

THE PSYCHOLOGY OF INTERROGATIVE SUGGESTIBILITY

Thesis submitted for the degree of
Doctor of Philosophy
at the University of Leicester

by

Kim E. Drake, BSc (Leicester)
School of Psychology
University of Leicester

December 2009

THESIS ABSTRACT

This thesis uses structural equation modelling to gain an insight into the psychological mechanism governing individual differences in interrogative suggestibility. It investigates why vulnerable interviewees tend towards a negative mindset before and during interview, which in turn appears to generate the factors that Gudjonsson and Clarke (1986) consider central in eliciting suggestible behaviour during questioning. The research considers the relationship between neuroticism (vulnerability especially) and compliance within the Five-Factor personality model, attachment anxiety and avoidance, the experience of intense negative life events and interrogative suggestibility. The key findings are that: (1) answer shifts on the Gudjonsson Suggestibility Scale (GSS) may sometimes come about through compliance and not suggestibility. Vulnerable interviewees may not always believe the negative feedback given by the interviewer and therefore not feel uncertain about their memory. Uncertainty may not necessarily be a pre-requisite for shifting on the GSS; and (2) Attachment anxiety and avoidance (as well as trait compliance with respect to answer-shifts) is related to an endogenous susceptibility to distress. These factors may be the basis of the negative mindset within vulnerable interviewees, evoking expectations of success, sometimes causing uncertainty, and inducing vulnerable behaviour. Such behaviour may manifest as false statements and confessions during interview.

ACKNOWLEDGEMENTS

I am especially indebted to the following individuals:

My supervisors: Professor Ray Bull and Dr Vince Egan.

My PhD examiners: Professor Gisli Gudjonsson and Dr John Maltby.

Dr Elizabeth Austin (Chapter 3) and Professor Mark Shevlin (Chapter 4) for their helpful structural equation modelling advice, during the revision process of these studies.

I would also like to thank:

The anonymous peer reviewers for their helpful feedback on each of the submitted manuscripts.

TABLE OF CONTENTS

ABSTRACT.....	I
ACKNOWLEDGMENTS	II
TABLE OF CONTENTS	III
CHAPTER 1: INTRODUCTION.....	1
A brief history of suggestibility	8
Interrogative suggestibility	12
<i>The Gudjonsson and Clarke (1986) model</i>	13
Interrogative compliance	16
The influence of adverse life events on interrogative suggestibility	19
Attachment anxiety and avoidance	22
Neuroticism and the Five Factor model of personality.....	25
Thesis aims and objectives.....	30
CHAPTER 2: LIFE ADVERSITY AND INTERROGATIVE SUGGESTIBILITY	31
Method	35
Results.....	39
Discussion	42
Limitations and conclusion	46
CHAPTER 3: ATTACHMENT ANXIETY, LIFE ADVERSITY AND SENSITIVITY TO INTERROGATIVE PRESSURE.....	51
Moderation v. mediation effects of life adversity	53
Method	56
Results.....	60
Discussion	70
Limitations and conclusion	72

CHAPTER 4: LIFE ADVERSITY, NEUROTICISM, COMPLIANCE AND INTERROGATIVE SUGGESTIBILITY	75
Method	80
Results.....	83
Discussion	90
Limitations and conclusion	92
CHAPTER 5: THE PSYCHOLOGY OF INTERROGATIVE SUGGESTIBILITY: A VULNERABILITY DURING INTERVIEW	94
The role of insecure attachment, neuroticism and life adversity	95
Compliance	98
Method	100
Results.....	104
Discussion	110
Limitations and conclusion	112
CHAPTER 6: CONCLUSION.....	115
Why can innocents be vulnerable during questioning?	117
Interrogative suggestibility: What else has been learned?.....	130
<i>The importance of negative perception.....</i>	130
<i>The Gudjonsson Suggestibility Scale</i>	132
Interrogative suggestibility: When is it an issue and what is still to learn?.....	137
REFERENCES.....	141
APPENDIX I	165

CHAPTER 1: INTRODUCTION

On November 20, 1974, six men were arrested on suspicion of involvement in the bombing of two public houses by the IRA. The evidence leading to their arrest was a positive Greise Test (a test which is able to determine whether or not the men had handled explosives, shown by the presence of nitro-glycerine) as well as written confessions from four out of the six men. There was also some circumstantial evidence linking these men with the IRA.

Another case of wrongful conviction occurred in October 1975 when the Guildford Four (Paul Hill, Gerry Conlon, Patrick 'Paddy' Armstrong and Carole Richardson) were sentenced to over 15 years imprisonment for the Provisional Irish Republican Army's (PIRA) Guildford pub bombing. Again, the court relied almost exclusively on the confession statements that the four had made during interrogation. At trial the Guildford Four claimed that they had been tortured into confessing (see Gudjonsson, 2003 for an overview of case). Later the Appeal Court decided that all of which were the inevitable result of interrogative pressure and coercion.

As a consequence of inappropriate interviewing, vulnerable interviewees can sometimes produce unreliable testimony and/or information during police interview (Bull & Milne, 2004; Gudjonsson, 2003). It must be made clear though that this vulnerability is only likely to manifest in conjunction with a substandard interview. Every individual, regardless of whether they may be vulnerable, should be able to be effectively interviewed (Milne & Bull, 1999, p. 2). What is paramount is the quality of the investigative interview, as it is this which seems to dictate the extent to which an interviewee is likely to express their vulnerability. In England and Wales, interviewers adhere to the Police and Criminal Evidence act (1984) and PEACE

model of investigative interviewing. The PEACE acronym identifies the steps of the model, which reflect the interview procedure; these are: Planning and preparation, Engage and explain, Account, Closure and Evaluate. These Governmental guidelines (Home Office, 2007) specify how to [successfully] interview vulnerable persons to achieve best evidence.

Since the introduction of these guidelines the number of cases of wrongful conviction has decreased within the UK (see appendix I) for a summary of the cases of wrongful conviction due to suggestibility over the past ten years). The number of cases of wrongful convictions remains relatively higher, however, in countries such as the United States, where more persuasive interviewing methods are still legally acceptable. For example, The Reid Technique has been shown to be the interview technique most commonly implicated in wrongful conviction cases (Gudjonsson, 1992; Kassin, 1997). Recent research shows that police induced false confessions are found in approximately 15-20% of wrongful conviction cases in the US (Kassin, Drizin, Grisso, Gudjonsson, Leo & Redlich, in press). Drizin and Leo (2004) analysed 125 cases of proven false confessions in US between 1971 and 2002: 81% of those cases went to trial ended in wrongful convictions. These findings show that between 1992 and 2002 there were still proven cases of police induced false confessions in the US (which is in contrast to England and Wales, where they have (since 1992) become less common [Bull & Milne, 2004; Milne & Bull, 1999]).

In 1992 England and Wales saw the introduction of the Memorandum of Good Practice [1992] which later became Achieving Best Evidence (Home Office, 2002; 2007). We can see that these guidelines have obviously had a positive effect on the interviewing of suspects. The implementation of the Police And Criminal Evidence

Act of 1984 (PACE), the PEACE model of investigative interviewing, as well the Governmental guidelines (Home Office, 2002; 2007), seems to have been relatively effective in achieving its aims to: (i) protect vulnerable/suggestible interviewees from coercive police interviewing methods; and (ii) instruct Police and practitioners in the art of effective investigative interviewing of witnesses and suspects.

Prior to 1992 the interviewing style was more accusatory (Moston, Stephenson & Williamson, 1992). Interviewers regularly used persuasive and coercive tactics designed to obtain a confession from the suspect (Irving, 1980). The interviewee was passive within the interview, which seemed not to help with the retrieval of accurate and reliable information. Research also shows that leading questions are present quite regularly within the interviews (McConville & Hodgson, 1993; Pearse & Gudjonsson, 1996). The pre-1992 interviewing style is quite different from the current style of interviewing, which seeks to investigate (rather than interrogate) and obtain reliable information from the interviewee (as opposed to purely obtaining a confession).

The reduction in the use of inappropriate interviewing tactics coincides with the introduction of PACE (1984). PACE appears to have helped reduce the number of false and/or unreliable confessions obtained. The emphasis of the “post 1992” style of investigative interviewing is on information gathering; the interviewer being a facilitator (Milne & Bull, 2004; Home Office, 2007). The introduction of audio and video taping of investigative interviews also helped trigger a shift in interviewing style from being one of “persuading a denying suspect to confess to that of being an evidence gatherer” (Baldwin, 1993; Milne & Bull, 1999, p. 6).

The Reid technique adopts a more accusatory, confession-seeking, style (similar to the pre-1992 methods observed within England and Wales). This can be seen within

the nine steps of interrogation that Inbau, Reid and Buckley (2001) suggest interviewers use.

The Reid Interrogation phase:

Once suspects have been informed of their constitutional rights, they are then subjected to the interrogation. The Reid interrogation phase is designed to extort confessions, with the training manual advocating and encouraging the use of psychologically manipulative techniques in order to meet these ends. According to Inbau et al., 2001, the nine steps for 'effective interrogation' are as follows:

Step 1- Tell the suspect that there is overwhelming evidence, even from witnesses, of their guilt. Even though this may be a lie, it is done to coax the suspect towards a confession. (Such deception is not allowed in some countries [Home Office, 2007].)

Step 2- Try to shift the blame away from the suspect and on to another person(s), which helps develop reasons that justify the crime committed.

Steps 3- Never allow the suspect to deny guilt. Allowing the suspect to deny guilt is assumed to cause greater difficulties in obtaining a confession; it also encourages requests for a lawyer to be present.

Step 4- After the suspect has been prevented from denying guilt, the accused will often give reasons why he or she did not, or could not, commit the crime. The investigator should try to use these reasons to move towards a confession.

Step 5- Make sure that the accused thinks that the investigator is sincere; reinforce this sincerity, to make sure that the suspect remains receptive.

Step 6- The suspect will then become quieter and listen. Take advantage of the fact that s/he has become passive and is on the verge of giving up, and try to move the theme of discussion towards offering alternatives. The interrogator should try to focus the suspect's mind on central and specific themes surrounding the reasons why s/he committed the offence. At this point the interrogator should show signs of sympathy, understanding, and to urge to suspect to tell the truth. Some suspects cry at this stage, but this should be reinforced and used to the interrogator's advantage: "Crying is an emotional outlet that releases tension; it is also a good indication that the accused has given up and is ready to confess" (p.351; Inbau et. al., 2001).

Step 7- "Alternative questions" are then posed to the suspect; these questions allow one of two answers about committing the crime, both implicating the suspect and one which is more socially acceptable than the other. Admittedly, the suspect will more often choose the easier option, however, whichever they choose, guilt is inferred.

Step 8- Prompt the suspect into admitting their guilt in front of witnesses.

Step 9- Document the suspect's admission, and have them sign a confession.

One can see here clearly the potential for unreliable information being extracted from vulnerable persons. The Reid technique basically embodies two strategies- "maximisation" and "minimisation"- the choice of which is implemented based upon the emotional state of the suspect. Maximisation involves the interviewer leading the suspect into confessing by exaggerating the strength of their supposed offence.

Minimisation on the other hand is used with more remorseful suspects; in effect they

[the suspects] are lulled into a false sense of security and confession by the interviewer's apparent sympathy and understanding. The interviewer may also employ other subtle manipulative tactics, such as providing the suspect with face-saving excuses, thereby minimising the role of the accused in the offence.

Despite the explicit nature of the Reid Technique (and the comparatively more effective PEACE model), recent evidence (chapter 3; Drake, Egan & Bull, in submission; and chapter 4 [Drake, 2009]; Jakobsson-Ohrn & Nyberg, 2009) points to the interviewee's perception of the interview, which may be most critical during interview. It is the interviewee's perception of the interview which may, in conjunction with quality of the interview, dictate the extent to which vulnerable behaviour may express itself (this may, at times, manifest as suggestibility).

An investigative interview may be appropriate, with no evidence of any explicit pressure. Nonetheless, vulnerable interviewees may still be prone to perceiving pressure/coercion (see chapter 3 [Drake et. al., in submission] and chapter 4 [Drake, 2009]). In spite of rigorous safe-guards designed to protect vulnerable interviewees, some vulnerable suspects may still perceive coercion, or at least not feel like they are given the chance to tell the truth (Jakobsson-Ohrn & Nyberg, 2009). This because vulnerable interviewees may be more inclined to negatively interpret interviewer behaviour. Such interviewees may be more likely to perceive negative feedback, evoking expectations of success, uncertainty and therefore suggestible responses (Gudjonsson & Clarke, 1986).

Proving that a seemingly voluntary confession is, in fact, a product of the suspect feeling coerced may prove problematic, since it is difficult to reliably determine

whether or not a suspect feels or perceives pressure during an interview. Such individuals may remain vulnerable during interview – even under the PEACE model. This may be as a result of such interviewees being sensitive to very subtle (often subconscious from the interviewer’s perspective) interviewer influence/behaviours (e.g. subtle changes in facial expression, minute changes in tone of voice and/ or sometimes even the mere presence of the interviewer) (Baxter & Boon, 2000; Baxter, Boon & Marley, 2006; Baxter, Jackson & Bain, 2003). The latest research infers the potential for yielding unreliable evidence even in countries such as the UK where investigative interviews are more tightly monitored. Research into understanding why vulnerable interviewees make false statements/confessions during interview remains important and necessary, regardless of the interview strategy adopted.

Interrogative suggestibility and false confessions may be a consequence of combining poor interviewing with interviewee-psychological vulnerability. Much research has been conducted into the nature of these two constructs in an attempt to curb their frequency (see Baxter, 1990; Bruck & Melnyk, 2004; Gudjonsson, 2003; Kassin, 1997), yet, despite this, false confession and wrongful conviction rates remain an issue (see www.innocenceproject.org).

The 15-20% figure mentioned earlier, cited in Kassin et. al. (in press) paper, represents those false confessions that are: (i) not disproved before trial; (ii) do not result in a guilty plea; (iii) those in which DNA evidence is not available; and/or (iv) those given in minor criminal cases, or from juveniles. Studies in Iceland and Denmark have revealed that false confessions can occur within the student population questioned by police (Gudjonsson et. al., 2006; 2008; 2009). This percentage (the 15-20%) probably represents a minority of cases of false confessions that have come to

light over the decades; the tip of the iceberg in terms of the actual number of false confessions made during police interview.

Police induced false confessions seem to be (and remains) an issue around the world. Understanding why certain interviewees are more likely to make false statements and be sensitive to pressure (two manifestations of interrogative suggestibility; Gudjonsson, 1992) during questioning compared to others remains important to the applied forensic setting.

A brief history of suggestibility

The notion that individuals could be suggestible was first noted in the work of James Cattell (1895), who conducted some of the earliest research on the psychology of testimony. Cattell posed a series of questions to students at Columbia University who had previously seen a staged event, asking them to provide responses and to also rate their degree of confidence in their answers (Cattell, 1895). Cattell's findings revealed a surprising degree of inaccuracy amongst the students. This in turn generated interest amongst other psychologist at the time that went on to conduct further experiments on witness memory. This transformed the notion of suggestibility into a behavioural concept that could occur within the wakeful/conscious state (and not just after hypnotic suggestion).

Inspired by Cattell's work, Alfred Binet (1900) replicated Cattell's research and studied the results of other similar psychology experiments that applied to Law and Criminal Justice. Binet used tests of "prestige" to investigate the apparent malleability of memory. Those tests were designed to measure suggestibility or malleability in the face of another person (i.e. the experimenter or interviewer). The progressive weights

and lines test on the other hand was somewhat different, and formed part of a battery of suggestibility tests designed to measure both “primary suggestibility” (ideomotor suggestibility measured by hypnotisability, body sway, the Hand Press test, amongst other such tests) and “secondary suggestibility” (or gullibility).

Evidence supporting the existence of a secondary suggestibility factor initially proved somewhat mixed (see Eysenck & Furneaux, 1945; Benton & Bandura, 1953).

Eysenck and Furneaux questioned the reliability of the tests used to measure secondary suggestibility, citing the lack of test-reliability as a possible reason for the less than convincing evidence (for the secondary suggestibility factor) emerging from some of the subsequent studies.

This may well be the case, but the absence of a significant secondary suggestibility factor in Benton and Bandura’s research may well have been for other reasons (see Benton & Bandura, 1953). Eysenck and Furneaux used psycho-neurotic male Army patients. Those participants may well have been considered vulnerable by today’s standards, as a result of their high levels of neuroticism and shell-shock, (they were soldiers from World War 2) (PACE, 1984; Achieving Best Evidence, 2002; 2007).

Secondary suggestibility was thought to measure gullibility (Eysenck, 1947).

Evidence suggests that trait anxiety and neuroticism correlates fairly strongly with suggestible behaviour during questioning (Gudjonsson, 1988; Gudjonsson, 2003; Wolfradt & Meyer, 1998). Eysenck’s participants may have been naturally more suggestible/gullible, giving rise to the secondary suggestibility factor in their experiment.

There may well be a degree of shared variance between the secondary suggestibility and the concept of interrogative suggestibility (which will be discussed shortly). Both secondary and interrogative suggestibility may reflect some degree of “gullibility” or susceptibility to influence (Gudjonsson, 1992; Gudjonsson, 2003); interrogative suggestibility may be a particular manifestation of secondary suggestibility (and the police interview may be a particular instance within which secondary suggestibility may occur).

Evidence suggests that both suggestibility concepts (secondary suggestibility and interrogative suggestibility) are related to similar variables (e.g. intelligence and neuroticism). This implies that both concepts may share a degree of similarity; Donnellan, Assad, Robins, & Conger, 2007; Donnellan, Burt, Levendosky & Klump 2008). The absence of a secondary suggestibility factor in Benton and Bandura’s (1953) research could be attributed to sample differences across experiments. The participants in Eysenck and Furneaux’s (1945) experiment may well have been more easily influenced (more vulnerable) and thus more gullible. This could have caused the secondary suggestibility factor to emerge within their study (but not within Benton and Bandura’s study).

There have been other experiments verifying the existence of “secondary suggestibility”. Stukat (1958) researched different tests of primary and secondary suggestibility in Sweden and found support for the presence of a secondary factor of suggestibility. In particular he noted a need for conformity and to follow expectations as the essential drives underpinning this type of suggestibility (this is similar to interrogative suggestibility; Gudjonsson & Clarke, 1986). Eysenck and Furneaux’s

participants scored high on neuroticism and therefore may have been more likely to conform or follow expectations.

Prior to this time, the concept of suggestibility was primarily used within social and abnormal psychology to explain hypnotisability and other such subconscious behavioural responses. It was assumed that every thought could eventually become a realistic action as a result of that particular thought having penetrated a person's consciousness. Binet's experiments (as well as those of Eysenck and Furneaux [1945] and Benton and Bandura [1953]) generated a paradigm shift: for the first time psychologists began to understand that suggestibility could occur during a wakeful state, as a result of the influence of another person.

Later the paradigm shifted further, demonstrating that suggestible behaviour could be brought about during police interview, as a result of combining misleading questions with pressure. The idea that leading questions could produce distorted recollections was not what was new. Stern's work in 1910 and 1939 was the first to provide empirical evidence indicating that certain people could come to accept misleading information – detrimentally affecting the accuracy of their memory for a witnessed event – when asked leading questions [by an interviewer]. The notion that external influence may be required was also not new: What Binet concluded especially was the importance of several key factors in causing suggestibility during a wakeful state: (i) the recipient being relatively obedient or open to mental influence, (ii) the recipient having a tendency to imitate, and (iii) the suggestion somehow paralysing the recipient's critical sense. What was the new idea, however, was the application of the concept of suggestibility to the forensic setting (in particular the police interview).

The idea emerged that explicit pressure/negative feedback could render an individual

more susceptible to misleading information via heightened uncertainty, expectations of success, and therefore ineffective coping methods during interview leading to suggestible responses (Gudjonsson & Clarke, 1986).

Interrogative suggestibility

Interrogative suggestibility concerns the private acceptance of suggestions and can be a serious psychological vulnerability during police interview (Gudjonsson, 2003; Gudjonsson, Young & Bramham, 2007). It can manifest during interview in two ways (Gudjonsson, 1992; 2003): (i) The acceptance of inaccurate information; and (ii) sensitivity to interrogative pressure from the interviewer. Understanding why certain individuals are more prone to making false statements during questioning, which may be the basis of a subsequent wrongful conviction, is important within the applied forensic setting.

