it is critical for the suspect to carefully assess the content of the interviewer's questions (particularly if evidence is not disclosed in the questions) in order to partially predict the amount of information held against them. This assessment regarding how much prior information the interviewer holds will allow the suspect to employ a strategy to respond, i.e. whether to be forthcoming and provide information that is in line with the evidence held by the interviewer or to withhold information. These strategies are referred to as counter-interrogation strategies (Granhag et al., 2015).

Guilty Suspect's Counter-Interrogation Strategies

Counter-interrogation strategies refer to the suspect's attempt to convince the interviewer of their innocence (Granhag et al., 2015). Guilty suspects tend to decide on a strategy to respond to the interviewer before the interview begins- i.e. whether they want to be forthcoming or avoid giving responses or deny their role completely (Hartwig et al., 2007). The basic strategies guilty suspects tend to employ to convince the interviewer of their innocence are either to avoid revealing critical information about the crime or say nothing (Hartwig, Granhag, Strömwall, & Doering, 2010) or denying any involvement in the crime if they are not able to avoid giving a vague response or say nothing (Granhag, Clemens, & Strömwall, 2009).

It has also been found that guilty suspects shift their strategies from avoidance and denial to more forthcoming strategies when they are made aware of the information held against them by the interviewer (Granhag et al., 2015; Luke et al., 2014; Walsh et al., 2012). Guilty suspects also tend to shift their strategies based on their own inferences regarding what information the interviewer might hold (Tekin et al., 2015; Tekin et al., 2016). The counter-interrogation strategy that the suspect employs during the interview partly determines the verbal behavior of the suspect: i.e., how much critical information the suspect reveals regarding their role in the crime (Granhag et al., 2015). The decision of the suspect to choose a counter-interrogation strategy that leads to a specific verbal behavior can be understood from the concepts of the self-regulation theory (Carver & Scheier, 2012); i.e. regulating one's behavior to avoid an aversive stimulus. Since many guilty suspects attempt to convince the interviewer that they are innocent, and avoid being perceived as guilty, they persevere to maintain this impression of them by providing statements that are in line with the information held by the interviewer.

¹ In some countries (e.g. the US), interviewers are allowed to lie about and fabricate evidence. Fabricating evidence could lead to false confessions (see Kassin et al, 2010). However, within the SUE technique, the interviewer uses only real evidence to influence PIK.

Guilty Suspect's Verbal Behavior

As mentioned, verbal behavior within the SUE framework refers to the suspect's statement in the interview. During the interview process, these statements are compared to the evidence or information held by the interviewer about the suspect's possible role in crime. The suspects' statement is partly an outcome of the PIK and the resulting counter-interrogation strategy. That is, based on how much prior information the suspect thinks the interviewer holds, they employ a strategy to be forthcoming or withholding, and provide their statements accordingly. Since the suspects' statements are in part a result of their PIK, it is possible that the suspect could provide statements that are not in line with the evidence held by the interviewer. Granhag and Hartwig (2015) explain how interviewers can elicit verbal cues to deception from guilty suspects by using the discrepancies between the suspects' statements and the evidence held by the interviewer. For instance, interviewers could withhold evidence and ask a broad question regarding the suspects' activities to gather their account. This could give the suspect the impression that the interviewer does not hold much prior information against them. Once the interviewer has the suspect's statements, they can confront the suspect with the evidence in order to allow the suspect to explain the inconsistency. When the suspect's statements are in line with the prior information or evidence held by the interviewer, it is termed as *statement-evidence consistencies*. When suspects' statements contradict the evidence held by the interviewer, it leads to *statement-evidence inconsistencies*.

The statement-evidence inconsistencies are either due to suspects avoiding giving information or denying their role when the interviewer holds evidence that indicates the suspects' role in the crime. Sometimes, suspects provide a statement presuming that the interviewer may not hold any information regarding their role in the crime (low PIK). However, they can shift to being more forthcoming with information when they get the sense that the interviewer might hold more information (high PIK). The consistencies and inconsistencies with evidence is an important aspect of interviewing guilty suspects since interviewers can utilize the outcome of the interview to gather new information (Granhag, 2010). For example, if a suspect denies being at the crime scene when in fact the interviewer holds information or evidence that the suspect was present at the crime scene, interviewers can confront the suspect with this evidence in order to try to gather new information from them (Tekin, 2016).

Previous studies have found that suspects tend to report a verbal response strategy based on their hypothesis regarding the prior information held by the interviewer (Hartwig et al., 2007; Hines, et al., 2010). For example, a suspect could hypothesize before the interview that because they were being interviewed, the interviewer might hold some information that points in the suspects' direction. That is, the mere fact that the suspect was picked for questioning could lead to the suspect inferring that the interviewer might hold prior information or evidence pointing towards their involvement in the crime, influencing their statements.

PIK without Evidence-Disclosure

It has been described earlier that PIK has an influential role in determining suspects' strategies and resulting behavior. While the SUE technique mainly captures the influence of disclosing and withholding evidence on the suspects' PIK, it is possible that the mere context of the interview or the content of the questions could also influence PIK (irrespective of evidence disclosure). For instance, in everyday human communication, we are constantly drawing inferences and filling the gaps about what information the other person might know without the other person revealing any specific information. For example, imagine that your colleague says "I will join you for dinner after work. Is it at the usual place?" From this question, you can easily infer that your colleague knows that there is an existing plan for dinner after work. You can also fill in that your colleague is aware of the common place you usually go to for dinner after work. These inferences are effortless and allow us to effectively communicate with each other. Given how easily we can draw inferences from questions in everyday communication as illustrated, it is possible that within an interview set-up, suspects actively draw inferences regarding what the interviewer already knows irrespective of whether the interviewer discloses evidence or not from the content and context of the question.

Considering the aforementioned, it is possible that guilty suspects draw inferences from the content of investigative questions about the interviewer's prior knowledge. I explored this possibility with the aid of the concepts of psycholinguistic theories to design the studies and derive the predictions about question content factors that could influence the suspect's inferences. For this thesis, the concepts of *relevance theory* were adopted, as they explain how people draw various inferences from question content in everyday human communication context (Sperber & Wilson, 1995). The concepts of this theory are easily applicable to any human communication scenario, and for the specific context of this thesis, i.e. suspect interviews. In brief, relevance theory explains how people draw inferences regarding the prior knowledge of the speaker based on the content in questions. This understanding was adapted to a suspect interview paradigm. In the following section, I will provide a summary of the concepts of relevance theory that are adopted for the studies in this thesis.

Relevance theory

Sperber and Wilson (1995) proposed relevance theory to understand how people interpret and draw inferences from utterances. The theory is built on Paul Grice's (1975) work on pragmatic inferences. Grice proposed that all conversations operate on certain implicit norms that suggest that each utterance is relevant. While Grice did not specifically define the concept of what is considered "relevant" in the communicated information, Sperber and Wilson extended on this work to specifically defining what "relevant" was in their theory.

According to relevance theory, we draw inferences based on the prior assumption that the simplest, most straightforward interpretation of the communicated information is the correct one. This means that when a speaker makes an utterance, we make assumptions about what other things surrounding this utterance must be true, in order for it to be relevant and informative. For example, imagine that you are standing at a bus stop and waiting for the bus to the city center. It is 9:02. The next bus is at 9:04. Someone comes running to the bus stop and asks you "Has the bus left?" From the question you could easily assume the following things: (a) the person is not referring to a random bus from earlier or later, (b) the person is asking about the 9:04 bus to the city center (c) the person does not know if the bus has left or not. According to the theory, a question is asked because to answer to that question is assumed to be relevant to someone- most likely the person posing the question. In the case of the example above, a relevant response to the question would either be affirmative or negative. However, imagine if the person instead asked "Has the bus to the airport left?" your assumptions will change probably to the following: (a) the person needs to get to the airport, (b) the person is not asking about the 9:04 bus to the city center, (c) there is a bus to the airport that has either left or is yet to come. So a relevant response in this context would either be an affirmative, negative or stating that you are unsure.

The assumptions regarding what the other person already knows and what they want to know guides us to understand the content within the context and provide responses to someone for whom the response is relevant. Based on the content of the question, the relevance of the response changes (For a detailed understanding about how relevance theory treats questions, refer to Clark 1991; Jacobsen, 2010). For instance, it's Friday afternoon at work, and a co-worker, Chris, knocks on your door. That day, you have an important meeting scheduled at the same time most people are finished with work. He asks you the following question: "Are you free to come out for drinks later?" Here you are likely to make the following inferences: (a) Because this question would be most relevant if there is an actual possibility of going out for drinks (even though the question does not assert this fact), you infer there are plans to go out for drinks, either already made or in the process of being made. That is, you would likely interpret this as an invitation to a real event, rather than an inquiry about an entirely hypothetical possibility; (b) Chris seems to believe that the answer to this question would be of relevance and it is phrased such that a direct response would either be affirmative or negative. That is, a yes or a no here would be informative. If Chris knew about your meeting, he would know that the answer to this question would not be informative. Thus, you would infer that Chris does not know about your meeting.

From the example above, it is evident that a general question ("Are you free to come out for drinks later?") seems to be a request for information and could imply less prior knowledge about the prior commitment (Sperber & Wilson, 1995). However, let us consider that Chris asked you the following instead: "Will it be too late when your meeting is done for you to come out for drinks?" Here you would still draw the first inference (a) from above, but you would not draw the second inference (b), as it is clear from Chris's question that he is aware of the meeting

specifically because it is assumed he would only ask this question if he believed the answer to be relevant, and he would have to know about the meeting for the answer to this question to be informative. Thus, the concepts of relevance theory explain how listeners perceive different levels of the speaker's prior knowledge about the topic being communicated based on the mere content of the questions (Clark, 1991; Jacobsen, 2010).

Translating this understanding to a more specific context of communication, namely suspect interviewing, it was proposed that guilty suspects perceive various levels of prior knowledge (PIK) based on the content of the interviewer's questions. To the best of my knowledge, there has been no empirical research that has explored psycholinguistic influences on suspects' PIK. To bridge this gap, as illustrated with the examples above, a test of how changing small details within the question content could influence the suspect's PIK was carried out in two studies. Specifically, the focus was on the inferences drawn about prior knowledge based on the specific topic discussed within the frames of the interview. Additionally, the emphasis given to details within interview questions that make it possible to infer different amounts of prior knowledge were also tested.

SUMMARY OF EMPIRICAL STUDIES

Overview

The existing psycho-legal literature within the Strategic Use of Evidence (SUE) framework looks at how evidence can be used within investigative interviewing scenarios to elicit cues to deceit or truthfulness (for example, Hartwig et al., 2007; Granhag et al., 2009; Luke et al., 2013; Tekin, Granhag, Strömwall, & Mac Giolla, 2014; Tekin, Granhag, Strömwall, & Vrij, 2016). Specifically, researchers have looked at how the constructs of the SUE framework can be employed to determine suspects' decision-making processes and behavior. The main focus of this thesis is to understand the underlying mechanisms of the theoretical constructs of the SUE framework in order to strengthen existing theory and also to probe into unexplored aspects that could influence these constructs.

Particularly the aim was to understand how to elicit specific verbal behavior, viz. statement-evidence inconsistencies by altering suspects' counter-interrogation strategies through evidence disclosure tactics (Study Ia). The interviewing tactics consisted of:

- (a) *Early Disclosure*- evidence was disclosed early on in the interview. For example: "We have CCTV footage showing your presence in place X. Could you tell me what you were doing there?"
- (b) *Strategic Disclosure*- evidence was disclosed based on the suspect's response. If the suspect provided a statement close to the held evidence, the interviewer would acknowledge this. If the suspect contradicted the evidence, the interviewer would confront the suspect with evidence. For example: "Were you at place X?" If the suspect gives a response close to the evidence, then: "What you said explains the CCTV footage we have of you." If the suspect contradicts the evidence" "We have CCTV footage showing you were at place X. It looks like you are withholding information. Could you tell me what you were doing there?"
- (c) *Non-Disclosure*- evidence is not disclosed throughout the interview irrespective of the suspect's response. For example: "Were you at place X?"
- (d) *Direct Questioning*- only critical part of the crime is questioned about and evidence is not disclosed during the interview. "Were you at place Y where the documents were stored?"

Further, the idea behind Study Ib was to explore whether suspects' decisions regarding what to reveal and conceal depends on how incriminating the information is. The evidence-disclosure tactics from Study Ia- Early Disclosure, Strategic Disclosure and Non-Disclosure were adopted to test the ideas in Study Ib. Next, the aim was to explore if the construct of PIK can be influenced merely as a function of altering question content (Study II and Study III). In Studies II and III, crime-related detail and phrasing of the question content were altered to observe possible differences in PIK.

In the laboratory set-up of Study Ia, participants were instructed that they would take the role of a suspect and commit a mock-crime. Trained interviewers interviewed the participants in one of the four conditions after they committed the mock-crime. The suspect was instructed to convince the interviewer that they were innocent. After the interview, participants responded to a questionnaire regarding their strategies to convince, their perceptions of evidence held by the interviewer and their views of the interviewer. After this, participants were debriefed about the purpose of the study and compensated for their participation. The duration for the participation was about one hour.

For Studies Ib, II and III, the experimental setup was similar. The studies were conducted on the online platform Qualtrics with participants recruited from Amazon Mturk. Participants were instructed to assume the role of the suspect in the crime narrative that was presented. The narrative consisted of a background story to place the participants into the role and the context of the crime. It consisted also of specific crime-related activities carried out by the suspect. After reading this, participants were instructed to imagine that the police were interviewing them. They read interview transcripts that represented the suspect's interaction with the detective. Depending on the specific manipulations for each study, participants had to make decisions about how they would respond to the interviewer (Study Ib) and respond to scales that measured their PIK (Study Ib, II, and III). Once they completed these tasks, they were debriefed and compensated for their participation. The participants required an average of twenty minutes to complete Study II and III, and about thirty minutes to complete Study Ib.

The crime-related activities within the studies were designed as per the manipulations that were intended to be tested. The interview protocols used in the studies were divided into phases and topics based on each crime-related activity. In Study Ia, the crime-related activities were divided into three phases. Phase one and phase two were non-critical and not incriminating in nature. Phase three was critical, consisting of where the actual crime was committed, therefore a highly incriminating phase. In the Early-Disclosure and Strategic Disclosure interviews, the interviewer disclosed evidence only for phase one and phase two. The interviewer did not disclose evidence for phase three- the critical phase. In Study Ib, the crime-related activities were divided into four phases. Out of these, two were non-incriminating and two were highly incriminating. Evidence was disclosed in the interview protocols for all the phases. In Studies II and III, the crime-related activities had three phases each with equally incriminating information within the phases.

Table 1. Overview of the empirical studies in the thesis

Study	Method	<i>N</i>	Independent Variables	Dependent Variables
Ia	Laboratory	140	Interview Tactics: Early Disclosure, Strategic Disclosure, Non-Disclosure, and Direct Questioning	Statement-Evidence Inconsistencies
Ib	Online	216	Interview Tactics: Early Disclosure, Strategic Disclosure, and Non-Disclosure. Level of Incrimination: Non-Incriminating vs. Highly Incriminating	Statement-Evidence Consistencies, Perceived Interviewer Knowledge
II	Online	370	Question Content: Topic Discussion, Level of Specificity (General, Specific-Correct, Specific Incorrect), Stressor	Perceived Interviewer Knowledge
III	Online	232	Question Content: Topic Discussion, Level of Specificity (General, Specific), Level of Suspicion (Low, High)	Perceived Interviewer Knowledge

Study Ia

The aim of Study Ia was to test how various evidence-disclosure tactics would influence guilty suspects' counter-interrogation strategies and in turn how this would show as statement-evidence inconsistencies. Four interviewing tactics were tested: Early Disclosure, Strategic Disclosure, Non-Disclosure and Direct Questioning. Based on the theoretical underpinnings of SUE and previous findings it was predicted that Early Disclosure tactic would elicit low statement-evidence inconsistencies. It was also expected that the Strategic Disclosure condition would elicit shifts in counter-interrogation strategies leading to low statement-evidence inconsistencies. The Non-Disclosure condition and the Direct Questioning condition were expected to elicit high statement-evidence inconsistencies.

Method

Participants. We recruited 140 participants from a general population in Gothenburg, Sweden, who were recruited from a participant pool managed by the University of Gothenburg. The participants were randomly assigned to one of the four experimental groups. 79 identified themselves as male, 58 as female, and 3 as another gender. Participants' ages ranged between of 18 and 65 ($M= 41.1$, $SD= 13.61$). They committed the mock-crime in the same manner, irrespective of experimental condition they were in.

Procedure. Participants were instructed that they would commit a crime and that they had to avoid any interactions with other people in the building. They were given an instruction sheet that contained the background story to place them in the context and immerse themselves in the role for committing the crime. The sheet also contained the steps and specific instructions to carry out the crime. They were asked to be discreet while carrying out the tasks. They carried out the tasks in three parts as explained in the sections below. Once they completed carrying out the mock-crime, they were instructed that they were under suspicion of carrying out the theft and an interview would be carried out. The experimenter informed them that they had to convince the interviewer of their innocence by withholding the truth and providing an alibi for their presence in the building and the specific activities they carried out. The experimenter also instructed them that everyone who was in the building at the time were being questioned about the theft and that the interviewer is not aware of their specific activities. The suspect was informed that they were not the sole person interviewed so that they would not infer that the interviewer already held information regarding their involvement in the crime. One of the four interview tactics were carried out depending on the group the participant was placed in. After the interview was complete, participants responded to a post-interview questionnaire. They were then debriefed about the study and received compensation for their participation.

Results and Discussion

Upon inspection of the descriptive statistics for statement-evidence consistency (see Table 2), we immediately found a stark discrepancy between the results and the hypotheses (and, indeed, with the previous literature on suspects' statement-evidence consistency). Previous research suggests that guilty suspects often provide vague responses about their activities or deny incriminating information when they are not confronted with existing evidence (Hartwig et al., 2010; Colwell et al., 2006; Granhag et al., 2009). However, in this study, the suspects were forthcoming with information regarding some of the crime-related activities regardless of whether they were confronted with evidence or not. Figure 2 displays the frequency distributions for statement-evidence consistency across each interview condition and each phase of the interview (corresponding to each part of the mock crime).

Table 2

Statement-evidence consistency by condition and interview phase, Study 1

Interview condition	Phase	Mean	<i>SD</i>	<i>n</i>
Direct questioning	1			
	2			
	3	4.17	2.36	35
Early disclosure	1	8.60	1.03	35
	2	7.69	1.11	35
	3	4.46	2.48	35
Non-disclosure	1	8.15	1.02	35
	2	7.44	2.02	35
	3	5.26	2.48	35
Strategic disclosure	1	7.66	1.51	35
	2	6.69	2.62	35
	3	4.49	2.57	35

Note: Higher values indicate greater consistency with the evidence (or actual activities)