Across academic and applied forensic settings the Gudjonsson Suggestibility Scale (GSS; Gudjonsson, 1984; 1987; 1997) is frequently used to measure interrogative suggestibility. The GSS measures a variety of functions: (i) memory recall, (ii) confabulation, and (iii) interrogative suggestibility – susceptibility to misleading information and sensitivity to negative feedback. “Yield 1”, “Yield 2” and “Shift” are the GSS measures most relevant to the current issue in question (details regarding the scoring of the GSS is presented within the method sections of chapters 2-5). Yield 1 measures misinformation acceptance in the absence of any explicit or overt pressure during interview. Yield 2 measures misinformation acceptance under or in response to interview pressure. Shift measures a tendency to change [initial] answers in response to interview pressure.

Interrogative suggestibility explains differences in eyewitness performance, the accuracy of statements made during interview, internalised-coerced false confessions; it discriminates between false confessors and resistant interviewees (Gudjonsson, 2006).

The Gudjonsson and Clarke (1986) model

The Gudjonsson and Clarke 1986 model has been the long-established theoretical framework explaining how vulnerable individuals come to be suggestible during an interview. The model supposes that the interviewee (naïve to the GSS task) enters the interview room with a general cognitive set (or mindset). This is dictated by how they respond to the novel interview situation, the presence of the interviewer, and may determine their behavioural response to the GSS interview questions. That is, whether interviewees resist or yield to the suggestive questions. It is proposed that several factors are important in eliciting the suggestible response: (i) uncertainty surrounding the correct answer(s) to the question(s), (ii) expectations of success: interviewees may feel that the interviewer expects them to know the correct answer, (iii) the use of negative feedback during the interview, designed to unnerve the interviewee, and (iv) the establishment of interpersonal trust/rapport between the interviewer and interviewee; this seems to enhance the believability of the negative feedback, rendering it more penetrative. The Gudjonsson and Clarke model thus appears to provide a relatively comprehensive explanation of interrogative suggestibility during the GSS procedure; that is, how leading questions integrate with the negative feedback aspect of the model to occasion high suggestibility scores.

Although there has been much research into the individual differences correlates of interrogative suggestibility (see Gudjonsson, 2003 for an overview), the psychological

mechanism governing performance on the Gudjonsson Suggestibility Scale (which demonstrates how individuals come to be suggestible) seems to an extent unresolved. This is therefore the focus of the thesis. When questioned on an event previously seen, sometimes experiencing uncertainty seems a natural consequence, given memory for events deteriorates over time and is influenced by expectations and schemas (Loftus & Palmer, 1974; Milne & Bull, 1999). This is especially the case when given distracter tasks to divert attention and thought from the event/narrative in question (Fruzzetti, Toland, Teller & Loftus, 1992). When subsequently questioned (especially if leading questions are used) uncertainty within interviewees seems inevitable. Similarly, when it comes to expectations of success – feeling that they [the interviewee] should know the answer; what might be the basis of this [heightened] tendency within vulnerable individuals?

Uncertainty or expectations of success are relevant, but I am simply arguing that the psychological mechanism underpinning interrogative suggestibility is more complex than the Gudjonsson and Clarke (1986) model offers. It is important to understand the basis of the psychological mechanisms driving suggestible behaviour, as this would allow insight into how such vulnerability might be effectively managed during interview (see chapter 6). It may help practitioners appreciate the complexity of this behaviour and understand the reasons why vulnerable interviewees are vulnerable. This may assist interviewers in their planning of interviews with vulnerable individuals.

A second unresolved issue is the extent to which the GSS actually measures interrogative suggestibility (i.e. the private acceptance of misleading information and negative feedback; Gudjonsson, 2006) and not just compliance. Compliance is

considered a coping mechanism during arduous situations and/or interpersonal conflict (Costa & McCrae, 1992). Shifting on the GSS could be a manifestation (or observable consequence) of (interrogative) compliance rather than interrogative suggestibility (at least to an extent). If this is the case then the uncertainty factor may not always be a pre-requisite for answer shifting in response to negative feedback (see chapters 4 and 5). Some vulnerable individuals may be certain about what they remember but shift their answers through a desire to avoid conflict (with the interviewer). Such vulnerable individuals may have a negative perception of the interview situation, the interviewer, and the negative feedback. Vulnerable individuals tend to view the GSS task post negative feedback as more arduous (McGroarty & Baxter, 2007; 2009); compliance is a coping mechanism, often implemented during interpersonal conflict (Costa & McCrae, 1992); uncertainty may not always be a factor.

Compliant interviewees are aware that they are being influenced (Gudjonsson, 1989). Attachment anxiety and compliance have been found to be related (Gudjonsson, Sigurdsson, Einarsson & Einarsson, 2008; Gudjonsson, Sigurdsson, Lydsdottir, & Olafsdottir, 2008). The negative feedback phrase (delivered after the first round of questions on the Gudjonsson Suggestibility Scale [GSS]) is: “You have made a number of errors, it is therefore necessary to go through the questions once more and this time try to be more accurate” (Gudjonsson, 1997). Interviewees reporting intense adverse life events, scoring high on “shift”, could be complying with the negative feedback instruction given by the interviewer after the first round of questions (see chapter 4; Drake, 2009). Vulnerable interviewees on the GSS may not always be internalising the negative feedback; they may not necessarily believe that their initial

answers are wrong – a prerequisite for uncertainty and suggestibility (Gudjonsson & Clarke, 1986).

One cannot attach too much significance onto a single study, and there are limitations to that study as well (see chapter 4). However, recent research does provide some evidence, albeit tentative at this stage, which implies that the Gudjonsson and Clarke (1986) uncertainty factor may be more relevant to understanding performance on the Yield 1 and Yield 2 subscales of the GSS (i.e. the acceptance of misleading suggestions) than to the Shift subscale (i.e. answer-changes in response to explicit negative feedback to answers given initially) (see chapters 4 and 6 for further discussion on this).

The GSS will be used throughout this thesis as it is a reliable and consistent measure of the acceptance of misleading suggestions and sensitivity to negative feedback.

There are two parallel forms of the GSS (the GSS 1; [Gudjonsson, 1984] and the GSS 2; [Gudjonsson, 1987]). The GSS 1 will be used throughout this thesis as research shows no significant difference between males and females on GSS 1 performance (Gudjonsson 2003, p. 379). This is critical because, as will be seen throughout the thesis, the studies presented are skewed in terms of the number of males to females within the opportunity samples used. The GSS 1 narrative is also more forensically relevant compared with the GSS 2 narrative (see the GSS manual; Gudjonsson, 1997), which is why the GSS1 has been used continuously throughout this thesis.

Interrogative compliance.

Compliance refers to a general tendency or susceptibility of individuals to comply with requests and obey instructions that they would rather not do, for some instrumental gain (Gudjonsson, 1989, 2006). It is different from suggestibility, in that

there is no private acceptance of the information, and no awareness of being influenced. In a sense compliance is quite similar to obedience (Milgram, 1974).

Milgram demonstrated how readily people are willing to obey instructions even at the expense of others. In Milgram's famous obedience to authority experiments, the experimenter orders the participant to give what the participant believes are painful electric shocks to another participant, who is actually an actor.

A third of Milgram's participants refused at some point to obey the experimenter's instructions. Milgram assumed that those participants are in a conflict situation between their need to obey an authority figure (the experimenter) and behaviour patterns learned from childhood onwards: not to harm others. What was surprising was that many participants continued to give shocks despite pleas for mercy from the actor, as long as the experimenter kept on ordering them to do so. Those participants remained compliant, despite the (so-called) harmful consequences of their actions.

Compliance and/or obedience to authority figures can often be one of the reasons why innocents make false confessions during questioning (see the Innocence Project website: www.innocenceproject.org). Results from the suggestibility and compliance assessments of the Birmingham Six revealed high to average suggestibility and compliance scores for four out of the six men. The men ended up signing written confessions, falsely confessing to the perpetration of a terrorist offence. The two other suspects scored low on both interrogative suggestibility and compliance, and resisted signing the confessions.

Compliance accounts for differences in eyewitness performance, differences in accuracy of statements made during interview, coerced-compliant false confessions; it discriminates between false confessors and resistant interviewees, and is correlated

with anxiety, low self-esteem, paranoia, and insecure attachment (Gudjonsson 2006; Gudjonsson et. al., 2008).

Interrogative suggestibility versus compliance: The relationship between the two.

Studies have shown that the two concepts tend to be weakly correlated; Richardson & Kelly, 2004). Suggestibility and compliance are also both related to insecure attachment (Gudjonsson et. al., 2008). Insecure attachment may lead to a negative perception of events and situations (Bowlby, 1969; 1988). The experience of intense adversity seems to lead to stress generation and ineffective coping (Safford et. al., 2007). Compliance is a coping mechanism used during times of perceived interpersonal conflict (Costa & McCrae, 1992) and it could be relevant to explaining sensitivity to negative feedback during questioning. Coping mechanisms have also been shown to relate to suggestibility (Gudjonsson, 1995). A commonality seems to be that both suggestibility and compliance are behaviours that can come to the surface during (stressful) two-way interactions.

We must be careful though not to confuse suggestibility with compliance during interview. The two concepts may well be related (studies have shown that the two concepts tend to be weakly correlated; Richardson & Kelly, 2004), but suggestibility goes one step further; with suggestibility it appears that the individual experiences a gradual decline in their ability to trust their memory in the face of uncertainty (and therefore gradually acquires the tendency to trust others' judgments and memories rather than their own); with compliance, this is not the case; compliance is also a coping mechanism implemented during times of interpersonal conflict (Costa & McCrae, 1992) – but, and this is the difference: there is no memory distrust; the suspect/individual merely submits to the other's request (Gudjonsson, 1989).

Suggestible behaviour on the surface bears similarity with compliance, but may have a different psychological cause.

Compliance and suggestibility are hard to distinguish during interview, as superficially they are similar. This poses a problem for research using the GSS or, specifically, for inferring suggestibility from high GSS scores; there is no way of verifying whether interviewees being administered the GSS actually accept the misleading suggestions (so believe them to be true) and/or believe the negative feedback they are given, leading to answer shifts. High GSS scores could be a sign of interrogative suggestibility – yield 1 and yield 2 in particular. Shift scores though may come about though, at least in part, due to compliance. This will be investigated further in chapter 4 and discussed more fully in chapter 6.

The influence of adverse life events on interrogative suggestibility.

Past research has frequently demonstrated the detrimental impact of life adversity upon the behaviour and mindset, of an individual (e.g. Essex, Klein, Cho, & Kraemer, 2003; Andrews & Wilding, 2004; Todman & Drysdale, 2004; Becker, 2006).

Specifically, experiencing negative life-events on a regular basis may have an adverse affect upon an individual's self-esteem. Furthermore, the accumulation of negative experiences may also result in negative expectations about their own performance on future tasks (i.e. having repeatedly performed poorly at interviews, the person may come to expect to perform inadequately on subsequent occasions; Thelwell, Lane, & Weston, 2007). When faced with the somewhat arduous task of having to recall an event, and subsequently face questioning (i.e. the GSS procedure), interviewees with an experience of intense negative life-events may be more prone towards feelings of uncertainty (with regard to the correct answers/recollections required Gudjonsson &

Clarke, 1986). In order to deal with that uncertainty, and the threat of inadequate performance, inefficient coping mechanisms may be employed [e.g. the greater reliance upon the interviewer for guidance as to whether the interviewee has answered correctly (Gudjonsson, 1988; Emmett, Clifford, & Gwyer, 2003).

Instances of this may occur, particularly post-negative feedback, when interviewees are told by the interviewer that they have ‘made a number of errors, and therefore it is necessary to go over the questions once more, and this time try to be more accurate’. Such feedback may reinforce the established negative performance expectations of those interviewees, occasioning an even greater application of ineffective coping strategies when faced with the second round of interview questions. In short, this may encourage an increased vulnerability to any misleading information delivered during the interview.

Interviewees with the experience of negative life-events may also be more likely to shift their initial answers in response to the negative feedback delivered (after the first round of questions) by the interviewer, in order to avoid further critical feedback (McCall & Struthers, 1994; Kaissidis-Rodafinos & Anshel, 2000), to appear favourable to the interviewer, and to also meet the perceived expectations of the interviewer. Interviewees reporting more intensely negative life adversities may feel that the interviewer expects them to know the correct answers (Gudjonsson & Clarke, 1986). Such interviewees may show a propensity towards trying to meet those perceived expectations.

Furthermore, some studies investigating self-esteem in relation to the GSS have

yielded significant findings. Not only that, but negative correlations have also been found between the experience of life adversity and self-esteem (Peterson & Taylor, 1980; Cohen, Burt, & Bjork, 1987). The Drake et. al., (2008) study, therefore, not only investigated the influence of life adversity upon interrogative suggestibility, but it also explored self-esteem levels in relation to both the experience of negative life-events and performance on the GSS. Self esteem though was not significantly correlated with negative life events or GSS scores.

This study (my BSc dissertation) showed that the reported experience of intense adverse life events was particularly related to sensitivity to negative feedback; this sensitivity can be observed by interviewees changing their initial answers (to questions) in response to negative feedback given by the interviewer in response to the interviewee's answers. Subsequent work reveals an association between the experience of major adverse life events and reported false confessions (Gudjonsson, Sigurdsson & Sigfusdottir, 2008; 2009). These studies demonstrate that the experience of intense life adversity might be linked to interrogative suggestibility through a lesser resilience to interrogative pressure. Such interviewees may experience intense adversity which creates a lesser ability to cope with pressure (Gudjonsson, 1995), which results in suggestible behaviour during custodial interview. So why is the reporting of more intensely negative adverse life events related to sensitivity to pressure (and therefore suggestibility on the Gudjonsson Suggestibility Scale)?

Attachment anxiety and avoidance

Attachment theorists point to the presence of an internal working model (IWM; Bowlby, 1969, 1988) within each individual. The IWM seems to govern behaviour during dyadic interactions (i.e. how individuals relate and respond to others) and the interpretation of events (especially negative ones) (Bowlby, 1969, 1988; Main, Kaplan, & Cassidy, 1985; Quas, Qin, Schaaf, & Goodman, 1997). Within interview situations, insecurely attached interviewees have been shown to have greater difficulty accessing and/or coherently describing memories, and resultantly rely upon the interviewer for guidance. Attachment avoidance (expressed as discomfort in close relationships), and attachment anxiety (manifest as fear of abandonment in relationships), have especially been found to be associated with an increased number of commission and omission errors, respectively, during interview (Quas et. al., 1997; Bruck & Melnyk, 2004).

Insecure attachment may lead to a negative perception of events and situations (Bowlby, 1969; 1988). This tendency may well lead to a lesser resilience to pressure. The Gudjonsson and Clarke (1986) specify a negative cognitive set as being central to the suggestible response. Attachment anxiety in particular has been found to regulate emotional processing (Fraley & Shaver, 2000).

The IWM also governs interpretation of events such that insecurely attached individuals may interpret events more negatively, and ergo the report more negative life events. During the GSS interview phase this propensity towards a negative interpretation could present itself, affecting performance on the GSS – particularly post negative feedback – encouraging both (a) answer shifting and (b) yielding to misleading information during the second round of questions. Avoidance of further

critical feedback and meeting with the perceived expectations of the interviewer may motivate these behaviours further (Gudjonsson & Clarke, 1986; Gudjonsson, 2003).

Based on this body of research evidence there seems to be a link between attachment anxiety, the (reported) experience of more impactful life adversity and interrogative suggestibility measured on the GSS. Interviewees with a high degree of attachment anxiety (i.e. those scoring high on preoccupied anxious attachment) could report more intense negative life events), which may occasion a greater sensitivity to the negative feedback.

The legal ramifications of this could be unreliable evidence and possible coerced false confessions/accounts from interviewees harbouring an insecure attachment style coupled with the experience of life adversity. There is also now increased concern in some countries regarding the potential vulnerability of witnesses and victims, and the need therefore to interview/question them appropriately (Achieving Best Evidence, 2007). In such instances witnesses with an insecure attachment style and history of life adversity could be more susceptible to leading questions and interrogative pressure, and thus may provide less valid information at interview and/or in Court. Understanding this life adversity to interrogative suggestibility association (with respect to GSS performance), as well as the GSS performance profile of such potentially vulnerable interviewees, is therefore very important.

Findings from chapter 3 also suggest that it is the interviewee's perception of the investigative interview that matters the most. The findings in chapter three are corroborated in chapter 4 (Drake, 2009). An interview may not, factually speaking, be substandard but, nonetheless, interviewees may still express misleading responses

affecting the reliability of their information. This could largely be because vulnerable interviewees may be more prone to negatively interpreting interviewer demeanour (see Baxter et. al., 2000; 2003; 2006) that, to “non-vulnerable” individuals, seems like neutral responses. This is very important to recognise, as it suggests that interrogative suggestibility may arise in part through vulnerable interviewees perceiving coercion or not feeling like they were given the chance to tell the truth (Jakobsson-Ohrn & Nyberg, 2009), rather than whether or not the interview actually fell short of the requirements (PACE, 1984). When considering investigative interviews it is therefore essential to consider the interview from the vulnerable interviewee’s perspective. Could it be possible that any aspect of the interview may have been perceived as coercive or oppressive?

Although there is evidence to the contrary, suggesting that the experience of trauma and adversity can have a positive affect (Joseph & Linley, 2008; Linley, Joseph & Loumidis, 2005), there is also a growing body of research linking childhood and life adversities with heightened psychological vulnerability. The experience of adversity seems to be linked to increased feelings of negative affect, emotions, and neuroticism in adulthood (Rosenman & Rodgers, 2004; 2006). Individuals who have experienced a high number of childhood adversities may have an increased propensity towards viewing subsequent events as negative, and thus experiencing more negative feelings and/or emotions with regard to subsequent events than individuals who have experienced fewer childhood adversities.

Rosenman and Rodgers (2004) comprehensively interviewed 7485 participants, aged 20-24, 40-44, and 60-64, regarding their childhood experiences. Experiences such as frequency of covert neglect, authoritarian upbringing, witnessed and/or experienced

physical abuse by parents, parental sexual abuse, excessive physical punishments, parental drug or alcohol abuse, childhood poverty, and financial hardship were examined. What came to light was that maternal emotional problems and paternal substance abuse, along with parental conflict, were the most frequent adverse experiences reported, and that those experiences, specifically, are linked with elevated feelings of negative affect, negative emotions, and neuroticism in adulthood. These findings are extremely interesting as they demonstrate the influential impact of parental behaviour upon the psychological state of the child (Olvera, Remy, Power, Bellamy, & Hays, 2001; Taylor, Clayton, & Rowley, 2004; Lee, Beauregard, & Bax, 2005), thus determining how well that child learns to cope with subsequent adversity. That is, how vulnerable a person is, or becomes, to later negative life experiences.

Thus, childhood adversities such as these can negatively affect self-esteem and equip an individual with a negative mindset, anxiety, and depression (Swearing & Cohen, 1985). Furthermore, the literature seems to suggest that individuals with a more negative mindset tend towards more negative life experiences; in a sense a self-fulfilling prophecy occurs in that the lower a person's self-esteem (and the higher their level of depression and negative affect), the more likely they are to experience more life adversities, detrimentally affecting self-esteem once again and so on (Cohen, Burt, & Bjorck, 1987). What this research demonstrates is a strong association between the reported experience of childhood adversity and later psychological vulnerability.

Neuroticism and the Five Factor model.

The literature points also to personality traits within the Five Factor Model (FFM; Costa & McCrae, 1992) as additional factors which may encourage ineffective coping

leading to interrogative suggestibility. In particular research has implicated high neuroticism scores on the NEO - FFI in and the experience of negative life events as the best predictors of depression and helplessness behaviour on tasks (Hill & Kemp-Wheeler, 1986; Cemalcilar, Canbeyli, & Sunar, 2003). The idea that N could be relevant to suggestibility has already been seen in the work of Eysenck and Furneaux (1945) earlier on in this chapter. Individuals scoring high on N are more likely to believe that success at a task is independent of their own actions (Seligman, 1992), such that they fail to believe that they could bring about a positive outcome.