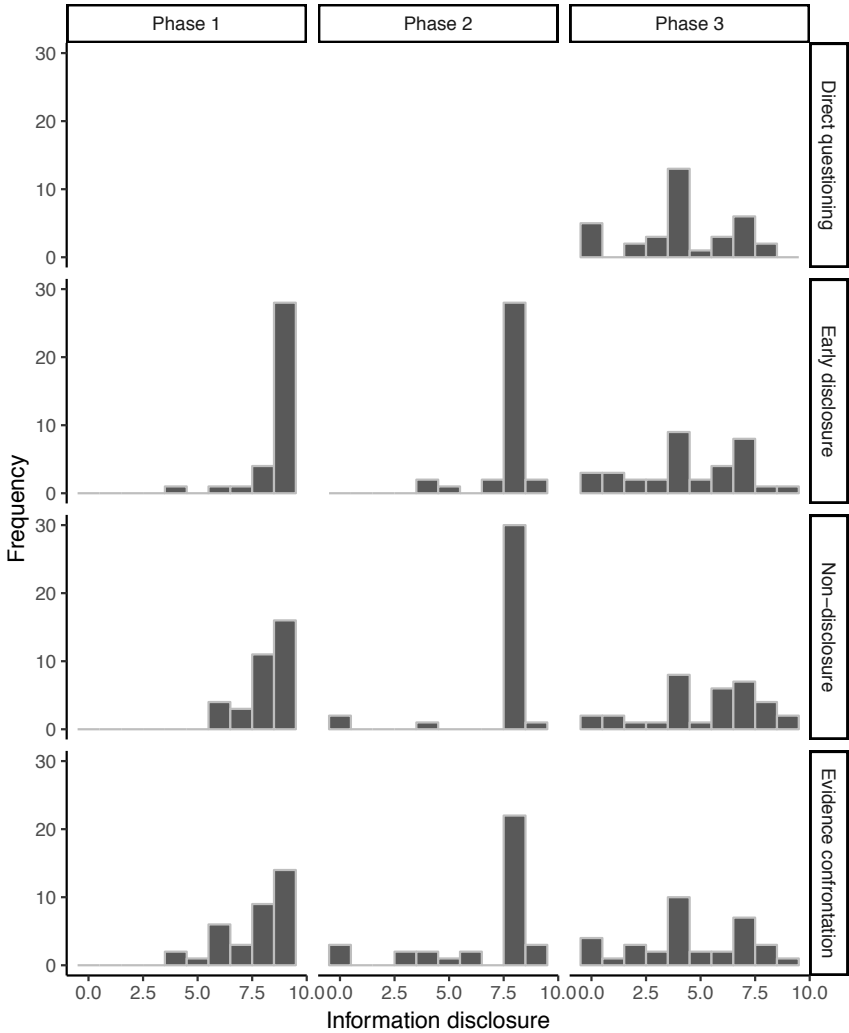


Figure 2

Distributions of statement-evidence consistency, across the interview conditions and crime phases (Study 1)

Note: Each row of panels represents an interview condition. Each column represents a phase in the interview. In each panel, the horizontal axis represents statement-evidence consistency (or information disclosure consistent with the facts).

The predictions were based on the theoretical underpinnings of the SUE technique and past research in the field that employed similar methods. However, the predictions were not supported. What was observed in the findings instead was that in all the interview conditions, participants provided statements that were in line with the evidence for phase one and phase two. However, for phase three, participants varied widely with their responses ranging between being vague or avoidant and denial. Previously, guilty suspects were observed to be forthcoming with information when confronted with evidence and to withhold information when not confronted with evidence. Since these results were inconsistent with the predictions and previous findings, the data from the study were further explored. It was found that suspects provided statements that were consistent with evidence about the non-critical phases (activities leading to the actual crime) while they withheld information about the critical phase (the actual crime). It was then posited that this outcome (i.e., suspects revealed information about the non-critical aspects of the crime) occurred because suspects would not incriminate themselves when they revealed information about the non-critical phase. That is, guilty suspects assessed the costs of disclosing specific parts of information regarding the crime irrespective of whether they were confronted with evidence or not. This finding was novel within the SUE framework. This particular finding has important implications for theory and future research. Particularly, the suggestion is that guilty suspects' information management strategies are more complicated than we have known through previous research. This directs us into a line of thought indicating the possibility of other factors that could influence the suspects' information management and decision-making processes during interviews. For example, the interview settings or the content of questions could also influence how suspects reveal or conceal information during the interview.

Study Ib

The aim of study Ib was to test if the findings from Study Ia could be conceptually replicated. That is, if the cost of disclosing information influences the relationship between statement-evidence consistency and perceived interviewer's knowledge. It was tested whether guilty suspects- as a function of the interviewing tactics- would withhold information that is incriminating in nature and reveal information that is not incriminating in nature but is part of the crime. For this, three of the tactics from Study Ia were used: Early Disclosure, Strategic Disclosure and Non-Disclosure. It was predicted that guilty suspects would be forthcoming with information and be consistent with evidence about non-incriminating crime-related information. Additionally, it was predicted that guilty suspects would be highly inconsistent with evidence regarding incriminating crime-related information.

Method

Participants and exclusion criteria. We recruited $N = 250$ MTurkers. Based on experience with similar procedures, we expected an estimated exclusion rate of 20%, which would result in approximately $N = 200$ (100 participants in each group) and a total of 800 observations (from four within-subjects measures of SEC). A power calculation indicated that this sample size was sufficient to detect an effect of $f^2 = 0.008$ ($d = 0.18$) with 80% power.

The study included an instructional manipulation check (IMC) to assess if the participant was paying attention throughout the study. The IMC consisted of a paragraph about an irrelevant topic that ends with asking the participants to ignore everything they read and insert a particular response in the box. If they have paid attention to the content of this paragraph, they would insert the response specifically mentioned. If they have not paid attention then they would choose one of the incorrect options provided below the question. The participants who failed this check were excluded. We also included five additional attention check questions regarding a specific detail of the narrative for participants to respond to. These questions were to monitor if the participant was paying complete attention to the narrative content and the interview questions while taking part in the study. Participants who had less than three correct responses on these questions were excluded. We had a total of 216 participants (108 male, 107 female and 1 other) aged from 20 to 69 ($M = 36.98$, $SD = 11.10$), after exclusions and a total of 864 observations.

Procedure. The study was administered online with the survey software Qualtrics. Participants completed a form consisting of basic demographic details such as their gender, age, education and ethnicity. This was followed by a brief description of the study and what their participation entails and instructions.

Participants read a crime narrative with the background story that placed them in the scenario of the crime. The background story contained details about a

revenge art theft that was carried out by the suspect in the house of the business partner. The suspect carried out all the activities related to the crime on the same evening of a party held in the house in four parts or phases. The activities consisted of: Highly Incriminating: (a) retrieving a key to the bedroom of the business partner (b) disabling a motion sensor alarm system by unlocking the business partner's phone, and Not Incriminating: (c) exploring the outside area from the bathroom on the same floor as the art piece to drop the art piece and retrieve it later (d) exploring the view from the balcony leading to the parking lot to steal the art piece in the car. Carrying out these activities resulted in four pieces of evidence that the interviewer used to question the suspect. The pieces of evidence included fingerprints for phase one, eyewitness testimony for phase two and phase three, and a photograph placing the suspect at the scene for phase four. These activities were written such that they could be carried out in any order. We designed the activities in this way so that we could randomize the order of presentation between participants to reduce any potential order effects. They responded to attention check questions between these scripts.

After reading the crime narrative, the participants were asked to imagine that the police was questioning them. They read interview transcripts regarding the suspect's activities and the transcripts represented their interactions with the detective. In these transcripts, they were asked to make decisions on how they would answer questions by the interviewer. Their task was to choose a response from four options that they thought would convince the interviewer of their innocence (SEC Scale), for example:

A witness informed us that you were seen handling Mr. Hamilton's phone on the evening of the party. Could you please tell me what you were doing with his phone?

YOU:

- a) I took his phone mistaking it to be mine since we have the same brand and tried to access it with my code.*
- b) I may have taken the phone mistaking it to be mine.*
- c) It's possible I took his phone but I don't specifically remember.*
- d) They must be mistaken. I did not take his phone.*

The options were based on mock-guilty suspects' responses at varying levels of statement-evidence consistencies and counter-interrogation strategies observed in previous laboratory studies, ranging between being forthcoming to avoidance and denial. The first option indicated high consistency with evidence and the last option indicated high inconsistency with the evidence. The two options in between indicated avoiding details and providing a vague response. We used a forced-choice response format (instead of an open-ended response, for example) to facilitate easier quantitative analysis. Other online experiments have successfully used similar procedures (see, e.g., Brimbal & Luke, 2019).

The interview transcripts consisted of questioning related to the crime-related topics, between the detective and the suspect. Every participant was presented with interview transcripts regarding all the activities the suspect carried out. The interview transcripts were presented after each topic, so a total of four interview transcripts were presented to each participant. Depending on the experimental group, participants received interview transcripts that contained interview questions in one of the three techniques used in the study.

After being interviewed, the participants filled out the PIK Scale: the suspect's perception of how much prior knowledge the interviewer had about the suspect's role in crime (1 = *Knew nothing*, 10 = *Knew everything*). Participants were then directed to the debriefing page where they were informed about the premise of the study following which; the payment for their participation was released.

Results and Discussion

Hypotheses-testing approach. To test the hypotheses we fit linear mixed effects models with Interview Condition and Level of Incrimination and their interaction terms as fixed effects. We also included random intercepts for each subject (nested in the order in which the phases were presented) and for each of the four crime phases.

Statement-evidence consistency (SEC). As predicted, we found a significant main effect of level of incrimination on statement-evidence consistency, such that suspects were more consistent in low incrimination phases than high incrimination phases (see Tables 3 and 4). We also observed the predicted main effect of interview condition, such that participants in the Non-Disclosure condition were less consistent with the evidence compared to the Early Disclosure condition. One can see in the frequency distributions illustrated in Figure 3 that in the Early Disclosure condition, the mock suspects demonstrated a strong tendency to be consistent with the evidence in Low Incrimination phases, but in High Incrimination phases, they were nearly evenly split between being highly consistent and highly inconsistent. In stark contrast, participants in the Non-Disclosure condition also tended to be consistent with the evidence in the Low Incrimination phases but to a lower extent than in the Early Disclosure condition. However, in the High Incrimination phases, those in the Strategic Disclosure condition strongly tended to be inconsistent with the evidence.

There was no significant difference in consistency between the Early Disclosure and Strategic Disclosure conditions for the Low Incrimination phases, and comparing the coefficients for the Non-Disclosure and Strategic Disclosure conditions indicated that the mock suspects in the Non-Disclosure condition tended to be significantly less consistent with the evidence, $z = -2.56$, $p = .005$. However, there was a significant interaction such that suspects in the Strategic Disclosure condition tended to be more consistent with the evidence compared to the Early Disclosure condition in the High Incrimination phases.