The concept of personality comprising five main factors is fairly established (since Fiske, 1943 and Norman, 1963). Some have argued though against the orthogonality of the FFM (e.g. Digman, 1997; Egan, Austin, & Deary, 2000). Costa and McCrae propose that the five factors are independent of each other, but this may not necessarily be the case. It is suggested that the five factors may in fact be a reflection of two higher order factors (“anxious-inhibited” and “acting on-dominant”; Digman, 1997), since research has shown the five factors to in many cases be related (e.g. E and N, A and C with low N). One can immediately see a possible degree of overlap between these two higher-order factors- and the thinking behind Pavlov’s work on temperament and Eysenck’s excitation-inhibition model of personality; he proposes two main factors and suggests that extraversion and neuroticism are governed by excitation and/or inhibitory cortical cells within the brain.

If indeed the FFM may be reduced to the two factors proposed by Digman, this provides evidence for both a biological origin of personality but also that excitation-inhibition tendencies may fundamentally govern the core constituents of personality. The idea that the FFM may be reduced further has not though been consistently

supported by empirical evidence (Biessanz & West, 2004; Egan, 2009); method-effects seem to be possible causes of these varied findings. The extent to which the five factors emerge as independent appears to be dependent upon the quality and source of data (see Egan, 2009). The further advantage of the FFM is the ability to explore each domain in more details. Research suggests that N may well be associated with the reporting of more intensely negative events and suggestibility (Drake, in press; chapter 4); the five factors allow investigation into which aspects/facets of N may be especially relevant. Chapter 5 shows that vulnerability (an endogenous tendency towards stress; Costa & McCrae, 1992) is the aspect on N that (alongside attachment anxiety and avoidance, and a negative perception) seems to be most relevant to explaining interrogative suggestibility (yield 1 as well as yield 2 and shift). This behaviour could manifest as false statements/recollections and confessions during interview.

The FFM is one of the more dominant contemporary personality theories. It supposes that personality reflects five core factors (Neuroticism (N), Extroversion (E), Agreeableness (A), Openness (O), and Conscientiousness (C)), each of which encompasses six subscales or facets. For example, Neuroticism (N) identifies individuals who are prone to psychological distress and may be observed as several traits: (i) Anxiety, which measures levels of anxiety, (ii) Angry Hostility: denoting a tendency to experience anger and related states such as frustration and bitterness. (iii) Depression is also explored which reflects the tendency to experience feelings of guilt, sadness, despondency and loneliness, (IV) Self consciousness: shyness or social anxiety, (v) impulsiveness: which measures a tendency to act on cravings and urges

rather than reining them in and delaying gratification, and (vi) **Vulnerability**: high scores indicate a general susceptibility to stress.

Facets within the N and A factors (compliance; chapters 4 and 5) may be of particular relevant to the way in which individuals cope during dyadic interactions; especially during relatively arduous and potentially stress-inducing situations or tasks such as an interview (where individuals are questioned and given negative feedback i.e. the GSS). The experience of life adversity seems especially associated with neuroticism (Lee, Beauregard, & Bax, 2005; Olvera, Remy, Power, Bellamy, & Hays, 2001; Rosenman & Rodgers, 2004; 2006; Taylor, Clayton, & Rowley, 2004). The experience of childhood adversity in particular appears to increase propensity towards the negative interpretation of subsequent events and the experiencing of greater feelings of negativity in response to subsequent events.

Considering the fact that the interviewer is a stranger and the novelty of the GSS task vulnerability may especially be an issue during the first round of questions. Levels of trait vulnerability may affect how interviewees cope in the presence of the interviewer and affect the extent to which interviewees feel able to correct/resist the erroneous information put forward by the interviewer. Vulnerability may be related to attachment anxiety and avoidance (Donnellan et. al., 2008). Such individuals may hold a negative mindset, which may give rise to expectations of success (due to holding a deferential view of the interviewer/other people with respect to themselves) and sometimes feelings of uncertainty in response to questioning and pressure.

Studies have demonstrated evidence implicating attachment related anxiety in risk-avoidant behaviour (Maner, et. al., 2007). Risk decision making involves making

decisions which could either have a negative or positive outcome. Rejecting interviewer suggestions may be perceived to lead to a negative outcome by interviewees scoring high on preoccupied anxious attachment and fearful avoidant attachment (i.e. it depending upon the interviewer's reaction) (Levin & Hart, 2003). This may make the acceptance of misleading information during the first round of questions more likely. Such interviewees may become overly reliant upon the interviewer and employ ineffective coping methods as a means of (in their minds) ensuring a relatively successful outcome.

On receipt of negative feedback after the first round of questions, these negative expectations may be confirmed. Attachment related anxiety and avoidance could lead to an intense negative perception of and reaction to the negative feedback (as a result of the established internal working model; (Fraley & Shaver, 2000; Burnette, Davis, Green, Worthington & Bradfield, 2007; 2009). This may affect resilience to the negative feedback and cause certain attachment behaviours to surface such as: eagerness to please, a fear of further negativity, and a negative perception of one's own ability (Quas, Qin, Shaaf & Goodman, 1997; Bruck & Melnyk, 2004). Research also shows that both high attachment anxiety and avoidance is linked to interpersonal difficulties (Cyranowski, Bookwala, Houck, Pilkonis, Kostelnik, & Frank, 2002). Attachment anxiety and avoidance could be related to an endogenous tendency towards distress. This may be the basis of a negative mindset within vulnerable individuals (a negative mindset may be indicated by such individuals reporting events as more intensely negative and by levels of attachment anxiety and avoidance), which may bring about (and be the basis of) the acceptance of misleading information and sensitivity to negative feedback/pressure during questioning.

Objectives of thesis.

This thesis has the following objectives:

- (i) Over the course of the next five chapters it will investigate one of the major reasons behind why vulnerable interviewees sometimes make false statements and confessions during questioning: Interrogative suggestibility
- (ii) It will investigate the psychological mechanism underpinning/governing this potentially serious psychological vulnerability during police interview (Gudjonsson, Young & Bramham, 2007).
- (iii) It will specifically attempt to understand the relationship between neuroticism within the Five-Factor Model of personality (Costa & McCrae, 1992), attachment anxiety and avoidance (Bartholomew & Horowitz, 1994), and the experience of intense adverse life events (Norbeck, 1984) to understand why vulnerable interviewees may make false statements or be sensitive to pressure during questioning. The GSS will be used to measure levels of interrogative suggestibility because it is a reliable measure of the two types of suggestibility that may give rise to false statements during interview (Gudjonsson, 1992).

CHAPTER 2:

LIFE ADVERSITY AND INTERROGATIVE SUGGESTIBILITY

Although the concept of interrogative suggestibility plays an important part in determining the accuracy of information obtained from interviewees throughout childhood, adolescence, and adult life, most research attention to-date has focussed largely upon the role of individual differences in childhood suggestibility (e.g. Baxter, 1990; Bruck & Melnyk, 2004 for reviews of the literature). By contrast, adult interrogative suggestibility has so far received relatively little consideration from psychologists (see Gudjonsson, 2003 for reviews of the literature), even though the legal ramifications of inappropriately interviewing highly suggestible adults are extremely serious. A number of well documented cases highlight the greater likelihood of false confessions amongst suggestible adult interviewees (see Gudjonsson, 1984 a, 1991; Kassin, 1997; Santtila, Alkiora, Ekholm, & Niemi, 1999; Henkel & Coffman, 2004).

In terms of the formal police interview, interrogative suggestibility can be defined as: “the extent to which, within a closed social interaction, people come to accept messages communicated to them during formal questioning, and as a result their behavioural response is affected in such a way as to either accept or resist suggestion” (Gudjonsson, 1992, p.345). This tendency can be assessed using the Gudjonsson Suggestibility Scale (GSS; Gudjonsson, 1984; 1987; 1997), which measures two types of suggestibility: (i) interviewee-susceptibility to misleading questions (questions which suggest certain answers which, although plausible, are actually false), and (ii) vulnerability to negative feedback incorporated within the GSS procedure.

Fundamentally, the GSS is designed to identify vulnerable individuals in need of protection from coercive or oppressive police interview methods.

There is a growing body of research implicating exposure to life adversity in later psychological vulnerability in adulthood; particularly, low self-esteem, susceptibility to negative emotional states (Swearing & Cohen, 1985; Cohen, Burt, & Bjork, 1987; Rosenman & Rodgers, 2004; 2006), and quite recently interrogative suggestibility (Drake, Bull, & Boon, 2008). The latter study was the first to uncover a strong association between the reported experience of negative life events (NLEs) and performance on the Gudjonsson Suggestibility Scale, using a sample of sixty participants from the general population. None of the participants had any prior experience of interrogation procedures. Interviewees scoring high on negative life events yielded more readily to the misleading information prior to and post negative feedback. Participants also demonstrated a heightened tendency towards shifting their answers in response to the negative feedback administered. Although caution should be exercised when transferring these findings using an opportunity sample onto a real life forensic sample (due to concerns over the external validity that may arise when considering laboratory – based results (e.g. Goodman, 2006; Wells, Memon, & Penrod, 2006), this study indicated that interviewees reporting a high number of negative life events could be more vulnerable to robust police interviewing tactics.

One of the possible explanations for this finding is that those reporting more intense NLEs may experience (during the administration of the GSS and during police interviews) a heightened state of uncertainty (as to the correct answers to questions), and elevated expectations of their own success (Gudjonsson & Clarke, 1986).

Interviewees may believe that the interviewer expects them [the interviewee] to know

the correct answer(s) to the questions (even if this is not actually the case). The pressure from those expectations of success, in unison with the added uncertainty, may generate ineffective coping mechanisms within interviewees reporting a high number of NLEs - thus encouraging elevated suggestibility levels (Gudjonsson & Clarke, 1986; Gudjonsson, 2003). It could be that such interviewees show a heightened tendency towards field-dependence (which may be considered an ineffective coping mechanism) during the GSS-interview, increasing their resultant susceptibility and sensitivity to both interviewer-suggestions and negative feedback.

The construct of field-dependence / field independence (FD and FI, respectively) proposes that individuals lie along a continuum from FD to FI (Witkin, 1950). Witkin, Dyk, Faterson, Goodenough, and Karp (1962), and Witkin, Oltman, Raskin, and Karp (1971) asserted that FD (if you are going to propose acronyms, use them) individuals have a less well defined sense of self identity, and as a result experience a greater need for reassurance, guidance, and support from those around them. Reliance upon external referents becomes even more apparent in social interactions with people in authority or with a person upon whom the FD individual is dependent in any way (Emmett, Clifford, & Gwyer, 2003). Moreover, several studies (Singh & Gudjonsson, 1992b; Blagrove, Cole-Morgan, & Lambe, 1994) have also found significant correlations between field-dependence and both (i) GSS yield 1 (the acceptance of misleading information) and (ii) GSS total suggestibility, with increased receptivity to social cues (in FD interviewees) being one of the reasons proposed. Hence, it may be hypothesised that interviewees displaying higher levels of FD may look to the interviewer for guidance when faced with uncertainty (Gudjonsson & Clarke, 1986), encouraging heightened interrogative suggestibility. FD may be an important coping

method, moderating the relationship between the reported experience of NLEs and interrogative suggestibility.

Research evidence also suggests the presence of an Internal Working Model (IWM) within individuals which develops during childhood and serves to guide and mediate responses to situations and behaviour of that person as a child and later as an adult (Bowlby, 1969, 1988; Quas, Qin, Shaaf, & Goodman, 1997; Bruck & Melnyk, 2004; Clarke-Stewart, Malloy, & Allhusen, 2005). Certain IWMs predispose individuals to interpreting events as negative, and leading to more self-reported NLEs. IWMs affect how easily memories (particularly traumatic and/or negative memories) are retrieved and coherently described during police interview (Quas et al., 1997), possibly dictating the extent to which interviewees may rely upon the interviewer for guidance, support and approval (indicating their level of field-dependence to the context) during interview (Howard & Hong, 2002). A link between the self-reported experience of NLEs, field-dependency, and interrogative suggestibility is thus proposed.

The first aim of this study is to replicate the Drake et. al. (2008) finding, which shows an association between the reported experience of NLEs and performance on the GSS. This is will be conducted with a new and different sample of participants. The second objective is to investigate the role of field-dependency in relation to both (a) the experience of NLEs and (b) interrogative suggestibility. The hypotheses are as follows: (i) interviewees reporting a high number of NLEs will score significantly higher on the GSS- both in terms of susceptibility to misleading questions and vulnerability to negative feedback; (ii) field-dependence will correlate positively with interrogative suggestibility, particularly with regard to the acceptance of misleading

information (yield 1 and yield 2 scores); and (iii) interviewees reporting a higher number of NLEs will be more field-dependent.

Method

Participants

The sample consisted of 64 participants, 23 males and 41 females (mean age = 26.36 years; standard deviation = 10.64; range = 18 to 63 years) who were recruited through advertisement, as well as via the experimental participation scheme within the School of Psychology. All were educated to GCSE/O-Level standard or above (i.e. all had achieved at least a high school level education).

Instruments

The scoring of the GSS 1 (Gudjonsson, 1984 b, 1997)

Memory Recall

The GSS memory recall task is presented in the form of a narrative, split into 40 ideas. That is, the story is made up of 40 small instances, occurring in a specific order. Each instance is scored as 'successfully recalled' if the interviewee is able to correctly articulate that instance. The interviewee does not need to recall each instance in the order with which they are presented in the story. Furthermore, the words used (by the interviewee) to recall the instances need not be exactly as written in the narrative. Of fundamental importance is that the concept, that is what occurred within each instance, is correctly recalled. The maximum score that can be achieved is 40, which would indicate that the interviewee has correctly recounted everything that occurred in the story.

Interrogative Suggestibility.

The interview phase begins immediately after the delayed-recall testing. The first round of 15 misleading questions (out of a total of 20 questions) makes up the yield 1 scale, indicating the number of misleading questions yielded to prior to negative feedback. (The five ‘true questions’ are not scored for suggestibility). Immediately after the first round of 20 questions, negative feedback is given by the interviewer. The interviewee is told “You have made a number of errors, and it is therefore necessary to go through all of the questions once more and this time try to be more accurate”. All 20 questions are then repeated, in order to see how readily the interviewee shifts their initial answers in response to the questions asked. A yield 2 score is also obtained, depicting the number of the 15 misleading questions yielded to post-negative feedback.

Thus, the scale provides four scores:

- (1) Yield 1. For each of the misleading questions that are answered in the affirmative the first time round, or in the case of false alternative questions where one of the alternatives is chosen, one Yield point is obtained. Thus, the range of possible Yield 1 scores is from 0 to 15.
- (2) Yield 2. This is scored in an identical manner to Yield 1, following administration of the negative feedback. Once again, the range is 0 to 15.
- (3) Shift. Changes in response to any of the 20 questions (i.e. including the five ‘true questions’), after their administration the second time, contribute to the ‘shift’ score. Thus, the ‘shift’ score can range from 0 to 20.
- (4) Total Suggestibility. This is calculated by summation of Yield 1 and Shift scores. The maximum score is therefore 35.

Life Events Questionnaire (LEQ) (Norbeck, 1984)

The LEQ, containing 82 items, is a modification of the instrument developed by Sarason, Johnson, and Siegel (1978) of the modification being nine items of particular relevance to women, such as “Major difficulties with birth control pills or devices”, “Custody battles with former spouse or partner”, and “Being a victim of a violent rape or assault”. The items in the LEQ were modified to reduce gender bias. Participants were required to go through all the events listed, and if they had experienced them at any point of their life, to circle whether it had been a “good” experience or “bad” experience. Following that, participants were instructed to rate the extent to which those events had an effect on their lives at the time. The ratings went for 0 to 3, 0 being “no affect” and 3 being a “large affect”.

The questionnaire was originally designed to examine life events experienced over the past year. However, research has shown the importance of studying life events during adolescence, as this period is characterized by many physical, social and cognitive changes that are significant to the individual (Cohen, Burt, & Bjorck, 1987).

Gudjonsson and Clarke (1986) recognise the importance of a negative [cognitive] mindset in encouraging vulnerability during questioning. This negative mindset has its basis in childhood, and one strong theory is that this is established through social interactions and events that occur in childhood, and is moderated by life experiences (Bowlby, 1969; 1988; Beasely et. al., 2003).

The GSS implicitly measures trait suggestibility; in its description as a “... stable tendency of the individual to respond in a particular way to a given situation” (Gudjonsson, 2003, p. 343). These tendencies appear enduring patterns of behaviour,

which suggests that they may well be rooted in childhood, and affected by subsequent events.

In order to assess the relationship between life events and interrogative suggestibility, examining events spanning the entire life of the individual was deemed more appropriate. As a result, participants were given the instruction to “read through the events listed, and mark the ones that have occurred throughout your whole life, not just the past year”.

The Group Embedded Figures Test (GEFT; Witkin, Oltman, Raskin, & Karp, 1971)

Although commonly used to measure field-dependence/independence with groups, the GEFT can also be administered on an individual basis. The test consists of two test booklets (each with nine problems), and a practice sheet (with two problems).

Participants are required to locate simple figures (found on the back page of the test booklets) within their corresponding complex background. Once the simple figure has been identified, the participant is required to trace the outline of that simple figure within the complex background. The practice sheet consists of two problems (two simple figures and two corresponding complex backgrounds), following which the test booklets are administered (containing nine more difficult items each). The GEFT is a timed-test, with participants being allowed two minutes to complete the practice sheet, and five minutes for each test booklet. Scoring is achieved by summing the simple figures correctly traced, producing a maximum score of 18. High scores reflect high levels of field-independence, low scores field-dependence.

In terms of reliability, correlational analyses (corrected by the Spearman-Brown prophecy formula) between the times taken to complete the 9-items in both test-book

one and two have been calculated. Results revealed a reliability estimate of .82 for both males (N=80) and females (N=97) for the time required to complete the task. (See Witkin, Oltman, Raskin, & Karp, 1971).

Procedure

The participants were recruited for the ostensible purpose of a decision making study, containing firstly a memory test, and followed by a decision-making exercise. The GSS1 was individually administered to all 64 participants. In between the immediate and delayed-recall phases of the GSS, participants completed the GEFT followed by the LEQ.

Results

Mean scores

Table 1 presents the means of the GSS scores, NLE and FD/I, all of which fall within the normal range expected for participants with an average or above IQ (see Witkin, Oltman, Raskin, & Karp, 1971; Gudjonsson, 1997).

Table 1. Mean (M) and standard deviation scores (SD) for the GSS scores, NLEs, and FD/I scores.

N=64		
	M	SD
IR	14.3	5.71
DR	12.9	5.74
Yield 1	5.11	2.76
Yield 2	5.83	2.97
Shift	3.83	2.37
Total suggestibility	8.94	3.70
NLEs	27.4	19.8
FDI	10.5	5.49

Note: N = 64. IR = Immediate Recall; DR = Delayed Recall; NLEs = intensity of Negative Life Events reported; FDI = Field-dependence/independence.

Correlational data

One of the aims of this study was to re-investigate the previously found novel relationship between the experience of NLEs and suggestibility scores on the GSS- specifically, yield 1, yield 2, shift, and total suggestibility. In support of the previous

study, NLEs were significantly related to yield 1, yield 2, shift, and total suggestibility; $r = .521$; $p < 0.01$, $r = .400$; $p < 0.01$, $r = .619$; $p < 0.01$, and $r = .785$; $p < 0.01$, respectively.

The second objective was to examine scores of FD/I in relation to both the suggestibility components of the GSS and NLEs. Contrary to our expectations, and the past literature, FD/I was not significantly correlated with yield 1, yield 2, shift, or total suggestibility. The correlation between NLEs and FD/I was also non-significant. NLE scores did, however, correlate significantly with age; $r = .385$; $p < 0.05$. Age also correlated significantly with (i) shift scores; $r = .292$; $p < 0.05$, and (ii) total suggestibility; $r = .286$; $p < 0.05$.