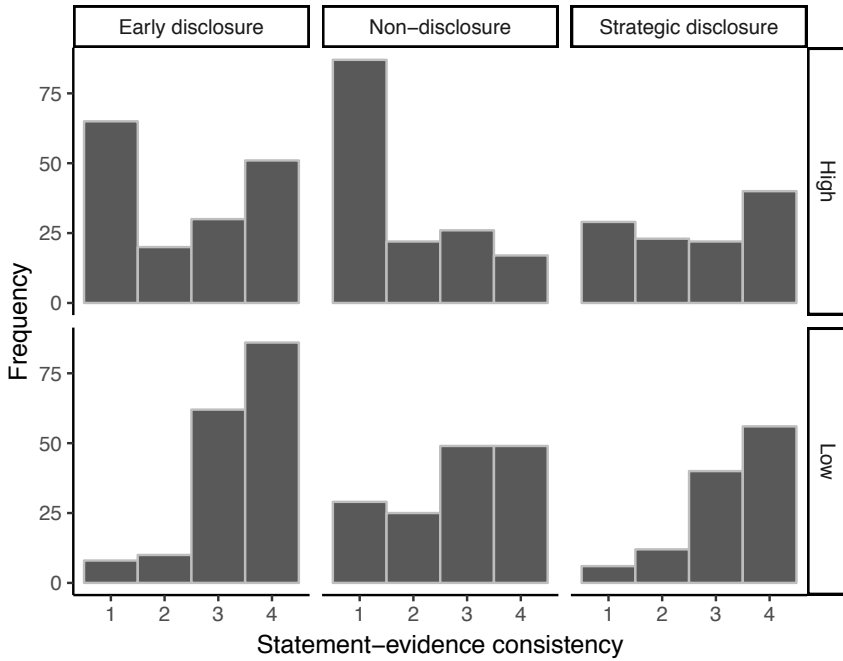


Figure 3

Distributions of statement evidence consistencies across interview conditions and levels of incrimination (Study 2)

Note: Each row of panels represents a level of incrimination (high vs. low). Each column of panels represents an interview condition. On each panel, the horizontal axis represents statement-evidence consistency.

Table 3

Descriptive statistics for statement-evidence consistency and perceived interviewer knowledge, Study 2

<i>Statement evidence inconsistency</i>			
Interview Condition	Level of Incrimination	Mean	SD
Early Disclosure	Low	3.36	0.80
	High	2.40	1.28
Non-Disclosure	Low	2.78	1.10
	High	1.82	1.08
Strategic Disclosure	Low	3.28	0.86
	High	2.64	1.21
<i>Perceived interviewer knowledge</i>			
Early Disclosure	Low	4.45	3.29
	High	4.38	3.29
Non-Disclosure	Low	3.81	2.99
	High	3.68	2.98
Strategic Disclosure	Low	5.16	3.39
	High	5.01	3.29

Note: Higher values indicate greater consistency with the evidence or higher perceived interviewer knowledge

Table 4

Mixed effects model: Statement-Evidence Consistency as a function of evidence Disclosure and Level of Incrimination, Study 2

Fixed effects					
Term	<i>b</i>	<i>SE</i>	<i>df</i>	<i>t</i>	<i>p</i>
Intercept (Early Disclosure, Low Incrimination)	3.36	0.16	3.6	14.96	< .001
Non-Disclosure	-0.58	0.13	406.7	4.34	< .001
Strategic Disclosure	-0.08	0.14	406.7	1.63	0.58
High Incrimination	-0.95	0.21	2.7	4.53	0.025
Non-Disclosure*High Incrimination	0.004	0.15	643	0.03	0.98
Strategic Disclosure*High Incrimination	0.32	0.16	643	2.01	0.045
Random effects					
Term	SD				
Subjects nested in orders	0.54				
Phase	0.19				
$R^2 = .497$, RMSE = 0.846					

Note: *t*-tests used Satterthwaite approximated degrees of freedom. Both factors use treatment contrasts. The reference group for interview condition is Early Disclosure, and the reference group for level of incrimination is Low Incrimination.

Perception of interviewer’s knowledge (PIK). As can be seen in Table 5, there were non-significant trends in the expected directions, such that PIK in the Non-Disclosure condition was lower than the Early Disclosure condition, and PIK in the Strategic Disclosure condition was higher than the Early Disclosure condition. There was no interaction between interview condition and level of incrimination.

Table 5

Mixed effects model: Perception of Interviewer’s Knowledge as a function of Evidence Disclosure and Level of Incrimination, Study 2

Fixed effects					
Term	<i>b</i>	<i>SE</i>	<i>df</i>	<i>t</i>	<i>p</i>
Intercept (Early Disclosure)	4.45	0.46	6	9.48	<.001
Non-Disclosure	-0.65	0.35	247	1.97	0.069
Strategic Disclosure	0.7	0.38	247	1.84	0.067
High Incrimination	-0.07	0.13	3231	0.54	0.59
Non-Disclosure*High Incrimination	-0.05	0.19	3231	0.28	0.78
Strategic Disclosure*High Incrimination	-0.08	0.2	3231	0.38	0.71
Random effects					
Term	SD				
Subjects nested in orders	2.06				
Phase	0.79				

$R^2 = .499$, RMSE = 2.294

Note: *t*-tests used Satterthwaite approximated degrees of freedom. Both factors use treatment contrasts. The reference group for interview condition is Early Disclosure, and the reference group for level of incrimination is Low Incrimination.

As predicted, guilty suspects were consistent with evidence regarding non-incriminating crime-related information and were inconsistent with evidence regarding the incriminating crime-related information. This outcome could be used to explain the findings from Study Ia and also supported the notion that guilty suspects make decisions about what information to reveal based on the cost of disclosing the information and not just as an outcome of evidence disclosure during questioning.

Study II

The aim of this study was to explore the SUE construct- perceived interviewer knowledge (PIK) as a function of question content. Previously, PIK has been tested as an outcome of various evidence-disclosure and withholding strategies (for example, Luke, et al. 2014; Hartwig, et al., 2014; Tekin, 2016). However, it was posited that it is highly likely that guilty suspects would actively seek information about prior evidence the interviewer held regarding their role in crime through the content of questions, even without evidence-disclosure. The concepts of *relevance theory*, a psycholinguistic theory that explains how people draw inferences concerning an individual's prior knowledge about the topic, from the content of the question posed by the individual, were adopted for the design and predictions in this study. Based on the concepts of relevance theory, three main question content factors were tested: (1) Topic Discussion (whether a specific crime-related activity was questioned about), (2) Level of Specificity (amount of crime-related details in the question) and (3) Stressor (emphasis on a specific crime-related detail). Based on the theory, it was predicted that Topic Discussion would increase PIK. That is, when the interviewer questioned about a particular topic related to the crime, it could imply prior knowledge about that activity. Additionally, it was predicted that specific and correct crime-related details in the questions would increase PIK to a higher extent than general questions and questions with specific incorrect details. This prediction about specific correct details increasing PIK was based on the understanding that the interviewer could only ask a question with specific and correct details if he or she held specific and correct prior knowledge regarding the activity. It was also predicted that Stressors would generally decrease PIK. This prediction was based on the understanding from the relevance theory concepts that when the interviewer stresses on a specific detail it could imply that he or she is specifically interested in that particular detail or that they have some prior knowledge only regarding that detail.

Method

Participants. We recruited $N = 434$ MTurkers as participants, to account for exclusions. We excluded the data of 64 participants who failed an instructional manipulation check (IMC) and attention check questions included in the survey. For the IMC, participants had to read an irrelevant paragraph about a certain topic that ended with an instruction to ignore the content they read and respond with a plus sign. For the attention checks, participants answered simple factual questions regarding the content of the transcript they had read. We excluded data from participants who failed to respond correctly to 2 or more of these 3 attention questions. Our final sample included $N = 370$ participants (307 females and 63 males; 19-72 years; $M = 37.89$, $SD = 11.51$). Power calculations indicated that a sample size of this size was sufficient to detect an effect of $f = 0.21$ with 95% power.

Procedure. The study was administered online using Qualtrics. Participants completed a form consisting of basic demographic details such as their gender, age, education, and ethnicity. A brief description of the study and instructions to take part in the study followed this.

Participants read a crime narrative with the background story that placed them in the scenario of the crime. The crime narrative was about illegal gun trading where the suspect who poses as a mechanic carries out illegal activities to transport gun shipments. They are encouraged to immerse themselves into the role of the suspect. The narrative consists of three activities the suspect carries out as part of the crime: (a) shipment of the illegal gun parts in an art museum through a truck driver; (b) obtaining illegal paperwork for shipments from a Police Officer working from the inside; and (c) shipment of the illegal gun parts on a shipping dockyard with the help of the loading manager. The activities were written such that they could be carried out in any order. We designed the activities in this way so that we could randomize the order of presentation to reduce order effects. Participants responded to attention check questions between these scripts.

After reading the crime narrative, they read interview transcripts regarding the suspect's activities and the transcripts represented the exchange between the suspect and the detective. They responded to a rating scale about how much prior knowledge they thought the interviewer had on a scale of 0 (low) to 10 (high) after they read the transcript regarding each crime-related activity. We referred to this as the Knowledge Inference Scale. The rating scale was presented as a set of three questions; one for each specific activity. The scale consisted of how much prior knowledge they thought the interviewer had about the activity that was questioned about in the transcript presented and also about the other two activities that were either presented earlier or not presented. Participants responded to this scale 3 times in total (once after each topic interview) adding up to 9 measures of PIK. We coded the measures as topic discussion (whether the specific interview transcript for the specific activity was discussed or not discussed).

Once they completed reading and responding to all the interview transcripts and the rating scales, they were presented with another rating scale measuring to what extent the suspect believed the interviewer wanted to obtain new information, corroborate existing information and obtain a confession. We referred to this as the Goal Inference Scale. The scale was rated between 0 indicating Not Likely at all and 10 indicating Highly Likely. After they responded to this scale, the study was complete. They were debriefed about the purpose of the study following which they received their compensation for participating in the study.

Results and Discussion

Hypotheses Tests. To test the Knowledge Inference hypotheses, we fit a linear mixed effects model with Specificity, Stressor, Topic Discussion, and their

interaction terms as fixed effects. We also included random intercepts for subjects nested under different conditions, order in which the Topics/crime phases were discussed, and for each of the three crime phases.

As predicted, we found a significant main effect of Topic Discussion on perceived interviewer knowledge such that guilty suspects inferred that the interviewer had more knowledge about a crime-related topic that was questioned about that seemed to increase PIK of other topics that were not questioned about. We did not observe the predicted effects for level of Specificity and Stressors. However, we noted that emphasizing on the questions content with Stressors seemed to overall reduce the suspect's perception of the interviewer's background knowledge in all the Specificity conditions, though this pattern was not significant. We also observed that Specific Correct details seemed to influence PIK in the expected direction such that the suspect inferred slightly higher interviewer knowledge in this condition in comparison to General and Specific Incorrect details (see Figure 4 and Tables 6 and 7).