As the latter two correlations found age to be significant, partial correlation was used to explore the relationship between (i) age and shift and (ii) age and total suggestibility, whilst controlling for both cognitive decline (i.e. the total number of items of the GSS narrative freely recollected as well as accuracy of recall) and the reported experience of NLEs. The issue in question was whether cognitive decline or the frequent experience of NLEs had the greater impact upon the age - shift and age - total suggestibility association.

With regard to cognitive decline, the other control variables included within the model were: immediate and delayed-free recall (obtained directly from the GSS), and an output bound measure of memory accuracy (Koriat & Goldsmith, 1994; 1996; Professor Ron Fisher, personal communication; 2007). The role of memory was also assessed in the examination of the relationship between the reporting of intensely negative NLEs and greater GSS scores. In this study memory ability was defined in terms of both (a) the total number of items recollections and (b) accuracy of

recollection (Koriat & Goldsmith, 1994, 1996). In order to calculate the output-bound measure of memory accuracy for each interviewee, the total number of items reported correctly (i.e. with the exact wording as in the original GSS narrative) was divided by the number of items they reported in total (regardless of correctness).

Partial Correlation

When controlling for NLEs alone, the correlations between (i) age and shift and (ii) age and total suggestibility reduced in strength; $r = .074$, $n=61$, $p>0.5$, and $r = .069$, $n=61$, $p>0.5$ respectively, implying that the two significant zero-order correlations between age and shift ($r=.292$, $n=62$, $p<.05$) and age and total suggestibility ($r=.366$, $n=62$, $p<.05$) may be moderated by the reported experience of NLEs.

With respect to the alternative possibility of memory impairment (and thus cognitive decline), the control variables were shown to have a marginal effect upon the size of the original zero-order correlations; $r=.292$, $n=62$, $p<.05$ and $r=.366$, $n=62$, $p<.05$; partial correlations; $r=.226$, $n=56$, $p<0.5$ and $r=.306$, $n=56$, $p>0.5$. This suggests that cognitive decline has less of a moderating effect on the relationships between age, shift, and total suggestibility, than the experience of NLEs.

Discussion

The original objectives of this study were to (i) replicate the Drake et. al. (2008) finding of a significant association between NLE and GSS scores, using a new sample of participants, and (ii) to investigate the role of field-dependence in relation to both scores on the GSS and the reported experience of NLEs; field-dependence being a possible coping mechanism implemented during dyadic interactions (e.g. the GSS procedure and the police interview), so bringing about a heightened susceptibility to

both misleading information (i.e. relatively high yield 1 and 2 scores) and interrogative pressure (denoted by shift scores) in such interviewees.

Results seem to replicate the Drake et. al. (2008) finding. They show a highly significant relationship between NLE scores and GSS suggestibility components (that is, the yield, shift, and total suggestibility subscales). These data suggest that interviewees reporting a high number of NLEs may be significantly more suggestible during investigative interviews, one possible consequences of this being the extraction of unreliable information and/or false confession (see Gudjonsson, 1984 a, 1991; Kassin, 1997; Santtila, Alkiora, Ekholm, & Niemi, 1999; Henkel & Coffman, 2004). These findings are also important as there seems to be growing concern in some countries, (expressed in the Achieving Best Evidence document (Home Office, 2007), regarding the potential vulnerability of bystander witnesses (who constitute part of the general public) and, the need for them to be formally assessed (e.g. using the GSS) prior to giving evidence, if suspected of being unduly suggestible.

Bystander witnesses, with a reported history of intense life adversity could be more suggestible during interview. In such cases, the present findings would seem especially relevant.

A reason for this finding could be that the experience of heightened uncertainty and expectations of success within such interviewees occasions greater interrogative suggestibility (Gudjonsson & Clarke, 1986). Interviewees reporting a high number of NLEs could also harbour negative performance expectations, due to past experiences of that nature. Resultant feelings of inadequacy may increase interviewee susceptibility to misleading information (increasing yield scores), as well as their sensitivity to negative feedback. The latter may manifest itself in the avoidance of

further critical feedback, and in turn elevated GSS shift scores (McCall & Struthers, 1994; Kaissidis-Rodafinos & Anshel, 2000). To this effect, interviewees reporting intensely negative NLEs may be more prone to experiences of distrusting their memory because of those negative performance expectations, feelings of inadequacy, and perhaps even the interview tactics employed within the GSS itself (Gudjonsson, Kopelman, & MacKeith, 1999); this resultant low judgement confidence could adversely affect performance on the GSS.

This study also shows that NLEs impact more substantially upon vulnerability to negative feedback (shift scores) than susceptibility to misleading information (yield scores). It could be that the negative feedback (incorporated into the GSS) mimics the adverse responses/consequences experienced throughout life. As articulated above, and in the introduction, interviewees with higher NLEs may come to expect to perform inadequately (ever more so the more NLEs experienced, Gudjonsson & Clarke, 1986). When met with negative feedback after the first round of GSS-questions, such negative performance expectations may be re-affirmed encouraging the shifting of answers.

Subsidiary findings to emerge from this study are the correlations between (i) age and shift scores and (ii) age and total suggestibility. As age increases, the (reported) experience of more intense NLEs increases, which intensifies the negative mindset within such individuals. During interview a lesser resilience to interrogative pressure (the GSS negative feedback) may result. Safford, Alloy, Abramson, and Crossfield, (2007) have shown that the experience of intense adversity tends to bring about a negative cognitive set. This underlying negative mindset has been found to predict negative life events and stress generation. Stress tends to bring about ineffective

coping in the face of negative feedback (and a lesser resilience to it) (Gudjonsson, 1995).

What is also important to note, and has not previously been demonstrated, is that when the reporting of more intensely negative NLE scores are partialled out of the association, the correlations between age and shift and age and total suggestibility reduce significantly in strength. The experience of intense NLEs seems to be a greater contributing factor to these relationships than poor memory (in terms of both the number of items recollected and the accuracy of recollection). In fact, controlling for memory impairment had a marginal effect upon the size of the original correlations between (i) age and shift and (ii) age and total suggestibility. These findings suggest that, irrespective of memory impairment and cognitive decline occurring with age (see Dumas & Hartman, 2003; Fleischman, Wilson, Gabrieli, Bienias, & Bennett, 2004), repeated NLEs differentially affect the psychological vulnerability of an interviewee such that, over time, through the accumulation of NLEs, interviewees become ever more likely to answer shift in response to interrogative pressure/critical feedback. Older adults, as a consequence of having reportedly experienced a relatively higher number of NLEs, may be even more vulnerable during investigative interviews than younger adults.

With regard to the second hypothesis, field-dependence/independence (FD/I) scores failed to correlate significantly with either NLE or GSS scores. Speculatively speaking, the reason for this finding could lie within Attachment Theory (Bowlby, 1969; 1988). Insecurely attached individuals, through their internal working model (IWM), are more prone to interpreting events negatively (thus self-reporting more NLEs). Such individuals, however, fall into two main categories of attachment style;

those exhibiting attachment avoidance are characteristically more field-dependent, whereas ambivalently attached individuals tend more towards field-independence (Vermigli & Toni, 2004). These two attachment groups occupy both ends of the field-dependence/independence continuum. However, due to their IWMs, both are likely to report a relatively higher number of NLEs, meaning a simple significant linear correlation between (the reported experience of) NLEs and FD/I would be unlikely. Obtaining a significant correlation between x and y could be dependent upon the number of “avoidants” and “ambivalents” with a given sample of participants, which may also explain why past research has yielded inconsistent results with respect to FD/I and GSS scores (see Gudjonsson, 2003, for a review of the findings). It could well be that attachment anxiety may be relevant in the relationship between the reporting of more intense NLEs and GSS scores. This will be explored in chapter 3.

Limitations and conclusion

A point for argument could though be the direction of the relationship between the reporting of more intense NLEs and interrogative suggestibility. rephrase this sentence for sense. So far the interpretation of these findings has been through the Gudjonsson and Clarke (1986) model of interrogative suggestibility; more intensely negative NLE seems to encourage a susceptibility to misinformation as well as a lesser resilience to negative feedback. However, correlation does not imply causation, and it could well be that individuals who are more suggestible report more intensely negative NLEs.

Garry, Manning, Loftus and Sherman (1996) found that the act of imagining events increased the feelings that they had actually occurred in the past. This effect seemed to become even more prominent when the events that participants were asked to

imagine were plausible (Mazzoni, Loftus & Kirsh, 2001). The therapy often used to retrieve such memories tends to generate many suggestions and images. In the current study participants were not asked to imagine past negative events; thus, no suggestion or imagery was used. The participants were simply asked to go through a list of events and to rate the impact those experiences had (if they had experienced the events). They were not instructed to imagine that they had experienced a particular situation or experience, and then to recall whether or not they had actually experienced the events.

Interrogative suggestibility is defined as: “the extent to which, during a closed social interaction, people can come to accept messages communicated during formal questioning, as a result of which their subsequent behavioural response is affected” (Gudjonsson & Clarke, 1986, p. 84). Interrogative suggestibility and the tendency to produce false memories seem to be correlated (Brown, 1995). However, some studies have yielded non-significant differences between control groups and children claiming previous-life memories on measures of interrogative suggestibility. Leavitt (1997) found similar results with adult female psychiatric patients. The studies so far show differing results, but a key finding is that false memories and interrogative suggestibility are not necessarily related. As Gudjonsson (2003) observed in relation to the controversial field of recovered memories of child sexual abuse; “false beliefs and memories of childhood sexual abuse may be largely internally generated...rather than being the result of heightened interrogative suggestibility” (p. 412).

The idea that individuals who are more suggestible may have a tendency to produce false memories and therefore report more intense NLEs is not supported by the literature on interrogative suggestibility and false memories. The Gudjonsson and

Clarke model of interrogative suggestibility would interpret the findings of this first study thus: individuals reporting more intensely negative NLEs may be more inclined towards heightened feelings of uncertainty and expectations of success in response to questioning and pressure. This may encourage ineffective coping during GSS interview and thus interrogative suggestibility.

The current data does show correlations suggesting this, but the theory would imply causation from the reporting of more intense NLE to interrogative suggestibility, and correlations do not demonstrate causality. Subsequent work by Gudjonsson, Sigurdsson and Sigfusdottir (2008; 2009) has recently demonstrated a link between the reporting of intense adverse life events and reported false confessions. They argue the importance of victimisation and intense adverse life events in giving a false confession during police interview “because they [are] likely to have insecure attachment in relationships and prone to comply when placed under pressure” (Gudjonsson et. al., 2008, p. 19).

This current study and the earlier Drake et. al. (2008) study both found the impact of similar types of adverse life events to be relevant. The types of adverse events assessed within the LEQ (Norbeck, 1984) are those to do with: (i) work – i.e. unemployment/difficulties in workplace/finding a job; ii) school/University i.e. bullying, failing exams, iii) love and relationships – break ups, divorce (parental divorce); iv) family and close friends (i.e. death/major illness of a loved one); v) personal and social events – such as a decline in social activity, and vi) being a victim of crime. Gudjonsson et. al. (2008) has also shown similar intense adverse life events to be linked with reported false confessions.

The direction of the correlation between iNLE and interrogative suggestibility needs to be verified; subsequent chapters will attempt to infer causality within correlational data by the use of structural equation modelling. The role of attachment anxiety in the relationship between the reporting of more intense NLEs and sensitivity to pressure on the GSS also warrants exploration; this will be done in chapter 3.

In conclusion to the current study, interviewees reporting more intensely negative NLEs have again been found to be particularly vulnerable, not only to the GSS's 15 misleading questions, but also to the negative feedback incorporated into the task. NLEs may be more linked with sensitivity to interrogative pressure than the tendency to accept misleading information. The author is not necessarily suggesting a direct transfer of the present findings to a cohort of actual suspects within a criminal investigation but whether these findings do extend to real life suspects is worthy of investigating .

These findings suggest that, in the presence of real-life stressors, interrogative suggestibility may well be an issue for interviewees reporting intensely negative NLEs. In the light of the latest UK Government guidance on “Achieving Best Evidence” (2007), these findings are particularly noteworthy, since the document not only focuses on “traditional” causes of vulnerability (such as mental handicap or mental illness) but broadens to the evidential vulnerability that may be caused by what has happened to the witness/victim. In a related vein, bystander witnesses (who constitute part of the “normal” general public) with a history of NLEs could be more vulnerable during interview. This replication of the original study described in chapter 1 (Drake et. al., 2008) may have possibly identified the presence of a new

group of vulnerable interviewees. Given Gudjonsson et. al's. (2008) findings, the role of attachment anxiety will be investigated in the next chapter.

CHAPTER 3:

ATTACHMENT ANXIETY, LIFE ADVERSITY AND SENSITIVITY TO INTERROGATIVE PRESSURE

A link between the reporting of intense negative life events (NLEs) and interrogative suggestibility on the GSS has been repeatedly observed (Drake, Bull & Boon, 2008; Drake & Bull, in press). Drake et. al. (2008) hypothesised that self esteem may mediate the relationship, though this construct did not appear to be significantly related to either NLEs or GSS scores. Reporting more intensely negative NLEs appears particularly related to sensitivity to negative feedback. These studies demonstrate that NLEs might be linked to interrogative suggestibility through a lesser resilience to interrogative pressure. The significant correlations between the reporting of intense NLEs and yield 2 and shift scores also remain when memory recall accuracy ([chapter 1] Drake et. al., 2008) is considered. Further research into why the reporting of more intensely negative NLEs may encourage a lesser resilience to interrogative pressure (leading to elevated GSS scores post negative feedback) seems needed.

An investigative interview may be considered a dyadic social interaction (Moston, Stephenson, & Williamson, 1992; Ofshe & Leo, 1997; Pearse & Gudjonsson, 1999). Gudjonsson and Clarke (1986) recognise the importance of this interviewer-interviewee interaction in encouraging suggestibility during interview. Studies by Baxter and Boon (2000), Baxter, Boon and Marley (2006), and Baxter, Jackson and Bain (2003) have further demonstrated the role of interviewer influence and demeanour in governing GSS performance. These studies show that a negative interviewer demeanour may encourage relatively high scores on the GSS, through

inducing uncertainty and expectations of success (Gudjonsson & Clarke, 1986). How interviewees perceive and interact with the interviewer may affect interviewee cognitive mindset during interview and influence their GSS performance. This may especially be the case once negative feedback has been given by the interviewer.

A negative/pessimistic mindset and interpersonal difficulties seem to be found frequently with people displaying insecure romantic attachment patterns (Cutler, Larsen & Bunce, 1996; Cyranowski, Bookwala, Houck, Pilkonis, Kostelnik, & Frank, 2002; Feldman Barrett, 1997; Simpson, Rholes & Phillips, 1996). This negative mindset may be indicated by such individuals reporting their NLEs as more intensely negative and through higher levels of attachment anxiety and avoidance. A negative mindset could then result in a greater sensitivity to negative feedback on the GSS.

Evidence shows that attachment-anxious adults (i.e. those scoring high on preoccupied anxious attachment and fearful avoidant attachment; see Bartholomew & Horowitz, 1991; Griffin & Bartholomew, 1994) tend to under-report the intensity of positive emotions/events experienced (DeWitte & De Houwer, 2008; Gentzler & Kerns, 2006) and overestimate the intensity of previously experienced negative moods (Cutler et. al., 1996; Feldman Barrett, 1997). Attachment anxiety seems to relate to participants exaggerating previous negative experiences and consequences (Simpson, et. al., 1996). This negative/pessimistic mindset may be observed within attachment-anxious romantic attachment patterns (i.e. preoccupied-anxious attachment and fearful avoidant attachment scores) and through such individuals reporting more intensely negative NLEs.

During the GSS interview, in response to negative feedback, this negative/pessimistic mindset may lead to a more negative interpretation of the negative feedback, elevated levels of uncertainty and expectations of success (Gudjonsson & Clarke, 1986), and a greater sensitivity or lesser resilience to the negative feedback. This may be measured by elevated yield 2 and shift scores (Gudjonsson, 1992).

No research has yet examined the relationship between adult romantic insecure attachment style, the reporting of more intensely negative NLEs, and sensitivity to negative feedback on the GSS. This is therefore the focus of the current study and chapter.

Moderation versus mediation effects of life adversity.

Research suggests that the reported experience of intense negative life events, attachment anxiety and GSS scores may co-vary, but exactly how the variables relate to each other is not clear. Is the relationship between attachment anxiety and GSS scores dependent on differences in the reported experience of more intense negative life events (i.e. does intense adverse life events moderate the relationship between attachment anxiety and GSS scores)? Or is the experience of intense negative events a mechanism through which attachment anxiety may influence GSS scores (i.e. is the experience of more intense negative events a mediator)? If the experience of more intense negative events is a moderator, for example, attachment anxious interviewees may not always score high on the GSS; whether they do score high on the GSS depends on their experience of negative events. If the latter is true, and the (reported) experience of more intense negative events is a mediator, attachment anxiety may lead to the experience of more intense negative events, which in turn would cause relatively high GSS scores. It is important to test for both mediation and moderation

as then the exact role of the reported experience of more intense NLEs may be then be ascertained.

The extent to which iNLE acts as a mediator will be explored using pathway analysis (PA). PA is a good way of getting a general overview of how the variables (of interest) relate to each other to explain interrogative suggestibility. Pathway analysis has several advantages over correlation and partial correlation analyses; one of which is that it allows the researcher to investigate the relationship between more than two variables. With partial correlation you can only investigate the relationship between X and Y whilst controlling for a third (Shevlin, 2009; personal communication).

Individuals high in attachment anxiety tend to experience more interpersonal difficulties (Cyranowski, et. al., 2002). Attachment anxiety is related to: (a) the exaggeration of previous negative experiences and (b) over-reporting the intensity of previously experienced negative moods (DeWitte & De Houwer, 2008; Gentzler & Kerns, 2006). Attachment anxiety may lead to the reported experience of more intensely negative negative life events (iNLEs). iNLEs has previously been found to correlate significantly with interview suggestibility ([chapter 1]; Drake, et. al., 2008; [chapter 2]; Drake & Bull, in press).

Attachment anxiety may affect suggestibility directly. Vulnerable individuals may be more prone towards conflict avoidance during tasks so wish to avoid potential negativity (Muller, 2009). This is because attachment behaviour has, as a main aim, the maintenance of proximity (Bowlby, 1988). An eagerness to please may preserve

the interviewer-interviewee relationship but, as a result, may encourage sensitivity to negative feedback on the GSS.

Hypotheses:

Hypothesis 1

A two factor model is hypothesised. It is proposed that the three measures (preoccupied anxious attachment [PAA], fearful avoidant attachment [FAA] and the reporting of negative life events as more intensely negative [NLE]) may reflect a common latent factor (“anxious-pessimistic perception”; [APP]). This is because attachment anxious individuals tend towards pessimistic perception (Bowlby, 1969; 1988). The reporting of more intensely negative NLEs may also reflect this process.

PAA, FAA, and the reporting of NLEs as more intensely negative are hypothesised to relate positively to APP; high levels of APP are expected to be measured by high PAA, FAA and NLE scores.

Factor analytic evidence (Gudjonsson, 1992) shows that yield 2 and shift may converge onto a common factor: “sensitivity to negative feedback” (SNF). SNF hypothesised to relate positively to yield 2 and shift scores; high levels of SNF are expected to be measured by high yield 2 and shift scores.

Thus, the exogenous latent variable APP may exert a significant positive and direct effect on the dependent, endogenous, latent variable SNF on the GSS.

The two-factor model will be tested and compared with a competing one-factor model, where PAA, iNLE, FAA, Yield 2 and Shift are indicators of a single factor (APP).

Hypothesis 2:

The role of iNLE as a mediator in the relationship between PAA and FAA (attachment anxiety) and Yield 2 and Shift will also be explored.

Two blended models are hypothesised – one explaining Yield 2 and one explaining Shift scores on the GSS. PAA and FAA are the independent variable, iNLE is the mediator, and Yield 2 and Shift scores are the dependent variables.

It is expected that PAA and FAA will be correlated. They are expected to exert positive indirect as well as direct effects on Yield 2 and Shift scores; the indirect effect will be through the mediator, iNLE.

The two blended models will be tested and compared with both a full-mediation model (where PAA and FAA only exerts an indirect effect through iNLE on both Yield 2 and Shift) and a no-mediation model (where PAA and FAA and iNLE exert direct effects on both Yield 2 and Shift).

Method.