Table 6

Mixed effects model: Perception of Interviewer's Knowledge as a function of level of Specificity, Stressor and Topic Discussion

Fixed effects					
Term	<i>b</i>	<i>SE</i>	<i>df</i>	<i>t</i>	<i>p</i>
Intercept (General)	5.37	0.54	3.4	9.99	< .001
Specific Correct	0.71	0.36	592.9	1.95	0.051
Specific Incorrect	-0.08	0.37	592.7	-0.2	0.83
With Stressor	-0.06	0.37	592.7	-0.16	0.86
Topic Discussion	0.51	0.18	2952.1	2.78	< .001
Specific Correct: With Stressor	-0.68	0.52	588.7	-1.3	0.19
Specific Incorrect: With Stressor	-0.17	0.53	592.4	-0.32	0.74
Specific Correct: Topic Discussed	-0.76	0.26	2952.1	-2.97	< .001
Specific Incorrect: Topic Discussed	0.08	0.26	2952.1	0.32	0.74
With Stressor: Topic Discussed	-0.15	0.26	2952	-0.57	0.56
Specific Correct: With Stressor: Topic Discussed	0.83	0.37	2952	2.28	< .01
Specific Incorrect: With Stressor: Topic Discussed	-0.07	0.37	2952	-0.19	0.85
Random effects					
Term	SD				
Subjects	1.68				
Order of topics discussed	0.14				
Topics discussed	0.81				

Note: *t*-tests used Satterthwaite approximated degrees of freedom. Both factors use treatment contrasts. The reference group for Topic Discussion is Topic Discussed, Specificity condition is General and Stressor is With Stressor.

Table 7

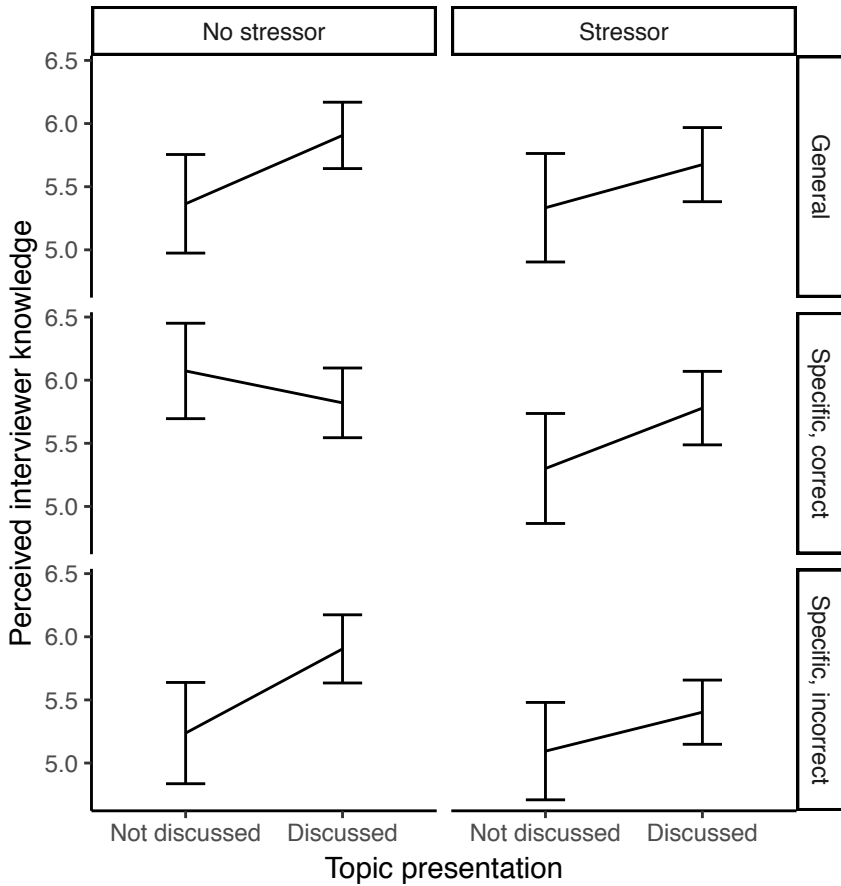
Descriptive statistics for perception of interviewer knowledge

Specificity	Topic Discussion	Stressor	Mean	SD	SE	Observations
General	Not Discussed	Not Present	5.36	2.76	0.20	192
General	Not Discussed	Present	5.33	2.99	0.22	186
General	Discussed	Not Present	5.91	2.63	0.13	384
General	Discussed	Present	5.67	2.89	0.15	372
Specific Correct	Not Discussed	Not Present	6.07	2.67	0.19	192
Specific Correct	Not Discussed	Present	5.30	3.01	0.22	183
Specific Correct	Discussed	Not Present	5.82	2.76	0.14	384
Specific Correct	Discussed	Present	5.78	2.84	0.15	366
Specific Incorrect	Not Discussed	Not Present	5.24	2.72	0.20	177
Specific Incorrect	Not Discussed	Present	5.09	2.64	0.20	180
Specific Incorrect	Discussed	Not Present	5.90	2.59	0.14	354
Specific Incorrect	Discussed	Present	5.40	2.46	0.13	360

Note: Higher values indicate higher perceived interviewer knowledge (PIK).

Figure 4

Means of PIK across Topic Discussion, Specificity and Stressor conditions



Note: Each panel represents an effect of topic discussion, i.e., whether a crime-related topic is discussed or not across the specificity and stressor conditions. The bars represent the increase in mean values across the specificity and stressor conditions as a function of topic discussion.

To test the goal inference hypotheses, we ran two-way ANOVAs to assess the effect of Specificity and Stressors on the goal inference measures. We predicted a main effect of the Specificity conditions on the goal inference measures. We did not predict a main effect of Stressor or an interaction between levels of Specificity and Stressor. The analyses show that there were no significant main effects or interactions (see Table 8). The hypotheses were not supported.

Table 8

Main effects and interactions of factors on Goal Inferences

Goal Inference	Factors	Sum of Squares	df	F	p
New Information	Specificity	34.02	2, 364	2.58	0.07
	Stressor	0.44	1, 364	0.06	0.79
	Specificity* Stressor	7.14	2, 364	0.54	0.58
Confession	Specificity	0.612	2, 364	0.04	0.96
	Stressor	14.229	1, 364	1.67	0.19
	Specificity* Stressor	3.909	2, 364	0.23	0.79
Corroboration	Specificity	0.884	2, 364	0.13	0.88
	Stressor	0.076	1, 364	0.02	0.88
	Specificity* Stressor	9.468	2, 364	1.42	0.24

The finding regarding Topic Discussion initiates a new line of thought since previous research has indicated that suspects infer higher prior knowledge only when confronted with evidence. That is, suspects infer some amount of prior knowledge when questioned about a certain activity regardless of crime-related detail or evidence. However, the findings regarding Specificity could imply that suspects may not infer higher or lower PIK based on the detail in the question but on the overall context of the question itself.

Study III

Study II resulted in interesting outcomes backed by a strong theory and indicated that the manipulations used in the study could be improved and that new question content factors could be explored. Study III was designed by developing on the theoretical underpinnings and findings from Study II. In this study, Topic Discussion was tested to check if the finding from Study II could be reproduced, since this was a consequential outcome. Level of Specificity was tested with a more prominent difference between the specific crime-related details condition and the general question condition compared to Study II. Additionally a new factor was introduced namely, Level of Suspicion. The Level of Suspicion condition was manipulated by inducing an accusatory tone i.e. high suspicion- in the interview transcript and compared the outcome with that of interview transcripts having a neutral- low suspicion tone. It was predicted that Topic Discussion would increase PIK as observed in Study II. It was also expected that specific crime-related details in questions would increase PIK in comparison to general questions. For the suspicion factor it was predicted that high suspicion interviews would increase PIK while low suspicion interviews would reduce PIK.

Method

Participants. We recruited $N = 250$ MTurkers. We excluded the data of 18 participants who failed an instructional manipulation check (IMC) and attention check questions included in the survey. For the IMC, participants had to read an irrelevant paragraph about a certain topic that ended with an instruction to ignore the content they read and respond with a plus sign. For the attention checks, participants answered simple factual questions regarding the content of the transcript they had read. We excluded data from participants who failed to respond correctly to 2 or more of these 3 attention questions. Our final sample included $N = 232$ participants (134 female, 97 male, 1 other; $M = 37.91$, $SD = 10.64$). An *a priori* power calculation indicated that this sample size is sufficient to detect an effect of $d = 0.18$ with 80% power.

Procedure. The study was administered online with the survey software Qualtrics. Participants completed a form consisting of basic demographic details such as their gender, age, education and ethnicity. This was followed by a brief description of the study and what their participation entails, and instructions. Participants read a crime narrative with the background story that placed them in the scenario of the crime. They were encouraged to immerse themselves into the role of the suspect. The narrative also consisted of activities the suspect carries out as part of the crime. The background story was about a revenge art theft that was carried out by the suspect in the house of the business partner. The suspect carried out all the activities related to the crime on the same evening of a party held in the house in three phases. The activities consisted of (a) retrieving a key to the bedroom of the business partner (b) disabling a motion sensor alarm system by unlocking the business partner's phone, and (c) retrieving a plastic bag and rubber bands from the

supply closet in the kitchen to secure the painting cut out from the frame. These activities were written such that they could be carried out in any order. We designed the activities in this way so that we could randomize the order of presentation between participants to reduce any potential order effects. They responded to attention check questions between these scripts.

After completing reading the crime narrative, the participants were asked to imagine that the police were questioning them. They read interview transcripts regarding the suspect's activities and the transcripts represented their interactions with the detective. The interview transcripts consisted of questioning related to the crime-related activities/topics, between the detective and the suspect. Every participant was presented with interview transcripts regarding all the activities the suspect carried out. The interview transcripts were presented after each topic, so a total of three interview transcripts were presented to each participant. Depending on the experimental group, participants received interview transcripts that contained interview questions in one of the two specificity and suspicion levels used in the study. After reading each part of the interview, the participants responded to the PIK scale. Participants were then directed to the debriefing page where they were informed about the premise of the study following which; the payment for their participation was released.

Results and Discussion

To test our specific hypotheses, we fit a linear mixed effects model with level of specificity, level of suspicion, topic discussion, and their interaction terms as fixed effects. We also included random intercepts for each subject (nested in the order in which the phases were presented) and for each of the three crime-related phases.

As predicted, we found a significant main effect of topic discussion on perceived interviewer knowledge such that suspects' inferences regarding interviewer's prior knowledge was higher about topics that were discussed in comparison to topics that were not discussed about. We did not observe the predicted effects for level of specificity and suspicion. However, we found a significant interaction effect of level of specificity and topic discussion such that higher level of specific details on a crime-related topic discussed increased the suspect's perceived interviewer knowledge (see Figure 5 and Tables 9 and 10).

Table 9

Mixed effects model: Perceived interviewer's knowledge as a function of level of specificity, level of suspicion and topic discussion

Fixed effects					
Term	<i>b</i>	<i>SE</i>	<i>df</i>	<i>t</i>	<i>p</i>
Intercept (General)	3.614	0.365	99	9.895	< .001
High Suspicion	0.303	0.465	302	0.653	0.51
Specific	0.008	0.468	302	0.018	0.98
Topic Discussed	0.668	0.192	1021	3.484	< .001
High Suspicion*Specific	-0.041	0.663	302	-0.062	0.95
Specific * Topic Discussed	0.578	0.256	1847	2.258	0.02
High Suspicion * Topic Discussed	0.172	0.253	1846	0.68	0.49
High Suspicion * Specific* Topic Discussed	0.169	0.362	1846	0.466	0.64
Random effects					
Term	SD				
Subject	2.25				
Order of topics discussed	0.14				
Topic	0.18				

Note: *t*-tests used Satterthwaite approximated degrees of freedom. Both factors use treatment contrasts. The reference group for *topic discussion* is topic discussed, level of specificity is general and level of suspicion is high suspicion.

Table 10

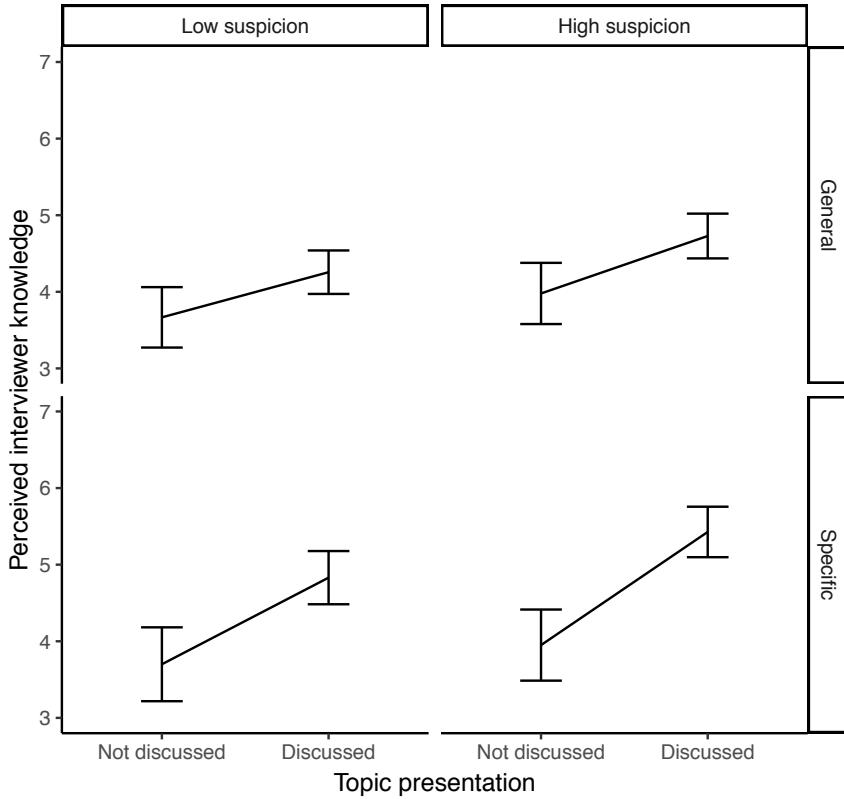
Descriptive statistics for perception of interviewer knowledge

Level of Specificity	Level of Suspicion	Topic Discussion	Mean	SD	SE	Observations
General	Low	Not Discussed	3.67	2.61	0.2	168
General	Low	Discussed	4.26	2.65	0.14	336
General	High	Not Discussed	3.98	2.78	0.2	186
General	High	Discussed	4.73	2.88	0.14	372
Specific	Low	Not Discussed	3.70	3.30	0.24	180
Specific	Low	Discussed	4.83	3.36	0.17	360
Specific	High	Not Discussed	3.95	3.01	0.23	162
Specific	High	Discussed	5.43	3.03	0.16	324

Note: Higher values indicate higher perceived interviewer knowledge (PIK).

Figure 5

Means of PIK across *topic discussion*, *specificity* and *suspicion* conditions



Note: Each panel represents an effect of topic discussion, i.e., whether a crime-related topic is discussed or not across the specificity and suspicion conditions. The bars represent the increase in mean values across the specificity and suspicion conditions as a function of topic discussion.

As expected, Topic Discussion increased PIK as observed in Study II. Another interesting outcome was that questions with specific details increased PIK when the topic was discussed. That is, specific crime-related details in the question only had an impact if a specific activity was discussed about but not otherwise. This finding strengthens the outcome for Topic Discussion further and directs researchers towards the possible outcomes of questioning suspects about activities irrespective of the amount of prior information held by the interviewer.

Regarding the findings for Level of Suspicion, there was no support. That is, level of suspicion in the interview questions did not seem to impact the suspects' PIK. It was posited that the suspicion manipulation in the interview transcripts was rather subtle and this could have led to the current outcome. A stronger manipulation of this factor could lead to interesting findings.

GENERAL DISCUSSION

In the present thesis the relationships between the theoretical constructs of the SUE technique were examined. That is, the following specific relationships were studied: (a) counter-interrogation strategies as a function of evidence-disclosure and withholding tactics (Study Ia) (b) how evidence disclosure tactics affected guilty suspects' decisions regarding what counter-interrogation strategies to use and how this, in turn, was manifested in their verbal behavior (Study Ib) (c) perceived interviewer's knowledge as a function of question content factors (Studies II and III).

In Study Ia and Ib, the understanding of guilty suspects' counter-interrogation strategies and verbal behavior was explored by using previously established SUE interviewing tactics. In Study II and III, the construct of PIK for guilty suspects was studied. Particularly, the aim was to test the construct of PIK as a function of question content. The main reason for this was that previous studies have tested this construct only as a function of evidence-disclosure tactics. Overall, the purpose was to contribute more knowledge relevant to the SUE model. Testing the constructs of the SUE model through the empirical studies fulfilled this aim. It was found that the relationships between the constructs were influenced by additional factors (Figure 6). That is, there is now new evidence that PIK can be influenced through factors other than evidence-disclosure tactics (Study II and III). The studies have also provided evidence that guilty suspects make decisions regarding what information to reveal and conceal, not only as an outcome of influencing PIK and counter-interrogation strategies, but also by assessing the cost of disclosing information (Study Ib). That is, guilty suspects tend to actively make decisions regarding what information to reveal or conceal, irrespective of whether they are confronted with evidence or not. Differently put, suspects break down the crime-related information into smaller pieces and consider the pieces of information that would be costly (incriminating) to reveal and those that would not be costly (non-incriminating) to reveal (Neequaye & Luke, 2018). The SUE model with the additional influencing factors (in grey) tested in the empirical studies is summarized in Figure 6.

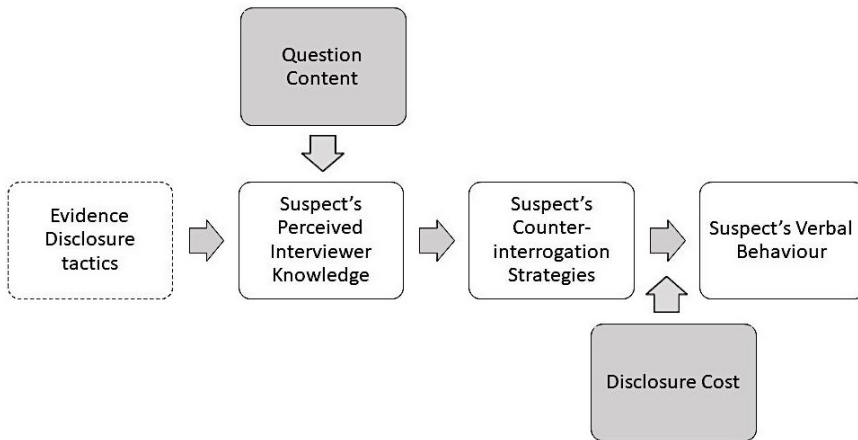


Figure 6.

Additional determinants of guilty suspects' strategies in the SUE model.

The figure summarizes the relationships between the underlying constructs integrated within the traditional SUE model. The figure indicates a more dynamic view of the environment between the interviewer and the suspect with additional determinants that could influence the interview outcomes. Firstly, it can be noted that the mere content of investigative questions could influence the suspects' PIK. This could have important implications in terms of the resulting counter-interrogation strategies or verbal behavior of the suspect such as suspects being more forthcoming with information about topics that are critical to the investigation.

Secondly, suspects seem to make active decisions regarding information management and assess the cost of disclosing information. While it was expected that there was a rather straightforward relationship between the suspects' counter-interrogation and verbal behavior, the disclosure cost component complicates this relationship. That is, it provides the understanding that guilty suspects' decision-making processes are complex and may be influenced by other factors. For example, it would be interesting to test whether the suspect's specific role in a multiple perpetrator crime would influence their statements against each other- that is, whether the suspect would assess the cost of disclosing certain information against another suspect if this would prove to be less incriminating for the suspect.