Participants.

The sample consisted of 130 participants, 100 females and 30 males (mean age = 19.35 years, standard deviation = 1.41, range = 18 to 26). Participants were recruited through the experimental participation scheme within the School of Psychology, and as such all were undergraduates within the School.

Instruments

The Gudjonsson Suggestibility Scale 1 (Gudjonsson, 1984, 1997)

Memory Recall

The GSS memory recall task is presented in the form of a narrative, which is made up of 40 small instances, occurring in a specific order. Each instance is scored as ‘successfully recalled’ if the interviewee is able to freely recall that instance. The interviewee does not need to recall each instance in the order with which they are presented in the story. Furthermore, the words used (by the interviewee) to recall the instances need not be exactly as written in the narrative. Of fundamental importance is that the concept, that is what occurred within each instance, is correctly recalled. The maximum free-recall score that can be achieved is 40, which would indicate that the interviewee has correctly recounted everything that occurred in the story. In the traditional form of the GSS the “immediate” free-recall phase is followed (after filler tasks) with a delayed recall of the narrative.

Interrogative Suggestibility.

The questioning phase traditionally begins immediately after the delayed free-recall. In the present study the delayed free recall phase was omitted due to: (i) the filler task taking much less than 50 minutes to complete, providing an inadequate time interval between immediate recall and the conventional delayed recall phase (Gudjonsson, 1997) and (ii) more recent studies having shown the delayed free recall phase being an unnecessary part of the procedure; with little impact upon overall performance (in terms of suggestibility scores). Minimising participant fatigue, by reducing the length of the procedure, was an additional motivating factor in the decision to exclude the delayed free-recall phase from the GSS procedure.

In terms of the calculating the yield 1, yield 2, and shift scores on the GSS, the first round of 15 misleading questions (out of a total of 20 questions) makes up the yield 1 score, which indicates the number of misleading questions yielded to prior to negative feedback. (The answers to five 'true questions' do not contribute to this score).

Immediately after the first round of 20 questions, negative feedback is given by the interviewer. The interviewee is told "You have made a number of errors, and it is therefore necessary to go through all of the questions once more and this time try to be more accurate". All 20 questions are then repeated, in order to see how readily interviewees shift their initial (20) answers as a result of the critical feedback and interrogative pressure applied by the interviewer. A yield 2 score is also obtained, depicting the number of the 15 misleading questions yielded to post-negative feedback.

Life Events Questionnaire (LEQ) (Norbeck, 1984)

The LEQ contains 82 items in total and is a modification of the instrument developed by Sarason, Johnson, and Siegel (1978), in that it has nine items of particular relevance to women. These include items such as "Major difficulties with birth control pills or devices". The nine additional items in the LEQ were introduced to reduce the gender bias in the Sarason et. al. (1978) version. Participants were required to go through all the events listed, and if they had experienced them at any point of their life, to circle whether it had been a "good" experience or "bad" experience. They were then instructed to rate the extent to which those events had an effect on their lives at the time. The ratings went from 0 ("no effect") to 3 ("large effect"). The LEQ has good test-retest reliability, with test-retest reliabilities of 0.78 to 0.83 and is a significant predictor of measures of (unfavourable) psychological and psychiatric symptoms.

The questionnaire was originally designed to examine life events experienced over the past year. However, research has shown the importance of studying life events during adolescence, as this period is characterized by many physical, social and cognitive changes (Cohen, Burt, & Bjorck, 1987). To assess the relationship between life events and IS, it was deemed more appropriate to examine events spanning the entire life of the individual. Participants were instructed to “read through the events listed, and mark the ones that have occurred throughout your whole life, not just the past year”.

The Relationship Scales Questionnaire (RSQ) (Griffin & Bartholomew, 1994).

The RSQ contains 30 items taken from Hazan and Shaver’s (1987) attachment measure, Bartholomew and Horowitz’s (1991) Relationship Questionnaire, and Collins and Read’s (1990) Adult Attachment Scale. For each item on the RSQ, participants have to rate on a five point scale the extent to which each statement best describes their behaviour in close relationships. Out of the 30 items, five contribute to secure attachment, five to dismissing attachment patterns (high scores denoting attachment avoidance), four to fearful attachment patterns (such individuals experience a high level of both attachment anxiety and avoidance), and four to preoccupied attachment patterns (high scores denoting attachment anxiety) (Bartholomew & Horowitz, 1991; Brennan, Clark & Shaver, 1998). Each participant obtains scores for each of the four attachment patterns; the scores are derived by taking the mean of the four or five items representing each attachment style.

The RSQ shows high internal reliability ($\alpha = .83$) as well as high test-retest reliability (at two weeks: $r = .83$, $p < .001$; at four months: $r = .78$, $p < .001$).

Procedure

Participants were administered the GSS1 individually by an interviewer, trained by a Chartered Forensic Psychologist in the administration of the GSS. In between the immediate free-recall and questioning phases, each participant completed the LEQ and the RSQ.

Results.

Descriptive Statistics.

Table 1 presents the means and standard deviations of the GSS, attachment, and NLEs scores. The GSS scores fall within the normal range expected for participants with an average or above IQ (see Gudjonsson, 1997). Results indicate normality for all of the attachment measures. NLEs scores, however, show positive skewness (NLEs; skew $Z = 1.74$, and kurtosis $Z = 5.78$). The NLEs data was transformed by mathematically modifying the scores (Pallant, 2007, p. 88). This improved the skewness and kurtosis values (NLEs: Skew $Z = -.437$ and kurtosis $Z = .845$).

Table 1. Means (M) and standard deviation (SD) scores amongst observed variables.

	M	SD
1. Y1	4.45	2.32
2. Y2	5.55	2.81
3. S	3.74	2.56
4. iNLE	17.8	9.74
5. PAA	11.2	2.64
6. FAA	10.4	3.33

Note: $N = 130$. Y1 = Yield 1, Y2 = Yield 2, and S = Shift; three subscales from the GSS1. iNLE = intensity of Negative Life Events; one subscale from the LEQ. PAA = Preoccupied-Anxious Attachment and FAA = Fearful-Avoidant Attachment; two subscales from the RSQ.

Correlational analyses.

Zero order correlation coefficients indicate significant positive correlations between NLEs scores and all three GSS subscales (i.e. Y1; $r = 0.265, p < .01$, Y2; $r = .265, p < .01$, and S; $r = .364, p < .01$). Preoccupied anxious attachment scores are significantly related to NLEs reported; $r = .205, p < .05$, but not any of the GSS subscales (i.e. Y1: $r = -.063, p > .05$, Y2: $.052, p > .05$, and S: $r = .106, p > .05$). Fearful avoidant attachment scores are not significantly correlated with either NLEs ($r = .142, p > .05$) or any of the three GSS subscales (i.e. Y1: $r = .018, p > .05$, Y2: $.076, p > .05$, and S: r

= .142, $p > .05$). Fearful avoidant attachment and preoccupied anxious attachment scores correlated significantly; $r = .223, p < .05$.

Structural Equation Modelling (SEM).

The hypothesised two-factor model was tested and compared with a competing one-factor model (see figure 1 and table 2). The extent to which iNLE may mediate the relationship between PAA and FAA and Yield 2 and Shift scores was also tested.

In the latent models, one *a priori* assumption was made; the pathway relating shift scores to the factor SNF was fixed at 1. This assumption was made on the theoretical grounds that shift scores are a consistent reliable indicator of sensitivity to negative feedback on the GSS (see Gudjonsson, 1992; Gudjonsson, 2003). The pathway was fixed to limit the number of pathways in the model due to sample size vs. path estimation criteria (see Magnus, Diener, Fujita & Pavot, 1993).

To allow for deviations from normality, the asymptotically distribution free estimation criterion was used to estimate the model fit (of the latent and path models). Three goodness of fit indices were used to evaluate model fit (Quintana & Maxwell, 1999; Wei, Mallinckrodt, Russell & Abraham, 2004): (i) the comparative fit index (CFI; where values of 0.9 or above are required), (ii) the goodness of fit index (GFI; values of 0.9 are desirable), and (iii) the root-mean-square error of approximation (RMSEA; values of .06 or less are wanted). A chi-square difference test ($\Delta\chi^2$) was used, as well as standard fit indices, to compare the nested models with blended models (BM).

Nested models can be derived from another (i.e. a blended model, which contains both indirect and direct effects) through restricting parameters. Standard fit indices alone are used to compare the models are not nested.

In order to obtain a degree of freedom (df) within the BMs (considering that, with only two IVs, the df of the BM is zero) the least significant pathway has been removed from each of the BMs. This is done to allow for subsequent model comparison and evaluation. If the df is zero, model evaluation of the BM (and comparison of nested models with the BM) is not possible, as there is no test for the BM fit.

Table 2 shows the standardised parameter estimates and fit-indices for the two measurement models. The hypothesised two-factor model provides an acceptable fit to the data; each indicator explains a significant proportion of the variance within the corresponding factor. The indicators are positively related to the corresponding factors. The exogenous factor APP exerts a significant positive direct effect upon the endogenous factor SNF ($\beta = .820, p < .001$). With six predictors and a desired statistical power level of 0.8, the minimum number of participants is 134 (Cohen, Cohen, West, & Aiken, 2003). Model 1 has sufficient power considering the sample size of 140.

Table 2 also shows that the one-factor model (figure 1; model 2) also shows an acceptable fit to the data. The standardised pathway coefficients of the measured variables onto the latent factors are statistically significant. The indicators, apart from yield 2, explain the same significant amount of variance in the two-factor model as well as the one-factor model. The indicators are positively related to APP.

Theory however (see Bowlby, 1969; 1988; Gudjonsson, 1984; 1992; 2003) would better support the two-factor model.

Table 3 provides the standardised beta values for the blended models as well as the FMM and NMM models. The Yield 2 and Shift subscales will be discussed separately:

Yield 2.

Table 3 shows that the FMM demonstrates the best fit to the data (see Figure 2) (compared with BM and NMM; although the BM also shows acceptable fit statistics). The FMM (and BM) shows that PAA and FAA are significantly correlated, in the positive direction. PAA exerts a significant indirect effect on Yield 2, through iNLE – the mediator. FAA does not affect iNLE significantly. $\Delta\chi^2$ tests show that compared with the BM, the FMM does not provide a significantly better fit: FMM vs. BM: $\Delta\chi^2 [1] = .09; p > .05$.

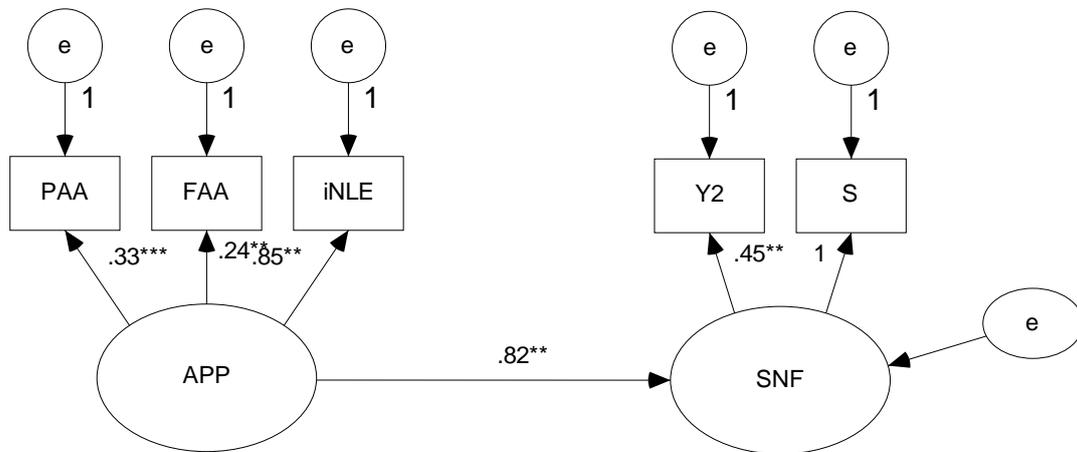
Shift:

Table 3 shows that the BM demonstrates the best fit to the data (see Figure 2) (compared with FMM and NMM; although the FMM also shows acceptable fit statistics). The BM (and FMM) show (and with Yield 2) that PAA and FAA are significantly correlated, in the positive direction. PAA exerts a significant indirect effect on Yield 2, through iNLE – the mediator. FAA does not affect iNLE significantly. $\Delta\chi^2$ tests show that compared with the BM, the FMM does not provide a significantly better fit: FMM vs. BM: $\Delta\chi^2 [1] = .913; p > .05$.

Figure 1. A two-factor and one-factor model. *Note:* $N = 130$. Y2 = Yield 2, and S = Shift. iNLE = intensity of Negative Life Events. PAA = Preoccupied-Anxious Attachment and FAA = Fearful-Avoidant Attachment. APP = Anxious-Pessimistic Perception. SNF = Sensitivity to Negative Feedback.

* $p < .05$, ** $p < .01$, *** $p < .001$.

The two-factor model:



The one-factor model:

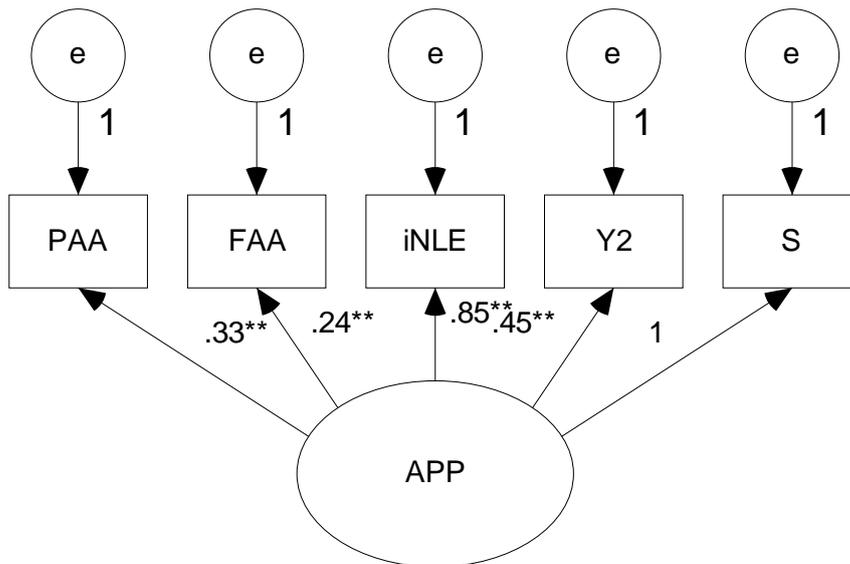


Table 2. Standardised parameter estimates and fit indices for the measurement models

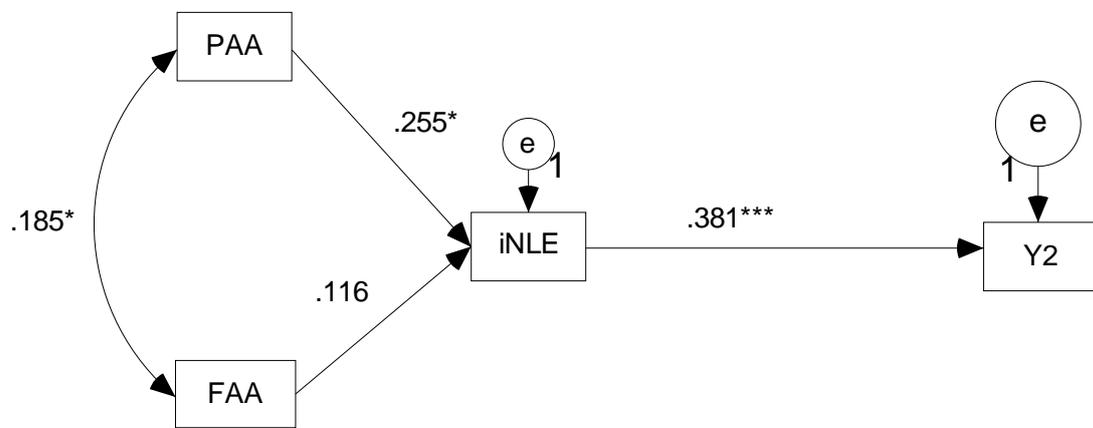
	Two-factor model		One-factor model
	APP	SNF	APP
PAA	.33 [*]		.33 ^{***}
FAA	.24 [*]		.24 ^{**}
iNLE	.85 ^{**}		.85 ^{**}
Y2		.55 ^{**}	.45 ^{**}
S		1	1
χ^2	3.022		3.022
df	4		4
CFI	1.000		1.000
GFI	0.991		0.991
RMSEA	0.000		0.000
PCLOSE	0.540		0.693

Note: $N = 130$. Y2 = Yield 2, and S = Shift. iNLE = intensity of Negative Life Events. PAA = Preoccupied-Anxious Attachment and FAA = Fearful-Avoidant Attachment. APP = Anxious-Pessimistic Perception. SNF = Sensitivity to Negative Feedback. ^{*} $p < .05$, ^{**} $p < .01$, ^{***} $p < .001$.

Figure 2. Path diagrams to show the relationship between attachment anxiety, reporting intense NLEs, and sensitivity to negative feedback on the GSS. *Note:* $N = 130$. Y2 = Yield 2, and S = Shift. iNLE = intensity of Negative Life Events. PAA = Preoccupied-Anxious Attachment and FAA = Fearful-Avoidant Attachment.

* $p < .05$, ** $p < .01$, *** $p < .001$

Yield 2: The FMM



Shift: The BM

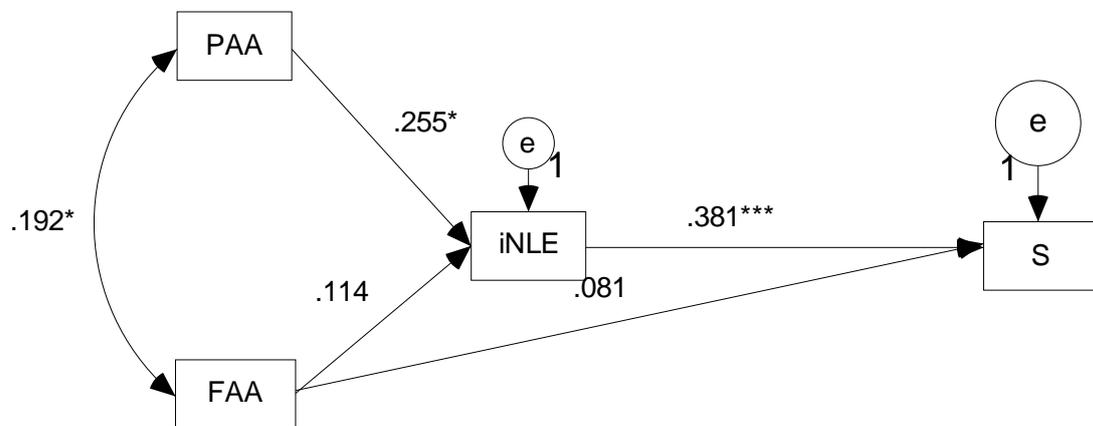


Table 3. Standard beta values and fit indices for path-diagrams

	Yield 2			Shift		
	BM	FMM	NMM	BM	FMM	NMM
iNLE	.389 ^{***}	.381 ^{***}	.270 ^{**}	.457 ^{***}	.471 ^{***}	.320 [*]
FATT	-	-	.037	.081	-	.082
PAA	-.026	-	-.030	-	-	-.002
FAA→iNLE	.116	.116	-	.114	.124	-
PAA→iNLE	.255 [*]	.255 [*]	-	.255 [*]	.249 [*]	-
PAA↔FAA	.191 [*]	.185 [*]	.155	.192 [*]	.182 [*]	.155
χ^2	0.113	0.203	6.620	0.011	0.924	6.62
df	1	2	2	1	2	2
CFI	1.000	1.000	0.540	1.000	1.000	0.399
GFI	1.000	0.999	0.976	1.000	0.996	0.974
RMSEA	0.000	0.000	0.134	0.000	0.000	0.134
PCLOSE	0.775	0.929	0.079	0.930	0.713	0.079

Note: $N = 130$. Empty cells = pathways not included in the model. BM = Blended Model. FMM = Full Mediation Model. NMM = No Mediation Model. Y2 = Yield 2, and S = Shift. iNLE = intensity of Negative Life Events. PAA = Preoccupied-Anxious Attachment and FAA = Fearful-Avoidant Attachment.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Hierarchical Multiple Regression (HMR).

Since PAA and iNLE are the stronger of the measures (compared with FAA), in relation to both Yield 2 and Shift scores, a HMR was conducted to test for a two-way interaction effect of PAA x NLE on shift and yield 2 scores. Two separate analyses were conducted – one for Yield 2 (HMR model 1) and one for Shift (HMR model 2). Variables were entered into the regression models in the following order: (i) NLEs, (ii) PAA, and (iii) the interaction term for NLEs and PAA, computed as the product of scores of NLEs and PAA (i.e. NLE x PAA). Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity.

HMR model 1.

NLEs was entered into Step 1, explaining 14.4% of the variance in yield 2 scores $F(1, 128) = 7.09, p < .001$. After entering PAA at Step 2, the total variance explained by the model as a whole was 14.4%; $F(2, 127) = 10.7, p < .001$; R squared change = .000; F change $(1, 127) = .092, p > .05$. The interaction of NLEs with PAA explained an additional 0% of the variance; F change $(1, 126) = .009, p > .05$. Within the model only NLEs made a significant independent contribution to the variance in yield 2 scores ($\beta = .386, p < .001$). PAA was not a significant independent contributor ($\beta = .026, p > .05$). The interaction of NLEs with PAA did not make significant contribution to the variance ($\beta = .037, p > .05$).

HMR model 2.

NLEs was entered into Step 1, explaining 22.0% of the variance in shift scores $F(1, 128) = 36.04, p < .001$. After entering PAA at Step 2, the total variance explained by the model as a whole was 22.0%; $F(2, 127) = 17.92, p < .001$; R squared change =

.000; F change (1, 127) = .063, $p > .05$. The interaction of NLEs with PAA explained none of the additional variance: R squared change = .000; F change (1, 126) = .023, $p > .05$. Within the model only NLEs made a significant independent contribution to the variance in shift scores ($\beta = .414$, $p < .01$). PAA was not a significant independent contributor ($\beta = .003$, $p > .05$). The interaction of NLEs with PAA did not make a significant contribution to the variance ($\beta = .058$, $p > .05$).

Discussion

The aim of this study was to investigate the relationship between adult romantic attachment anxiety, the reporting of more intensely negative NLEs, and sensitivity to negative feedback on the GSS.

The current findings show that the reporting of more intensely negative NLE correlates significantly with both yield 2 and shift scores on the GSS. This is in accordance with previous studies (Drake et. al., 2008; in press), and provides further evidence suggesting that yield 2 and shift scores may be governed by the extent to which the negative feedback is negatively perceived and interpreted. A relatively negative perception of events and situations may manifest in the reporting of NLE as more intensely negative. Preoccupied-anxious attachment (i.e. high attachment anxiety alone; Bartholomew & Horowitz, 1994) correlates with the reporting of more intensely negative NLEs, which is in-line with what was hypothesised. Individuals scoring high in attachment anxiety tend towards a more pessimistic and negative perception of events (and are therefore more likely to report [negative] events as more intensely negative).

The hypothesised two-factor model shows an acceptable fit to the data. It illustrates that: (i) PAA, FAA and NLEs load significantly onto the factor “anxious-pessimistic

perception” and (ii) the latent exogenous factor; “anxious - pessimistic perception” exerts a significant and positive direct effect on the endogenous latent factor “sensitivity to negative feedback”. This suggests that it is anxious-pessimistic perception (observed as attachment anxiety and the reporting of more intensely negative negative life events) that may lead to sensitivity to negative feedback on the GSS, measured by yield 2 and shift scores.

Negative feedback seems to enhance state anxiety and the perceived difficulty of the interview (McGroarty & Baxter, 2007; 2009). Individuals scoring high on attachment anxiety (which is related to the reporting of more intensely negative NLEs) may interpret the negative feedback more negatively and perceive the task of answering questions in response to negative feedback more arduously. This may encourage relatively heightened feelings of uncertainty, expectations of success (Gudjonsson & Clarke, 1986), and a lesser resilience to the negative feedback. This is observed by answer shifting and the acceptance of misleading information in response to the GSS negative feedback.

Research shows that attachment anxiety seems to regulate affective processes (Burnette et. al., 2007; 2009; Fraley & Shaver, 2000). (Anxious-pessimistic) perception may be an aspect of the internal working model (IWM) of attachment anxious individuals (Bowlby, 1969; 1988). Attachment theorists have long asserted that the IWM is a principle factor, affecting perception of situations and subsequent behaviour (Baldwin, 1992; Fraley, Garner & Shaver, 2000).

The role of iNLE as a mediator in the relationship between attachment anxiety (measured by FAA and PAA) and sensitivity to negative feedback on the GSS (measured by Yield 2 and Shift) was also investigated. Findings show that both the

FMM and BM provide the best account of both Yield 2 and Shift scores (see table 2 and figure 2). iNLE seems to be a (partial) mediator between attachment anxiety and sensitivity to negative feedback on the GSS. High degree of attachment anxiety may lead to a more negative perception. This enhanced negative perception of situations may give rise to the reporting of more intense negative live events (shown by reporting iNLEs).

During interview such interviewees may be more prone to viewing the task of answering questions (after receiving negative feedback in response to their previous answers) as relatively arduous (McGroarty & Baxter, 2007; 2009). This may be due to those interviewees experiencing heightened uncertainty and expectations of success (Gudjonsson & Clarke, 1986) (which may ultimately stem from their insecure attachment tendencies). They may also feel less able to trust their memory as a result of being exposed to negative feedback in response to their initial answers (Gudjonsson, 2003, p. 197). To cope with the negative feedback, their resultant uncertainty and distress levels, vulnerable interviewees may become more accepting of the misleading information and answer shift (Gudjonsson, 1995).

Limitations and conclusion

Due to the limited number of participants in the sample relative to the number of pathways needed to be estimated, a measurement model whereby PAA, NLE, and FAA are latent variables with multiple measures of each latent (the measures being the corresponding [questionnaire] item indicators) was not estimated (see Magnus et al., 1993). The current SEMs shown in figure 1 assume therefore that PAA, iNLE and FAA are perfectly reliable measures of the latent constructs PAA, iNLE and FAA. As a result of this, the parameter estimates in both the latent and path models should be

taken as conservative estimates. This is because they are not corrected for unreliability due to measurement error.

The correlation between iNLE and GSS scores in this study also seems lower in comparison to previous studies within this thesis (Drake, Bull & Boon, 2008 [chapter1]; Drake & Bull, in press [chapter 2]). Reasons for this could be one of sampling. Evidence suggests that cognitive hardiness moderates the effects of adversity on vulnerability (Beasley, Thompson & Davidson, 2003). Individuals who experience a high degree of intense adversity yet who are cognitively hardy do not necessarily become vulnerable; in contrast those who experience intense adversity but who are relatively low on cognitive hardiness tend to be more vulnerable. The sample size of each study has also been relatively small. This variation in relationship strength could be as a result of differences in cognitive hardiness between the different opportunity samples. It may well be that this current sample is relatively more cognitively hardy than the previous two, which could explain why the relationship between iNLE and Yield 2 and Shift scores is weaker in this chapter.

The findings demonstrate the role of both adult romantic attachment anxiety, and the reporting of more intensely negative NLE, in governing sensitivity/resilience to negative feedback on the GSS. The findings imply that such interviewees could be more prone to making false statements and confessions in response to perceived pressure. Gudjonsson, Sigurdsson and Sigfusdottir (2008; 2009) have shown a link between the reported experience of major adverse life events and reported false confessions. False confessions may come about through such individuals being susceptible to perceived pressure, as a result of a more negative interpretation of the interview situation, and any interviewer expressions and behaviours. Studies by

Baxter et. al. (2000; 2003; 2006) has shown the adverse effect of a negative interviewer demeanour upon GSS performance. Attachment anxious interviewees, reporting more intensely negative NLEs, may be more susceptible to any perceived negative interviewer influence and pressure (leading to uncertainty and false confessions). This should be investigated further.

What also needs to be investigated further is the psychological mechanism governing the Yield 1 subscale of the GSS. Previous research (Drake, Bull & Boon, 2008 [chapter 1]; Drake & Bull, in press [chapter 2]) has also failed to adequately explain the psychological mechanism governing misinformation acceptance in the absence of pressure. This will be explored in the next chapter.

CHAPTER 4:

INTERROGATIVE SUGGESTIBILITY: LIFE ADVERSITY, NEUROTICISM AND COMPLIANCE.

Chapter 3 demonstrates the importance of adult romantic attachment anxiety and the reporting of intense NLE in governing sensitivity to interview pressure (i.e. the Yield 2 and Shift subscales of the GSS). The psychological mechanism underpinning the yield 1 dimension of the GSS seems less adequately explained by attachment and the experience of adverse life events alone. Previous studies (in chapters 1-3) have also focussed on the impact measure of negative life events; that is, the relationship between the reporting of more intensely negative NLEs and interrogative suggestibility.

This study, however, investigates the relationship between both the number and intensity of negative life events experienced (nNLE and iNLE respectively), neuroticism (N), compliance (C), and interrogative suggestibility on the Gudjonsson Suggestibility Scale 1 (GSS 1). Findings uncover additional variables explaining sensitivity to interrogative pressure (see chapter 3). They suggest that answer-shifting on the GSS may result from a negative mindset within interviewees, a desire to alleviate distress, and from compliant tendencies in response to feelings of uncertainty and expectations of success. They further imply that false confessions, in interviewees reporting iNLEs, could also result from compliance with interviewer-pressure or negative feedback during questioning.

Introduction

Interrogative suggestibility can be a serious psychological vulnerability during police investigative interviews (see Gudjonsson, 2003; Gudjonsson, Young & Bramham, 2007). In the light of concern over securing reliable convictions and protecting vulnerable individuals during questioning, research into interrogative suggestibility is important.

Factor analytic evidence suggests two types of interrogative suggestibility: (i) The acceptance of misleading information measured by the Yield 1 and Yield 2 subscales of the Gudjonsson Suggestibility Scale (GSS; Gudjonsson, 1984; 1987) and (ii) sensitivity to the negative feedback/interrogative pressure from the interviewer, measured by the Shift subscale of the GSS.

Evidence shows an association between the reporting of intensely negative negative life events (iNLEs) and interrogative suggestibility (Drake, Bull & Boon, 2008; Drake & Bull, in press). Reporting iNLEs was found to be particularly linked with sensitivity to negative feedback. When controlling for memory recall accuracy (see Drake, et. al., 2008), the significant correlations between iNLEs and the three subscales of the GSS remain. Further research investigating the link between NLEs and interrogative suggestibility therefore seems warranted. What is also unclear about the Drake et. al. (2008; in press) studies is whether the relationship between the reporting of iNLE and relatively high GSS scores may be in fact attributed to trait compliance (especially in response to the negative feedback incorporated into the GSS interview), rather than suggestibility.

Trait compliance has been demonstrated across situations (Gudjonsson, Sigurdsson, Einarsson, & Einarsson, 2008). The reporting of iNLEs may be an observable manifestation of a relatively negative mindset within relatively suggestible interviewees ([chapter 3] Drake, Egan & Bull, in submission; Safford, Alloy, Abramson, & Crossfield, 2007). Gudjonsson and Clarke (1986) recognise the importance of this negative mindset in encouraging high scores on the GSS. An underlying negative mindset has been found to predict negative life events and stress generation (Safford, et. al., 2007). Compliance may be viewed as an ineffective coping mechanism during tasks perceived as stressful or interpersonal conflict (Costa & McCrae, 1992). Evidence suggests further that individuals tending towards a negative mindset can sometimes be more prone to experiencing more frequent NLEs and vice versa (due to a self-fulfilling prophecy and depending on their level of cognitive hardiness; Beasley, Thompson & Davidson, 2003; Cohen, Cohen & Bjork, 1987). Both the reporting of iNLEs and nNLEs may therefore be related and lead to compliant behaviour.

Interviewees who display higher levels of trait compliance can also be more suggestible (Richardson & Kelly, 2004). Compliance could therefore manifest during the GSS interview and mediate the relationship between the reported experience of NLEs (frequency and intensity) and GSS scores. The first objective is to investigate compliance in the relationship between nNLE and iNLE and interrogative suggestibility.

The role of neuroticism (N) in the relationship between nNLEs and iNLEs, compliance, and GSS scores will also be explored: Evidence relates N to the experience of more frequent NLEs (Magnus, Diener, Fujita & Pavot, 1993). This may

be because individuals high in N conduct their lives in such a way as to encourage interpersonal stressors (Elander, French & West, 1993). N appears to relate to stress generation and the experience of more NLEs, which seems to be the precipitant of a negative cognitive set (NCS) within such individuals (Safford, et. al., 2007). This NCS may encourage ineffective coping mechanisms (e.g. compliance) during interview (Gudjonsson, 1995) due to heightened uncertainty and expectations of success (Gudjonsson & Clarke, 1986). Correcting erroneous interviewer suggestions may be perceived to lead to a negative outcome (for interviewees scoring high on N and reporting frequent NLEs). Research shows that N is also linked with a decreased tendency towards risk-taking behaviour (Maner et al., 2007). This may lead to compliant behaviours during GSS questioning as a result of heightened uncertainty and expectations of success, leading to relatively high Yield 1 scores.

N also reflects a susceptibility to distress (Costa & McCrae, 1992). This enhanced negative mindset (Safford et al., 2007) seems to encourage the exaggeration of negative experiences (Fraley & Shaver, 2000; Nofle & Shaver, 2006). Such individuals seem to report previous negative events as more intensely negative. N may be related to the reporting of more iNLEs (as well as nNLE), which may reflect a NCS within such interviewees. During interview, this NCS may lead to high levels of uncertainty, expectations of success (Gudjonsson & Clarke, 1986), and thus ineffective coping (e.g. compliance). These factors may lead to higher Yield 1 scores.

It appears especially that negative feedback may enhance state anxiety and the perceived difficulty of the interview (McGroarty & Baxter, 2007). Individuals scoring high on N (and reporting iNLEs) may perceive and interpret the feedback more negatively. Sensitivity to the negative feedback during the GSS interview may

manifest as compliance, surfacing in response to a perceived increase in task-difficulty from the first to the second round of GSS questions (Costa & McCrae, 1992; McGroarty & Baxter, 2007). Higher yield 2 scores and answer shifting may result.

Hypotheses:

Yield 1:

nNLE reported, iNLE reported and N are hypothesised to correlate significantly in the positive direction. Compliance may fully mediate the relationship between the observed independent variables nNLE, iNLE and N and the dependent variable yield 1. nNLE, iNLE and N are expected to exert a significant and positive direct effect upon C, which in turn is expected to exert a significant and positive direct effect upon yield 1.

Yield 2 and Shift:

nNLE reported, iNLE reported and N are hypothesised to correlate significantly in the positive direction. C may fully mediate the relationship between nNLE, iNLE, N and both yield 2 and shift scores. However, it is expected that only iNLE and N may exert significant positive indirect effects on both yield 2 and shift.

Method

Participants.

The opportunity sample consisted of 127 participants, 78 females and 49 males (mean age = 21.28 years, standard deviation = 5.18). All participants were either undergraduates, recruited through the experimental participation scheme within the School of Psychology, or members of the public through the School of Psychology's participant panel. All participants were educated to high school level or beyond.

Instruments.

The Gudjonsson Suggestibility Scale 1 (Gudjonsson, 1984).

The GSS was presented to each participant individually as a memory task. Several functions may be measured within the task: (i) immediate and delayed recall; (ii) confabulation; and (iii) suggestibility. Participants are read a narrative describing a fictitious robbery, followed immediately by an "immediate" free-recall phase, a distracter phase of around 50 minutes, and then a "delayed" free recall phase.

Interrogative Suggestibility.

The questioning phase begins immediately after the delayed free-recall condition. Responses to the first round of 15 misleading questions (out of a total of 20 questions) provide the yield 1 score which indicates the number of misleading questions yielded prior to negative feedback. (The answers to five 'true questions' does not contribute to this score.)

Immediately after the first round of 20 questions, negative feedback is given by the interviewer. The interviewee is told "You have made a number of errors, and it is therefore necessary to go through all of the questions once more and this time try to be more accurate".

The 20 questions are then repeated to see how readily interviewees shift their initial answers as a result of the critical feedback given by the interviewer. A yield 2 score is then obtained (showing the number of misleading questions yielded to post-negative feedback) and an answer “shift” score. The interview phase of the GSS generates three measures of suggestibility:

(i) Yield 1. For each of the misleading questions that are answered in the affirmative the first time round, or in the case of false alternative questions where one of the alternatives is chosen, one Yield point is obtained. Thus, the range of possible Yield 1 scores is from 0 to 15.

(ii) Yield 2. This is scored in an identical manner to Yield 1, following administration of the negative feedback. Once again, the range is 0 to 15.

(iii) Shift. Changes in response to any of the 20 questions (i.e. including the five ‘true questions’), after their administration the second time, contribute to the ‘shift’ score. According to Gudjonsson (1997), the only changes in answer not coded as such are those from “no” to non-committal responses (i.e. don’t know, not sure, maybe, possibly, or other synonymous words) or vice versa. The ‘shift’ score can range from 0 to 20.

Life Events Questionnaire (LEQ) (Norbeck, 1984)

The LEQ contains 82 items in total and is a modification of the instrument developed by Sarason, Johnson, and Siegel (1978), in that it has nine items of particular relevance to women. These include items such as “Major difficulties with birth control pills or devices”.

The nine additional items in the LEQ were introduced to reduce the gender bias in the

Sarason et. al. (1978) version. Participants were required to go through all the events listed, and if they had experienced them at any point of their life, to circle whether it had been a “good” experience or “bad” experience. They were then instructed to rate the extent to which those events had an effect on their lives at the time. The ratings went from 0 (“no effect”) to 3 (“large effect”). The LEQ has good test-retest reliability, with test-retest reliabilities of 0.78 to 0.83 and is a significant predictor of measures of (unfavourable) psychological and psychiatric symptoms.

The questionnaire was originally designed to examine life events experienced over the past year. However, research has shown the importance of studying life events during adolescence, as this period is characterized by many physical, social and cognitive changes (Cohen, Burt, & Bjorck, 1987). To assess the relationship between life events and IS, it was deemed more appropriate to examine events spanning the entire life of the individual. Participants were instructed to “read through the events listed, and mark the ones that have occurred throughout your whole life, not just the past year”.

The NEO Personality Inventory-Revised (NEO PI-R; Costa & McCrae, 1992).

The NEO PI-R is a 240 item self-report measure of the five-factor model of personality. The traits measured by this measure are N, extraversion (E), openness to experience (O), agreeableness (A), and conscientiousness (C). Each personality dimension comprises six sub-dimensions known as 'facets'. Trait compliance is an individual facet, measured by eight items, within the A domain. [Compliance] items such as “*I would rather co-operate with others than compete with them*” are answered on a five point scale, ranging from “strongly disagree” to “strongly agree”. Individual facet scores are obtained by summing the items corresponding to each facet. Domain scores are derived from summing the appropriate individual facet scores.

A high level of internal consistency is observed for each domain/factor: N = 0.92, E = 0.89, O = 0.87, A = 0.86, C = 0.90. The internal consistency of each of the facets ranges from 0.56 to 0.81. Test-retest reliability is also good: Costa & McCrae report that after six years time interval, N = 0.83, E = 0.82, O = 0.83, A = 0.63, C = 0.79. This demonstrates both the reliability as well as the relative stability of each of the factors across time.

The NEO PI-R normally takes 35 minutes to complete in total (Costa & McCrae, 1992). To reduce the likelihood of participant fatigue (through minimising the length of the procedure, as participants are also completing the GSS1 and the LEQ) and to ensure interviewees engaged as effectively as possible with the subsequent GSS interview, it was decided to measure both N and compliance using the NEO PI-R.

Procedure

Participants were administered the GSS1 individually by an interviewer, trained by a Chartered Forensic Psychologist in the administration of the GSS. In between the immediate free-recall and delayed recall phase, each participant completed the LEQ and the NEO PI-R.