Main Findings

Information Management based on Disclosure Cost

Earlier SUE research has provided robust findings regarding the relationships between perceived interviewer's knowledge and guilty suspects' counter-interrogation strategies (Tekin, 2016; Hartwig et al., 2007; Luke et al., 2014). Based on these findings, the assumption was that guilty suspects would reveal information when they are confronted with evidence but may otherwise tend to withhold information (Hartwig et al., 2005; Hartwig et al., 2011). Until now, the indication was that there is a direct relationship between (a) how much knowledge the suspect perceives the interviewer to hold, and (b) the information revealed by the suspects.

However, the findings from the empirical studies in this thesis (Study Ia and Ib) show that guilty suspects may be forthcoming with certain pieces of information that are not incriminating in nature and withhold incriminating information. This was observed to be true irrespective of the level of the suspects' PIK. Hence, there is new evidence that guilty suspects' carry out more complex decision-making processes regarding how to manage the information they hold. That is, guilty suspects tend to decide what information to conceal or reveal based on the cost or consequence of revealing or concealing that information: what is referred to as *disclosure cost* in this thesis (see Neequaye & Luke, 2018).

Disclosure cost is a theoretical perspective that explains how suspects make decisions with regard to the information they reveal and conceal during interviews. Neequaye and Luke (2018) suggest that the information held by the suspect is cut into smaller units, each of which holds certain cost of revealing. That is, some units of information hold lower risk when revealed while certain units are riskier when revealed in terms of the consequence of incriminating oneself. Hence, suspects could be more forthcoming with information that is perceived as less costly to reveal and can withhold information that is perceived as more costly, irrespective of whether they are confronted with evidence or not.

Although the finding about how guilty suspects are forthcoming with non-critical crime-related information might seem like an obvious outcome, it has not been tested before. Often, the implicit assumption regarding guilty suspects' behavior is that they do not disclose any information about their crime-related activities to avoid incriminating themselves. However, in both Study Ia and Ib, the findings suggest that even though the suspects played a role of being engaged in criminal activities, they were willing to reveal information about some of those activities. If guilty suspects believed that any information related to the crime was incriminating then they would be cautious and stay away from disclosing that information.

The findings from Study Ia and Ib have two important implications that could allow us to speculate the use of these findings in practice.

(a) One view that could be taken into consideration is the importance of the less incriminating details of the crime. In case the investigators have no physical evidence or have some trivial evidence that may not link the suspect to the crime in any way, the interviewer could question about the less incriminating details in order to gather relevant information that would aid the investigation. Thus, it raises the possibility that an interviewer could use the findings from Studies Ia and Ib in a tactical manner based on the purpose of the interview.

(b) Since suspects may be prone to revealing less incriminating but crime-related information, an interviewer could begin by questioning only about the less incriminating details of the crime so that the suspect discloses a lot of supposedly low-incriminating details. A shift from questioning about less incriminating to more critical aspects could result in a spillover effect. Simply put, a suspect giving highly detailed narratives regarding the less incriminating parts of the crime and suddenly backtracking by avoiding details or denying their role could appear as highly suspicious to the interviewer. This behavior could hinder the impression of innocence that the (guilty) suspect tried to maintain by being forthcoming earlier. This is an idea that should be tested in future studies.

Question Content Influences on Perceived Interviewer Knowledge

As mentioned, previous SUE literature has explored the construct of PIK primarily as a function of evidence-disclosure strategies employed by the interviewer (Hartwig et al., 2005; Hartwig et al., 2006; Clemens et al., 2010; Jordan et al., 2012). However, the studies in this thesis (Studies II and III) explored PIK as an outcome of the changes in the content of the questions asked during the interview. While the expectation was that including specific crime-related content in the questions would influence the suspects' PIK, it was found that irrespective of the details in the questions, simply addressing a particular topic or crime-related activity influenced PIK. That is, when suspects were questioned about specific crime-related activities they inferred that the interviewer held some amount of information against them, whether the questions were vague with less detail or more specific with details related to the crime. This could imply that irrespective of whether the interviewer holds prior information against the suspect or not, questioning about possible crime-related activities that the suspect might have carried out could lead to gathering critical information.

Previous studies using the SUE paradigm indicated that guilty suspects inferred higher prior knowledge as an outcome of evidence confrontation during interviews, but inferred low or no prior knowledge if no evidence was disclosed (Tekin et al., 2015; Tekin et al., 2016). The studies in this thesis indicate that suspects, regardless of whether they are confronted with evidence or not infer some prior knowledge if the interviewer addresses a topic of the crime. This could imply that there is a difference between the inferences drawn by the suspects when a certain topic is discussed, irrespective of the details in comparison to when no

question is asked about particular activities. It seems that guilty suspects assess the overall context of the question asked rather than the specific details within the questions to draw their inferences concerning what the interviewer knows about their role in crime. This raises the possibility that interviewers could influence the suspect by asking any question related to the crime that could have important implications in terms of the suspects' resulting behavior. That is, suspects could reveal more critical information based on their inference that the interviewer holds prior knowledge about the suspects' involvement. It is important to test this possibility in the future.

Extending the scope of existing theory

Early work on the SUE framework (Hartwig, 2005) was aimed at establishing a robust theory-driven technique to optimally utilize the existing information regarding the suspects' role in crime. The theoretical underpinnings have been discussed in the introduction of this thesis (for a more extensive treatment of the SUE theory, see Granhag et al., 2015). Traditional SUE studies are based on the three theoretical principles of that are directly related to the suspect- i.e. PIK, counter-interrogation strategies and verbal behavior. It is of prime importance that the theory is tested using varying perspectives in order to strengthen and develop it based on new findings. This thesis contributes to existing SUE theory by exploring additional factors related to the suspect that could influence interview outcomes. I believe that it is worthwhile extending the theory since this would not only improve the technique but also provide a deeper understanding of the underlying mechanisms that are applicable within interviewing techniques. For example, various evidence-disclosure "tactics" have been tested over the last decade (Bull & Milne, 2004; Bull et al., 2010; Bull & Leahy-Harland, 2012; Dando et al., 2015; Granhag et al., 2009; Granhag, Strömwall, Willén & Hartwig, 2012; Hartwig et al., 2006; Sorochinski et al., 2014, Tekin et al., 2016; Vrij, Fisher, Mann, & Leal 2006; Walsh et al., 2012).

Given the large body of research examining specific tactics within the suspect interviewing paradigm for varying outcomes such as detecting deception and gathering information, it is important to address the underlying mechanisms that entail the interviewing tactics. Alison and colleagues (2013) suggest that whilst having a "technique" would help interviewers create structure and a process, strengthening the understanding of constructs involved in different techniques could be highly beneficial. Knowing when in the interview to alter what specific construct to derive a particular behavior from the suspect may be key to optimizing the outcome of an interview. That is, suspects tend to respond to interviewers in relation to the strategies used by the interviewers and display adaptive patterns of relating to the interviewer.

Coming back to the findings from the empirical studies in this thesis, there are two theoretical implications that are of high value. The first implication is based on the fourth theoretical principle of the SUE technique, i.e. *perspective taking*.

Perspective taking refers to the cognitive ability of an individual to anticipate the behavior of others by understanding the outcomes of a situation from the others' perspective (Galinsky, Maddux, Gilin, & White, 2008). Perspective taking within the SUE framework is defined from the point of view of the interviewer as a cognitive ability to assess the suspects' PIK and predict their counter-interrogation strategies and verbal behavior (Granhag et al., 2015). However, this thesis offers an understanding of perspective taking from the suspects' point of view. That is, suspects also indulge in perspective taking within an interview setting and adapt their patterns of responding to the interviewer. The second is a broad proposition within the suspect-interviewing paradigm: research focus should move from specific techniques to understanding the smaller aspects or underlying constructs that builds the technique.

On the first implication, this thesis showed that guilty suspects made decisions regarding what information to reveal or conceal depending on how incriminating the information was (Studies Ia and Ib). Suspects made decisions that they could reveal certain crime-related information to the interviewer so that it portrays a picture of the suspect being forthcoming to a certain level to the interviewer to maintain their impression of honesty. Hence, suspects might respond based on their perspective of what the interviewer wants to know and what the interviewer already knows. Suspects' indulging in perspective taking can also explain the findings in Studies II and III where Topic Discussion resulted in a higher PIK irrespective of the details in the questions. To elucidate, suspects might imagine that if the interviewer were to ask a question regarding a specific activity, regardless of the detail in the question, the interviewer should know something about the activity to be able to ask the question to begin with.

To elaborate on the second implication, it is necessary to conduct research into understanding how manipulating different variables within an interview paradigm influences suspects' strategies (for example, understanding the underlying mechanisms of suspects' counter-interrogation strategies). This, in turn, could benefit interviewers, irrespective of the technique used. A second aspect that has been explored in this thesis is the construct of PIK. As discussed earlier, suspects enter the interview with a hypothesis regarding the interviewer's prior knowledge. Interviewers are benefitted by altering a suspects' PIK through various tactics, irrespective of the evidence disclosed by the interviewer or the detail that the question contains, (some of which have been tested in the studies here). Thus, a suggestion for future research within the suspect-interviewing paradigm would be to look into other possible determinants of suspects' strategies and behaviors that could strengthen existing theory and practice.

Perceived Interviewer Knowledge: A Preliminary Analysis

Within the SUE framework, the interviewer's evidence disclosure and withholding tactics are employed to influence PIK (e.g. Hartwig; 2005; Hartwig et al., 2011; Granhag et al., 2013; Tekin, 2016). This makes the SUE framework less expansive in comparison to other interviewing techniques in terms of its scope and research prospects since it relies highly on the use of evidence to influence PIK and obtain desired outcomes. To address this issue, the present thesis provides some empirical support to show that PIK can also be influenced by the mere content of the investigative questions, where evidence is not manipulated. But why do we, as interviewers and researchers in the investigative interviewing framework need to broaden our perspectives on influencing PIK through question content without depending on the use of evidence? In certain scenarios, evidence disclosure might be unlawful, inappropriate or dangerous. These situations demand employing tactics to elicit information without the use of evidence.

Let us consider a situation where the identity of an informant who has obtained critical evidence has to be protected, since revealing the source of the evidence would pose a threat to the informants' life. In this situation, the interviewer will hold evidence that cannot be disclosed in the interview. However, the interviewer has the responsibility to gather critical information from the suspect that would point in the direction of the evidence held by the interviewer. For this purpose, the knowledge of this evidence can be utilized to tactically phrase questions in order to obtain information regarding the evidence from the suspect. Another scenario where the use of evidence would be considered unlawful is in the military intelligence scenarios. The evidence held by the interviewer would be classified information and hence, the interviewer cannot disclose this information in the interview. However, like in the previous scenario, the interviewer can use the prior knowledge to question tactically and gather critical information.