Results

Descriptive Statistics

Table 1 presents the means and standard deviations for the GSS, NLE, N domain and individual facet scores and compliance NEO-PI-R scores. The normality of the data was checked, revealing univariate normality for the GSS and NEO PI-R scores. Measures of NLEs showed positive skewness (iNLE; Skew Z = 2.09, and kurtosis Z = 6.39). As a result, the use of parametric statistics was abandoned in favour of the non parametric alternatives (Pallant, 2007).

Table 1. Means (M) and Standard Deviation (SD) scores amongst the observed variables.

	M	SD
1. IR	14.5	5.71
2. DR	12.9	5.74
3. Y1	4.19	2.17
4. Y2	5.64	2.94
5. S	4.15	2.19
6. iNLE	18.4	11.2
7. nNLE	12.3	8.05
8. N	96.3	13.1
9. C	18.7	4.18

Note: $N = 127$. IR = Immediate Recall; DR = Delayed Recall; Y1 = Yield 1; Y2 = Yield 2; S = Shift; iNLE = intensity of Negative Life Events; nNLE = number of Negative Life Events. N = Neuroticism. C = Compliance.

Spearman's rho correlations

Table 2 shows the zero order correlations between the measured variables. A non-parametric correlation was used because iNLE scores were positively skewed; a method of dealing with this is to use non-parametric statistical tests (Pallant, 2007, p.88). Results indicate significant positive correlations between iNLE scores and all three GSS subscales. nNLEs is

significantly correlated with yield 2 and shift only. C scores on the NEO PI-R are significantly correlated with shift scores on the GSS, but not with either the nNLEs or iNLEs reported. N scores correlated significantly with iNLEs reported, but not significantly with nNLEs reported. N correlates significantly with the S dimension of the GSS.

Table 2. Zero order correlations amongst the observed variables

	1	2	3	4	5	6	7
1. Y1	-	.518**	.006	.265**	.120	.005	.149
2. Y2		-	.420**	.280**	.258**	.090	.129
3. S			-	.364***	.304**	.267**	.264**
4.iNLE				-	.843**	.096	.226*
5.nNLE					-	-.029	.048
6. C						-	.139
7. N							-

Note: N = 127. Y1 = Yield 1; Y2 = Yield 2; S = Shift; three subscales from the GSS1.

iNLE = intensity of Negative Life Events, nNLE = number of Negative Life Events, N = Neuroticism, C = Compliance.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Structural Equation Modelling.

Table 3 shows the standardised beta values and fit indices of the models:

The asymptotically distribution free estimation criterion was used to estimate the parameters and the model fit. Three goodness of fit indices were used to evaluate model fit (Quintana & Maxwell, 1999; Wei, Mallinckrodt, Russell & Abraham, 2004): (i) the comparative fit index (CFI; where values of 0.9 or above are required), (ii) the goodness of fit index (GFI; values of 0.9 are desirable), and (iii) the root-mean-square error of approximation (RMSEA; values of .06 or less are wanted). A chi-square difference test ($\Delta\chi^2$) was used, as well as standard fit indices, to compare the nested models with blended models (BM). Nested models can be derived from another (i.e. a blended model, which contains both indirect and direct effects) through restricting parameters. Standard fit indices alone are used to compare the models are not nested.

Table 2 shows that both nNLE and iNLE are extremely highly correlated ($r = .843$).

Presenting the two NLE measures in the same model could therefore prove problematic. To prevent the emergence of artefacts (and any subsequent misleading findings and interpretations), only iNLE (the stronger of the two measures) will be included within the models alongside N, C, and GSS scores. The models therefore contain two independent variables (IVs) (N and iNLE), a mediator (C) and a DV (Yield 1, Yield 2 or Shift).

In order to obtain a degree of freedom (df) within the BMs (considering that, with only two IVs, the df of the BM is zero) the least significant pathway has been removed from each of the BMs. This is done to allow for subsequent model comparison and evaluation. If the df is zero, model evaluation of the BM (and comparison of nested models with the BM) is not possible, as there is no test for the BM fit.

With three predictors, a desired statistical power level of 0.8, and $\alpha = 0.01$ the minimum number of participants required 109 (Cohen, Cohen, West, & Aiken, 2003). The models have sufficient power considering the sample size was 127.

Yield 1:

Table 3 shows that the BM demonstrates the best fit to the data. Both the indirect and direct effects of iNLE and N on Yield 1 are however not statistically significant.

Since a pathway was removed from the BM, $\Delta\chi^2$ tests comparing the BM with both the FMM and NMM models were not performed, as the FMM and NMM models are not nested within the BM.

Yield 2

Table 3 shows that the BM demonstrates the best fit to the data (compared with the not nested FMM and the nested NMM). It shows that iNLE exerts a significant positive direct effect upon yield 2 scores. Neither N nor C exerts significant effects upon yield 2.

$\Delta\chi^2$ tests show that, compared with the NMM, the BM provides a significantly better fit: BM vs. NMM: $\Delta\chi^2 [1] = 2.74; p < .10$.

Shift:

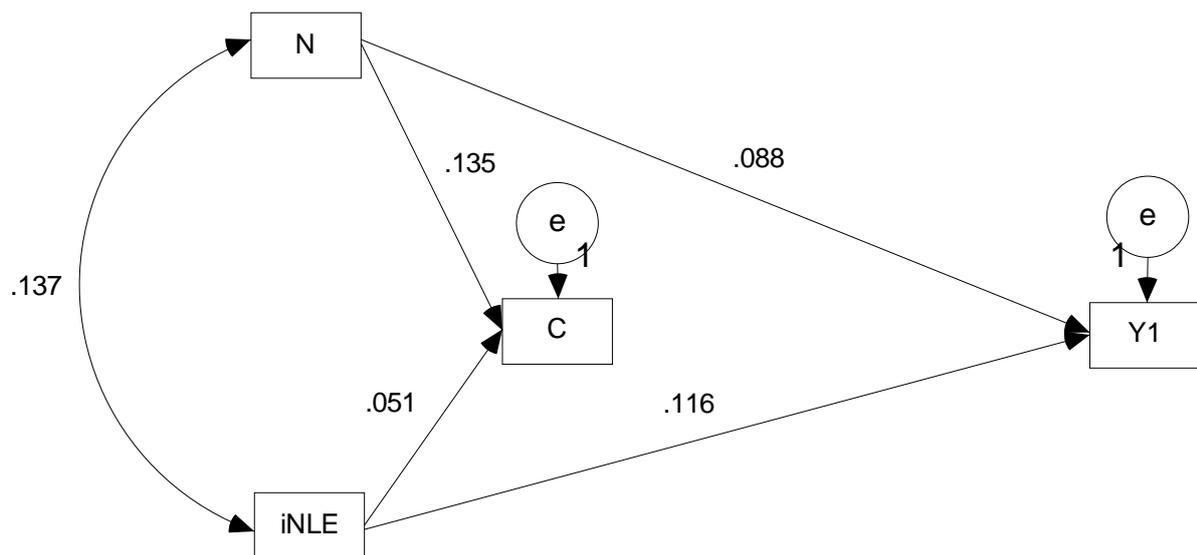
Table 3 shows that the BM demonstrates the best fit to the data (compared with the not nested FMM and the nested NMM). It shows that iNLE, N and C exert a significant positive direct effect upon shift. The indirect effects are not statistically significant.

$\Delta\chi^2$ tests show that, compared with the NMM, the BM provides a significantly better fit: BM vs. NMM: $\Delta\chi^2 [1] = 2.74; p < .10$.

Figure 1. Blended models to show the effects of iNLE and N on Yield 1 (Y1), Yield 2 (Y2) and Shift (S). $N = 127$. iNLE = intensity of Negative Life Events, N = Neuroticism, and C = Compliance.

* $p < .05$, ** $p < .01$, *** $p < .001$

Yield 1:



Yield 2 and Shift:

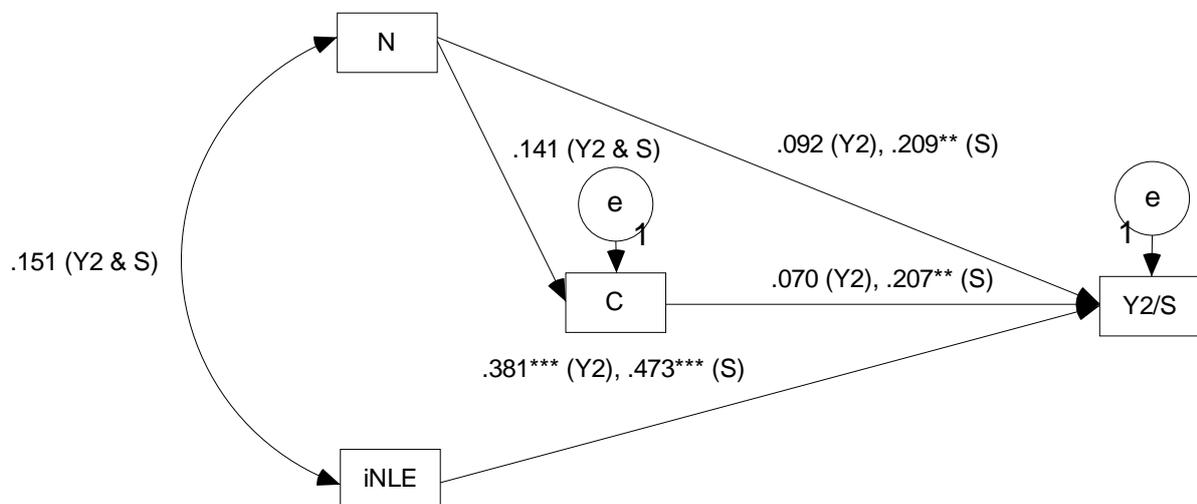


Table 3. Standardised beta values and fit indices for path-diagrams.

	Yield 1			Yield 2			Shift		
	BM	FMM	NMM	BM	FMM	NMM	BM	FMM	NMM
iNLE	.116	-	.126	.381***	-	.403***	.473***	-	.493***
N	.088	-	.064	.092	-	.048	.209**	-	.191**
C	-	.013	-.014	.070	.126	.042	.207**	.360***	.196**
N → C	.135	.125	-	.141	.146	-	.141	.234*	-
iNLE → C	.051	.047	-	-	.124	-	-	.258	-
iNLE ↔ N	.137	.241	.137	.151	.048	.137	.151	-.249	.137
χ^2	0.006	4.160	3.240	0.508	12.082	3.244	0.508	18.023	3.244
df	1	2	2	1	2	2	1	2	2
CFI	1.000	0.772	0.869	1.000	0.000	0.867	1.000	0.339	0.949
GFI	1.000	0.985	0.988	0.998	0.961	0.990	0.998	0.929	0.987
RMSEA	0.000	0.093	0.070	0.000	0.200	0.070	0.000	0.252	0.070
PCLOSE	0.945	0.207	0.295	0.541	0.008	0.295	0.541	0.001	0.295

Note: $N = 127$. BM = Blended Model; FMM = Full Mediation Model; NMM = No Mediation Model. Empty cells = pathway not included in the model. iNLE = intensity of Negative Life Events, N = Neuroticism; two independent variables; C = Compliance; the mediator. * $p < .05$, ** $p < .01$, *** $p < .001$

Discussion

The role of N and C in the relationship between the reporting of more frequent (nNLE) and more intense NLEs (iNLE) and GSS scores was investigated in this chapter.

nNLE appears to be relevant to both Yield 1 and Yield 2 scores; experiencing frequent NLE may establish a negative cognitive set within such individuals. This may lead to a lesser resilience to questioning and a tendency to be accepting of misleading information (Gudjonsson & Clarke, 1986). Evidence shows that cognitive hardiness may moderate the relationship between the experience of negative life events and vulnerability (Beasley et. al., 2003). Individuals who are relatively low on cognitive hardiness and experience frequent NLE may be more suggestible on the GSS – this should be investigated further. It may be beneficial to also investigate which type of negative life events is most associated with interrogative suggestibility. Current research merely considers the frequency and intensity of negative life events experienced as a whole concept. It does not assess which particular events or the degree of intensity that may contribute to interrogative suggestibility.

iNLEs (the reporting of more intensely negative negative life events) however seem the stronger of the two NLE measures and are therefore included within the path models (alongside N, C and GSS scores). The three subscales will be discussed separately. Some key findings emerged:

Yield 1

Results show that the BM provides the best explanation of Yield 1 scores. The model shows an acceptable fit to the data and demonstrates that iNLE and N exert direct effects on Yield 1, although these are not statistically significant. These findings are contrary to expectation, considering previous work demonstrating significant relationships between NLE and Yield 1

scores ([chapter 1] Drake et. al., 2008; [chapter 2] Drake & Bull, in press). Additional work appears to be warranted, to understand the psychological mechanism underpinning Yield 1.

Yield 2

The BM explains yield 2 scores the most adequately. Only iNLEs however seems relevant to explaining Yield 2. The reporting of more iNLEs seems to be an indicator of a negative mindset ([chapter 3] Drake, Egan & Bull, in submission). Interviewees reporting more iNLEs may perceive the negative feedback more negatively, which may heighten uncertainty as to the correct answer to the questions. A lesser resilience to the negative feedback could result. Evidence shows that the negative feedback may enhance state anxiety and the perceived difficulty of the interview (McGroarty & Baxter, 2007). An increase in perceived difficulty may lead to an increase in uncertainty and any expectations of success (Gudjonsson & Clarke, 1986). Interviewees reporting more iNLE may perceive an increase in difficulty from the first round of questions to the second round. This may generate uncertainty and expectations of success, leading to elevated yield 2 scores.

Shift

The BM provides the best (and an adequate) explanation of shift scores. The model shows that iNLE, N and C exert significant and positive direct effects on shift. The reporting of more iNLEs seems to capture a negative mindset ([chapter 3] Drake, Egan & Bull, in submission). Interviewees scoring high on N are susceptible to distress (Costa & McCrae, 1992). Interviewees reporting more iNLEs may perceive the negative feedback more negatively. This may heighten uncertainty as to the correct answer to the questions. High shift scores may result from a desire to reduce distress levels and uncertainty (Gudjonsson & Clarke, 1986).

Findings show that C also exerts a significant direct effect on shift scores (alongside iNLE and N). Costa and McCrae (1992) define C as a coping mechanism in response to interpersonal conflict or stress. iNLE and N may generate uncertainty and expectations of success in response to the negative feedback. C may then manifest, in response to negative feedback, as a way of coping with the negative feedback and the resultant uncertainty that may be generated when faced with questioning after receiving negative feedback (on interviewees' initial answers). Compliance with the negative feedback may lead to shifting on the GSS.

Limitations and conclusion.

A limitation of this study is the use of the compliance facet within the NEO PI-R. The compliance facet within the NEO PI-R has relatively low test-retest reliability (c.f. other measures of compliance, such as the Gudjonsson Compliance Scale; Gudjonsson, 1989). A second limitation is the relatively small sample size. These findings should therefore be considered conservative estimations. Further research is needed to verify the role of C within the shift subscale of the GSS.

The current findings seem to suggest, however, that shifting on the GSS may well result from compliant tendencies within interviewees. Interviewees scoring high on iNLE and N may be prone to a negative cognitive set during interview (iNLE seems to be a measure of this; [chapter 3]). Gudjonsson and Clarke (1986) recognise the importance of the negative cognitive set in encouraging vulnerability during questioning. C may manifest during interview, in response to the negative feedback, as a coping mechanism during perceived difficulty, uncertainty, and expectations of success during questioning (Gudjonsson & Clarke, 1986; McGroarty, 2007). Shifts in answers may result. A link between the experience of major adverse life events and reported false confessions has also been found (Gudjonsson,

Sigurdsson & Sigfusdottir, 2008; 2009). These findings further imply that false confessions, in interviewees reporting more intense adverse life events, could also result from compliant (coping) tendencies in response to pressure during questioning.

Each chapter up until now has highlighted different psychological variables that may well be relevant to explaining the psychology of interrogative suggestibility. Chapter 1 and 2 show the influence of the (reported) experience of intensely negative adverse life events, chapter 3 demonstrates the role of adult attachment anxiety in creating a negative mindset (thus leading to a lesser resilience to pressure during questioning), and chapter 4 demonstrates that neuroticism (and the rating of negative life events as more intensely negative (iNLE); indicating a negative mindset [chapter 3]; also see Gudjonsson & Clarke, 1986) may well be relevant to Yield 2. Chapter 4 also shows that neuroticism and compliance (and iNLE) significantly affect Shift scores. Yield 1 was not, however, well explained; neuroticism was included within the model of best fit (see chapter 4) but it did not exert a significant influence.

The role of chapter 5 which will be to pull together the various inferences that have emerged from each of the chapters, to reach a conclusion as to the possible psychological mechanism underpinning individual differences in interrogative suggestibility (across all of the GSS subscales).

**CHAPTER 5:
THE PSYCHOLOGY OF INTERROGATIVE SUGGESTIBILITY: A
VULNERABILITY DURING INTERVIEW.**

This chapter extends and pulls together findings within the previous chapters. It investigates the psychological mechanism underpinning individual differences in interrogative suggestibility. It considers the relationship between neuroticism (vulnerability especially) and compliance within the Five-Factor personality model (chapter 4), fearful avoidant attachment (FAA) (chapter 3), the experience of intense negative life events (iNLE) (chapters 1-4) and interrogative suggestibility.

Introduction.

Interrogative suggestibility can be a serious psychological vulnerability during questioning (see Gudjonsson, 2003; Gudjonsson, Young & Bramham, 2007). Factor analytic evidence suggests two types of interview suggestibility: (i) The acceptance of misleading information and (ii) sensitivity to the negative feedback/ pressure from the interviewer (Gudjonsson, 1992).

The Gudjonsson and Clarke 1986 model has been the long-established theoretical framework explaining suggestibility. They propose several important factors, central to encouraging the suggestible response: (i) uncertainty surrounding the correct answer(s) to the question(s), (ii) expectations of success: interviewees may feel that the interviewer expects them to know the correct answer, (iii) the use of negative feedback during the interview, designed to unnerve the interviewee, and (iv) the establishment of interpersonal trust/rapport between the interviewer and interviewee. The "suggestible individual" is thought to have a relatively negative mindset. It is this which may predispose such interviewees to heightened levels of

uncertainty and expectations of success in response to questioning (and therefore suggestibility).

However, the model does not seem to account for the underlying psychological mechanism which may culminate in individual differences in negative mindset and ultimately vulnerability during dyadic interactions (i.e. interviews). Previous research (chapters 1 to 4) has also failed to adequately explain the psychological mechanism governing misinformation acceptance in the absence of pressure (i.e. Yield 1 scores). Chapters 1 and 2 found that the significant correlation between the reporting of intense NLEs and yield 1 scores remains when memory recall accuracy is controlled for. This suggests that high Yield 1 scores in interviewees reporting intense NLEs may not be down to such interviewees having a poorer memory. Chapter 4 found that neuroticism, the experience of intense negative life events and compliance explained Yield 2 and Shift scores on the GSS (but not Yield 1 scores); neuroticism was a variable within the best fitting model explaining Yield 1 scores, but did not exert a significant direct effect.

Further work into this seems needed, as it is important to investigate the cause of this psychological vulnerability. Knowledge of the mechanism may help to inform the effective treatment and management of suggestible behaviour during interview.

The role of insecure attachment, neuroticism, and life adversity.

It could well be though that neuroticism may exert an indirect influence on Yield 1. Chapter 4 (Drake [2009]) found that neuroticism and the experience of intense negative life events correlated significantly. The experience of intense NLEs in turn correlates with GSS scores (including yield 1) ([chapter 1] Drake et. al., 2008; [chapter 2] Drake & Bull, in press).

Neuroticism seems related to stress generation and a negative perception of situations

(Safford, Alloy, Abramson & Crossfield, 2007). This negative perception is also commonly found within individuals scoring high in attachment anxiety and avoidance (Bowlby, 1969; 1988).

Evidence relates neuroticism with both attachment anxiety and avoidance (Donnellan, Burt, Levendosky & Klump, 2008; Nofle & Shaver, 2006). Scarr and McCartney (1983) suggested that certain genetically influenced traits may elicit negative emotionality, worry, and anxiety from the social environment and appear to encourage hostile dyadic interactions (Donnellan, Assad, Robins & Conger, 2007). High levels of attachment anxiety and avoidance as well as neuroticism may lead to the reporting of more intensely negative NLEs (as a result of such individuals having a more negative mindset) and consequences (such as suggestibility) during social interactions.