A study showed that awareness of possible evidence held against the suspect, even when evidence has not been disclosed resulted in suspects drastically altering their counter-interrogation strategies by being highly forthcoming or highly withholding (Luke et al., 2014). It would be difficult to gather reliable information from suspects if they decide to be highly withholding due to their perception of evidence. In this scenario, posing questions that are ambiguous in terms of the prior knowledge or evidence held by the interviewer might prove beneficial in the information-gathering process.

There are also situations in which the evidence held by the interviewer might be trivial and the interviewer might not benefit from disclosing the evidence. For example, if the interviewer only holds evidence that a witness saw the suspect near the crime scene at the time of the crime, the suspect might find a way to explain this evidence. However, if the interviewer instead asks questions regarding the activities of the suspect in the crime scene (assuming that the suspect was indeed at

the crime scene because of the eyewitness evidence), the suspect might infer higher PIK and disclose critical information.

Limitations

One of the major limitations of the studies in this thesis is the use of laboratory (Study Ia) and online settings (Studies Ib, II and III) to collect data with samples consisting of lay people. While one can argue that these type of studies may not reflect the actual behaviors of guilty suspects like in a real-life scenario, we need to consider the fact that collecting data from actual suspects within a prison-set up is not always a viable option. The sample was not representative of suspects in a typical real-world interview context. It is possible that more realistic conditions could provide us with outcomes that could be more generalizable. For Study Ia, a mock-crime paradigm that has been used in some SUE research (e.g. Tekin, 2016) was adopted. The mock-crime and mock-interview set-up could have influenced the behavior of the participant that could be different from a typical suspect in a real-life interview. Due to a low-stakes environment, unlike a typical suspect-interview, the participants may not have engaged in active and strategic decision-making processes that real suspects would do in an interview.

Granhag and colleagues (2009) demonstrated that there is a notable difference in the behavior of real suspects in comparison to mock-suspects. That is, the mock-suspects were more forthcoming with crime-related information in comparison to real suspects. The researchers concluded that mock suspects revealed more information due to their belief that they had to convince the interviewer of their innocence, whereas real suspects disclosed less since they were aware that the police should find evidence to prove their guilt. Thus, it is highly likely that if real suspects were used in Study Ia, the outcome might have been different. However, given that the aim of the study was to understand how the SUE tactics influenced the theoretical constructs of the SUE technique rather than the practical application of technique itself, the outcome of the studies are of considerable value.

Study Ib was conducted online where participants had to make decisions and choose from existing responses by posing as a suspect. Although this is not representative of a typical suspect interview, the idea was to understand the specific strategies people might employ if they were to be a suspect depending on the interviewing tactics used. For Studies II and III, the aim was to test how people draw inferences based on subtle linguistic alterations in the content of interview questions. Since the purpose of the studies was to test how people draw inferences from basic content, rather than context (i.e. suspect interviews), this limitation is not serious to the outcome of the studies. These studies were conducted online with careful methodological considerations to produce valuable outcomes. For example, Brimbal and Luke (2019) collected their data with participants from Amazon MTurk (the online platform where the participants in the studies of this thesis were recruited). They collected qualitative data from their participants regarding their behaviors in

the study. The participants provided complex reasons for their behavior that not only showed their engagement with the materials of the study, but also showed that their responses were consistent with the results from past work on suspects' strategies (e.g. Granhag et al., 2008; Hartwig et al., 2006). The counter-interrogation strategies and verbal behavior of the suspects in Study Ib in this thesis also show consistency with results from past research within the SUE paradigm (e.g Tekin, 2016). This shows promise in the data collected through online paradigms.

While suspects' behaviors were studied in Study Ia and Ib, a major limitation of Study II and Study III is that the suspect's behavioral consequences were not assessed as an outcome of their PIK. The studies were specifically designed to test and understand the consequences of altering question content on PIK since this was unexplored in previous research. The decision to exclude behavioral aspects from these studies was so that the studies could provide a clear understanding of the psycholinguistic concepts underlying questions and inferences. However, it could be interesting to design future studies to test behavioral outcomes of PIK through psycholinguistic concepts.

The scope of the studies was limited to guilty suspects. The constructs that were intended to study were of more relevance to guilty suspects strategies rather than innocent suspects. This is because guilty suspects are known to use various counter-interrogation strategies and shift their strategies to conceal critical information based on PIK. Innocent suspects tend to provide statements that are in line with the evidence and do not shift strategies based on their PIK (Hartwig et al., 2014).

Another limitation of the findings from the empirical studies is the effect sizes. The effect sizes in all the studies were very small ranging from a Cohen's *d* of 0.10 to 0.14. More participants need to be recruited to increase the power of the studies, specifically for Studies Ib and III. However, due to the lack of resources and time, more participants could not be recruited.

The final limitation is that this thesis provides a few practical implications since the effect sizes of the findings in the empirical studies were not strong. However, the thesis was set out to add to and strengthen existing theoretical understanding within the SUE framework and that aim has been met. The findings provide practitioners with a dynamic view of the interviewing environment along with an understanding of the underlying processes of suspects.

Future Directions

The findings from the studies in this thesis suggest that determinants of suspects' behavior is not as straightforward as known previously within the SUE framework. These findings open up new areas of research. As mentioned earlier, Studies II and III did not test behavioral outcomes of guilt suspects as a function of

PIK. This is an important aspect that needs to be tested in future research. It would also be interesting to test if PIK as a function of question content will elicit behavior in the same lines as evidence-disclosure tactics. For example, would questioning about a certain crime-related topic elicit shifts from withholding to forthcoming behavior in guilty suspects in the same way confronting with evidence regarding that activity does?

Furthermore, a strong psycholinguistic theoretical framework backed question content factors influencing PIK tested in the studies. In future studies, the theoretical framework can be used to explore various communication factors within a suspect-interviewing paradigm. For example, it can be tested if this framework can be adopted to explore inferences that interviewers can draw from suspects' responses in interviews.

The findings from the empirical studies resulted in very small effect sizes. One important question to consider is what circumstances would lead to larger effects. One of the possibilities is that the manipulations used in the studies were rather subtle. In that case, are there stronger manipulations that would lead to larger, more consequential effects? It is highly likely, given the consistency of the findings in the studies in this thesis that having stronger manipulations would lead to larger effects.

Lastly, future studies could incorporate the disclosure cost perspective theorized by Neequaye and Luke (2018) to design and analyze the interview outcomes. Since guilty suspects analyzing the costs of disclosing critical information during interviews was an unexpected finding in Study Ia that was later a confirmed finding in Study Ib, researchers should consider exploring this phenomenon further.

Ethical Considerations

The experimental design in Study Ia required the participants to commit a mock crime where they were supposed to steal documents from an office. They were also instructed to lie during the interview. The participants could have viewed these activities as stressful since they actively carry out activities that are considered wrong. To minimize the stress levels of the participants, they were told before they consented to participate in the study that the activities they carry out do not have any real-life consequences and it was only to simulate a real-life setup. They were also informed that they were free to leave the study at any point if they found the tasks stressful. The mock-crime was committed within the University building and all the staff and security were informed of these activities so that they would not question the participant based on their suspicious behavior. Studies Ib, II and III were online paradigms and participants only read stimulus materials and responded to questions from the point of view of the suspect. The participants reported no issues regarding their participation in these studies. Ethical approvals for all the studies in this thesis were obtained from the ethics committees at the University of Gothenburg.

A second possible concern could be related to the use of tactics that involves withholding evidence and manipulating suspects' inferences regarding the evidence held by the interviewer. Concealing information or evidence in a suspect interview paradigm to use against the suspect at a later stage is not considered unethical (Hartwig, Luke, & Sherker, 2016). Particularly, these tactics are considered ethical when used in interviews that do not infringe upon the autonomy of the person's decision-making (e.g. accusatory or coercive interviews), but rather through an information-gathering approach.

There have been concerns regarding the practice of strategic interviewing techniques within the criminal justice system with respect to the advice lawyers can provide their clients. Lawyers argue that when they do not possess full knowledge of the prior information held by the police against their client; they will be unable to provide legal advice to safeguard their clients (Sukumar, Hodgson, & Wade, 2016). However, it is the responsibility of the investigators to find out the truth in order to deliver justice to the victim of the crime. In this interest, disclosing what the investigators already hold against the suspect before the interview could obstruct the process of gathering important information from the suspect. For example, disclosing evidence prior to or early in the interview could influence the suspect to only reveal information explaining the existing evidence. It is also possible that suspects could be influenced by the misinformation effect (Loftus, 2005) if the evidence presented by the investigator may not be true (for instance, wrong eyewitness testimony (Luke, Crozier & Strange, 2017).

Conclusions

The past two decades have seen a new wave of research in suspect interviewing, pointing in the direction of evidence-disclosure tactics to elicit cues to deceit/truth and gathering critical information effectively. While most research has focused on developing interviewing tactics and models, there has been a dearth of research to understand the underlying mechanisms and theoretical constructs that build these techniques. The aim of this thesis was to better understand the underlying mechanisms of suspect behavior so as to strengthen existing theory and provide new direction for future research. Three major conclusions can be drawn from this thesis.

First, understanding the theoretical constructs that act as a foundation for interviewing techniques is of prime importance. This in-depth analysis of the underlying constructs not only strengthens the existing theory but also provides a robust foundation for constructing interviewing techniques. Second, the dynamic environment that exists between the interviewer and the suspect entails complex processes that require deeper scrutiny. That is, interviewers should make a conscious effort in understanding the mechanisms on which suspects operate in order to optimize the interview outcomes. At the same time, they should also consider the

fact that suspects also could actively focus on understanding the interviewer's tactics in order to effectively convince that they are innocent. Third, although the constructs studied in this thesis form the basis for the SUE technique, these constructs are applicable in other techniques that employ the use of evidence. In fact, it is important for practitioners to focus on understanding the constructs that are used to build techniques in order to adapt this understanding in various interviewing scenarios.

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