Chapter 3, as well as previous research, has shown the investigative interview to be a dyadic social interaction (Moston, Stephenson, & Williamson, 1992; Ofshe & Leo, 1997; Pearse & Gudjonsson, 1999). Studies by Baxter and Boon (2000), Baxter, Boon and Marley (2006), and Baxter, Jackson and Bain (2003) have demonstrated the role of interviewer influence and demeanour in affecting interrogative suggestibility. These studies show that a negative interviewer demeanour may encourage relatively high yield 1 scores, through inducing uncertainty and expectations of success (Gudjonsson & Clarke, 1986). How interviewees perceive and interact with the interviewer may affect interviewee cognitive mindset during interview and influence the extent to which interviewees becoming accepting of misleading information (delivered to the interviewee in the form of leading questions) and responsive to negative feedback.

Individuals high in both attachment anxiety and avoidance (i.e., those classified as expressing a high degree of fearful-avoidant attachment; Griffin & Bartholomew, 1994) tend to experience more interpersonal difficulties (Cyranowski, et. al., 2002). Attachment avoidance seems to lead to a negative attitude towards others, heightened hostility, and low self esteem (Burnette, et. al., 2009; Fraley & Shaver, 2000). Fearful avoidant attachment patterns are especially is related to: (a) the exaggeration of previous negative experiences and (b) over-reporting the intensity of previously experienced negative moods (DeWitte & De Houwer, 2008; Gentzler & Kerns, 2006). Attachment anxiety and avoidance may lead to the reported experience of more intensely negative negative life events (iNLEs). iNLEs has previously been found to correlate significantly with interrogative suggestibility ([chapters 1-4]).

Fearful avoidant attachment patterns may also affect misinformation acceptance (in the absence of explicit pressure, i.e. Yield 1 scores on the GSS) directly. Vulnerable individuals may be more prone towards conflict avoidance during tasks; they may wish to avoid potential negativity (Muller, 2009) since attachment behaviour has, as a main aim, the maintenance of proximity (Bowlby, 1988). Avoiding negative thoughts (linked to their interaction with the interviewer) may preserve the interviewer-interviewee relationship but, as a result, may encourage the acceptance of misleading information.

Vulnerability is defined as a general susceptibility to stress and is a particular manifestation of the neuroticism domain (Costa & McCrae, 1992). It may be that vulnerability is the aspect of neuroticism that relates to both attachment anxiety and avoidance and encourages the reported experience of more intensely negative events. Vulnerability and fearful avoidant attachment patterns may correlate and lead to the reported experience of NLEs. During interview the (reported) experience of intense negative life events may give rise to

misinformation acceptance in the absence of explicit pressure (i.e. high yield 1 scores); fearful avoidant attachment patterns may also affect yield 1 scores directly.

Once pressure is applied by the interviewer (on the interviewee), the acceptance of misleading information (yield 2 scores) and answer shifting (in response to pressure) is expected to be caused by the reported experience of NLE (i.e. by the interviewee's perception of the negative feedback). Vulnerability and fearful avoidant attachment may correlate and lead to the (reported) experience of intensely negative NLEs. Vulnerability, an endogenous susceptibility to stress, may further influence sensitivity to pressure during interview directly; individuals scoring high on vulnerability may be less resilient to pressure, creating heightened uncertainty in response to (and a lesser ability to cope with) that pressure (Gudjonsson & Clarke, 1986).

Compliance

Chapter 4 showed that trait compliance may also have an effect on answer shifting (Drake, 2009). Trait compliance is defined as an established response to (expected) interpersonal negativity or conflict (Costa & McCrae, 1992). Individuals with an endogenous tendency towards compliant behaviour may be more susceptible to distress and vice versa (and have thus developed compliance as a coping method in the face of stress/conflict). Vulnerability, compliance (as well as fearful avoidant attachment patterns) may encourage the reporting of more intensely negative NLEs. Individuals scoring high in compliance may feel that they should report more intense NLEs (to please the experimenter). During interview this negative mindset, encouraged by vulnerability, compliance and fearful avoidant attachment patterns, may result in answer shifting on the GSS (Gudjonsson & Clarke, 1986).

Vulnerability and compliance may also have a direct effect on Shift.

Hypotheses:

Three blended models (BMs) are hypothesised:

Yield 1:

V and FAA are expected to correlate in the positive direction. V and FAA are expected to exert significant effects on iNLE; iNLE will in turn significantly influence Yield 1. FAA will directly affect Yield 1.

It is expected that the BM containing V, FAA, iNLE and Yield 1 should provide the most satisfactory fit to the data (compared with the BMs including N, FATT, iNLE and Yield 2 scores).

Yield 2:

V and FATT are expected to correlate in the positive direction. V and FAA are expected to exert significant effects on iNLE; iNLE will in turn significantly influence Yield 1. V will directly affect Yield 2.

It is expected that the BM containing V, FAA, iNLE and Yield 2 should provide the most satisfactory fit to the data (compared with the BMs including N, FAA, iNLE and Yield 2 scores).

Shift:

V and C may be correlated. V and FAA may also correlate. V, C, may exert indirect (through iNLE) on shift scores as well as direct effects on shift scores.

It is expected that the BM containing V, C, FAA, iNLE and Shift should provide the most satisfactory fit to the data (compared with the BMs including N, C, FAA, iNLE and Shift scores).

Method.

Participants.

The sample consisted of 120 participants, 94 females and 26 males (mean age = 19.35 years, standard deviation = 1.41, range = 18 to 26). A proportion (20 participants out of the 120) of the data is taken from a published data set used in the previous chapter. This was done to maximise the opportunity sample size, so that the path-diagrams would have sufficient power. It was also done to try to resolve (at least to an extent) the gender skew, given the difficulty recruiting male participants. Participants were an opportunity sample, recruited through the experimental participation scheme within the School of Psychology. All were undergraduates within the School.

Instruments

The Gudjonsson Suggestibility Scale 1 (Gudjonsson, 1984, 1997)

Memory Recall

The GSS memory recall task is presented in the form of a narrative, which is made up of 40 small instances, occurring in a specific order. Each instance is scored as ‘successfully recalled’ if the interviewee is able to freely recall that instance. The interviewee does not need to recall each instance in the order with which they are presented in the story.

Furthermore, the words used (by the interviewee) to recall the instances need not be exactly as written in the narrative. Of fundamental importance is that the concept, that is what occurred within each instance, is correctly recalled. The maximum free-recall score that can be achieved is 40, which would indicate that the interviewee has correctly recounted everything that occurred in the story. In the traditional form of the GSS the “immediate” free-recall phase is followed (after filler tasks) with a delayed recall of the narrative.

Interrogative Suggestibility.

The questioning phase traditionally begins immediately after the delayed free-recall. In the present study the delayed free recall phase was omitted due to: (i) the filler task taking much less than 50 minutes to complete, providing an inadequate time interval between immediate recall and the conventional delayed recall phase (Gudjonsson, 1997) and (ii) more recent studies having shown the delayed free recall phase being an unnecessary part of the procedure; with little impact upon overall performance (in terms of suggestibility scores). Minimising participant fatigue, by reducing the length of the procedure, was an additional motivating factor in the decision to exclude the delayed free-recall phase from the GSS procedure.

In terms of the calculating the yield 1, yield 2, and shift scores on the GSS, the first round of 15 misleading questions (out of a total of 20 questions) makes up the yield 1 score, which indicates the number of misleading questions yielded to prior to negative feedback. (The answers to five 'true questions' do not contribute to this score). Immediately after the first round of 20 questions, negative feedback is given by the interviewer. The interviewee is told "You have made a number of errors, and it is therefore necessary to go through all of the questions once more and this time try to be more accurate". All 20 questions are then repeated, in order to see how readily interviewees shift their initial (20) answers as a result of the critical feedback and interrogative pressure applied by the interviewer. A yield 2 score is also obtained, depicting the number of the 15 misleading questions yielded to post-negative feedback.

Life Events Questionnaire (LEQ) (Norbeck, 1984)

The LEQ contains 82 items in total and is a modification of the instrument developed by Sarason, Johnson, and Siegel (1978), in that it has nine items of particular relevance to

women. These include items such as “Major difficulties with birth control pills or devices”. The nine additional items in the LEQ were introduced to reduce the gender bias in the Sarason et. al. (1978) version. Participants were required to go through all the events listed, and if they had experienced them at any point of their life, to circle whether it had been a “good” experience or “bad” experience. They were then instructed to rate the extent to which those events had an affect on their lives at the time. The ratings went from 0 (“no effect”) to 3 (“large effect”). The LEQ has good test-retest reliability, with test-retest reliabilities of 0.78 to 0.83 and is a significant predictor of measures of (unfavourable) psychological and psychiatric symptoms.

The questionnaire was originally designed to examine life events experienced over the past year. However, research has shown the importance of studying life events during adolescence, as this period is characterized by many physical, social and cognitive changes (Cohen, Burt, & Bjorck, 1987). To assess the relationship between life events and IS, it was deemed more appropriate to examine events spanning the entire life of the individual. Participants were instructed to “read through the events listed, and mark the ones that have occurred throughout your whole life, not just the past year”.

The Relationship Scales Questionnaire (RSQ) (Griffin & Bartholomew, 1994).

The RSQ contains 30 items taken from Hazan and Shaver’s (1987) attachment measure, Bartholomew and Horowitz’s (1991) Relationship Questionnaire, and Collins and Read’s (1990) Adult Attachment Scale. For each item on the RSQ, participants have to rate on a five point scale the extent to which each statement best describes their behaviour in close relationships. Out of the 30 items, five contribute to secure attachment, five to dismissing attachment patterns (high scores denoting attachment avoidance), four to fearful attachment patterns (such individuals experience a high level of both attachment anxiety and avoidance),

and four to preoccupied attachment patterns (high scores denoting attachment anxiety) (Bartholomew & Horowitz, 1991). Each participant obtains scores for each of the four attachment patterns; the scores are derived by taking the mean of the four or five items representing each attachment style.

The RSQ shows high internal reliability ($\alpha = .83$) as well as high test-retest reliability (at two weeks: $r = .83$, $p < .001$; at four months: $r = .78$, $p < .001$).

The NEO Personality Inventory-Revised (NEO PI-R; Costa & McCrae, 1992).

The NEO PI-R is a 240 item self-report measure of the five-factor model of personality. The traits measured are N, extraversion (E), openness to experience (O), agreeableness (A), and conscientiousness (C). Each personality dimension comprises six sub-dimensions known as 'facets'. Trait compliance is an individual facet score within the A domain of the NEO PI-R. Items are answered on a five point scale, ranging from "strongly disagree" to "strongly agree". Individual facet scores are obtained by summing the items corresponding to each facet. Domain scores are derived by summing the appropriate individual facet scores. The NEO shows a high level of internal consistency for each domain/factor: N = 0.92, E = 0.89, O = 0.87, A = 0.86, C = 0.90. The internal consistency of each of the facets ranges from 0.56 to 0.81. Test-retest reliability is also good: Costa & McCrae report that after six years time interval, N = 0.83, E = 0.82, O = 0.83, A = 0.63, C = 0.79. This demonstrates both the reliability as well as the relative stability of each of the factors across time.

Procedure

Participants were administered the GSS1 individually by an interviewer, trained by a Chartered Forensic Psychologist in the administration of the GSS. In between the immediate free-recall and the interview phase, each participant completed the LEQ, the RSQ, and the N and A domain of the NEO PI-R.

Results

Descriptive Statistics

Table 1 presents the means and standard deviations for the observed variables. The normality of the data was checked, revealing univariate normality for the GSS and NEO PI-R scores.

Measures of iNLEs showed positive skewness (iNLE; Skew $Z = 2.09$, and kurtosis $Z = 6.39$).

As a result, the use of parametric statistics was abandoned in favour of the non parametric alternatives.

Table 1. Means and standard deviations of the observed variables.

	M	SD
Y1	3.89	2.14
Y2	5.13	2.75
S	4.24	2.21
TS	8.13	2.78
iNLE	19.7	11.4
FAA	10.5	3.54
N	96.3	12.4
C	18.0	3.93
V	12.9	4.84

Note: $N = 120$. Y1 = Yield 1; Y2 = Yield 2; S = Shift; TS = Total Suggestibility

iNLE = intensity of Negative Life Events; FAA = Fearful-Avoidant Attachment;

N = Neuroticism; C = Compliance; V = Vulnerability.

Spearman's rho correlations

Table 2 shows the zero order correlations between the measured variables. Results indicate significant positive correlations between iNLE scores GSS scores. V and C also correlate significantly with Yield 2. iNLE correlates significantly with both N and FATT scores.

Table 2. Zero order correlation coefficients amongst observed variables.

	1	2	3	4	5	6	7	8	9
1.Y1	-	.428**	-.162	.625**	.217*	-.145	.108	.115	-.066
2.Y2		-	.289**	.585**	.223*	-.025	.193*	.203*	.201*
3.S			-	.628**	.504**	.158	.243**	.059	.216*
4.TS				-	.535**	-.015	.264**	.138	.092
5.iNLE					-	.221*	.295**	.163	.171
6.FAA						-	.323**	.057	.337**
7.N							-	.088	.607**
8.C								-	.086
9.V									-

Note: $N = 120$. * $p < .05$, ** $p < .01$, and *** $p < .001$. Y1 = Yield 1; Y2 = Yield 2; S = Shift;

TS = Total Suggestibility; iNLE = intensity of Negative Life Events; FAA = Fearful-

Avoidant Attachment; N = Neuroticism; C = Compliance; V = Vulnerability.

Structural Equation Modelling.

Table 3 shows the standardised beta values and fit indices of the models:

The asymptotically distribution free estimation criterion was used to estimate the parameters and the model fit. Three goodness of fit indices were used to evaluate model fit (Quintana & Maxwell, 1999; Wei, Mallinckrodt, Russell & Abraham, 2004): (i) the comparative fit index (CFI; where values of 0.9 or above are required), (ii) the goodness of fit index (GFI; values of 0.9 are desirable), and (iii) the root-mean-square error of approximation (RMSEA; values of .06 or less are wanted).

With four predictors, a desired statistical power level of 0.8, and $\alpha = 0.01$ the minimum number of participants required 118 (Cohen, Cohen, West, & Aiken, 2003). The models have sufficient power given the sample size of 120.

Yield 1:

Table 3 shows that BM (V) provides an excellent (and the best) fit to the data (see Figure 1). BM (V) shows that V and FAA correlate significantly. FAA exert significant indirect effects, through iNLE, on Yield 1. FAA also affects Yield 1 directly, but in the negative direction. V is included in the model, but its effect is not significant.

Yield 2:

Table 3 shows that BM (N) provides the best account of Yield 2 (see Figure 1). V and FAA correlate significantly. FAA exerts significant indirect effects, via iNLE, on Yield 2 scores. The direct effect of FAA on Yield 2 is not statistically significant. V exerts an effect on NLE and Yield 2 but this is not significant.

Shift:

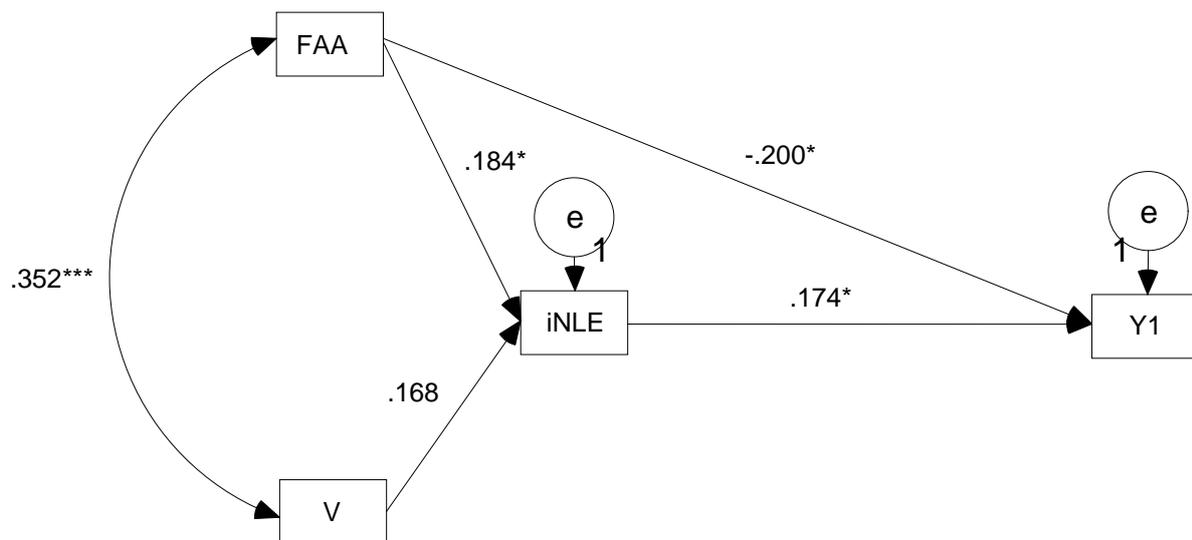
Table 3 shows that BM(N) provides an acceptable fit to the data (see Figure 1) (although the BM containing the IV “Vulnerability” rather than neuroticism also demonstrates a similarly good fit).

The BM (N) shows that: (i) FAA exerts a significant and positive indirect effect on Shift through iNLE; (ii) C exerts a significant and positive indirect effect on Shift through iNLE; (iii) N and C exert direct effects on Shift, but these are not statistically significant; and (iv) N and FAA are significantly correlated; N and C are not significantly correlated.

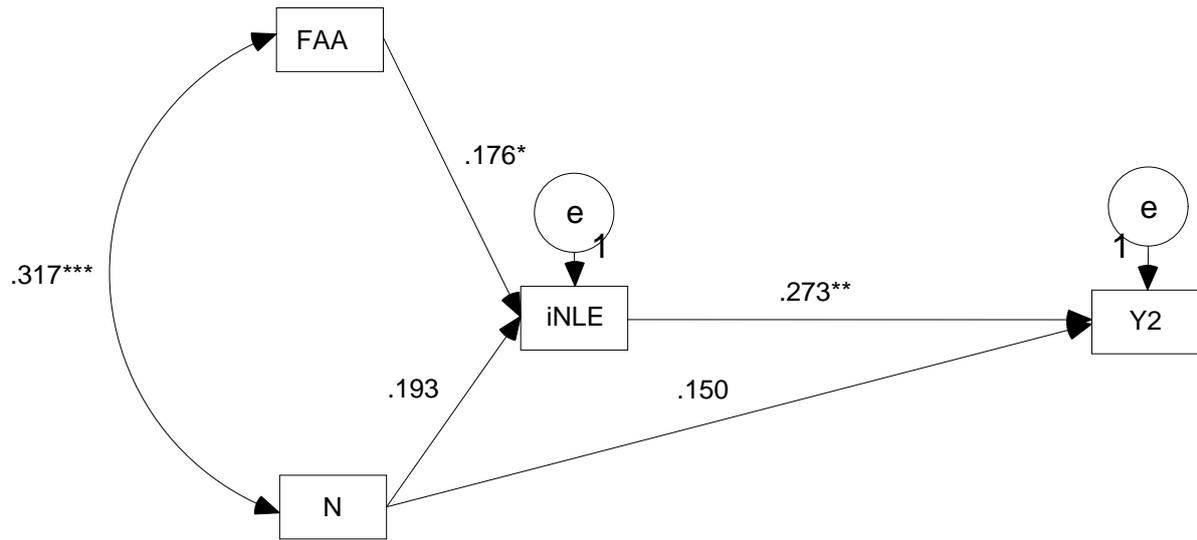
Figure 1. Path diagrams to show the psychological mechanism governing Yield 1 (Y1), Yield 2 (Y2) and Shift (S). Note: $N = 120$. iNLE = intensity of Negative Life Events; FAA = Fearful-Avoidant Attachment; N = Neuroticism; V = Vulnerability; C = Compliance.

* $p < .05$, ** $p < .01$, and *** $p < .001$.

Yield 1:



Yield 2:



Shift:

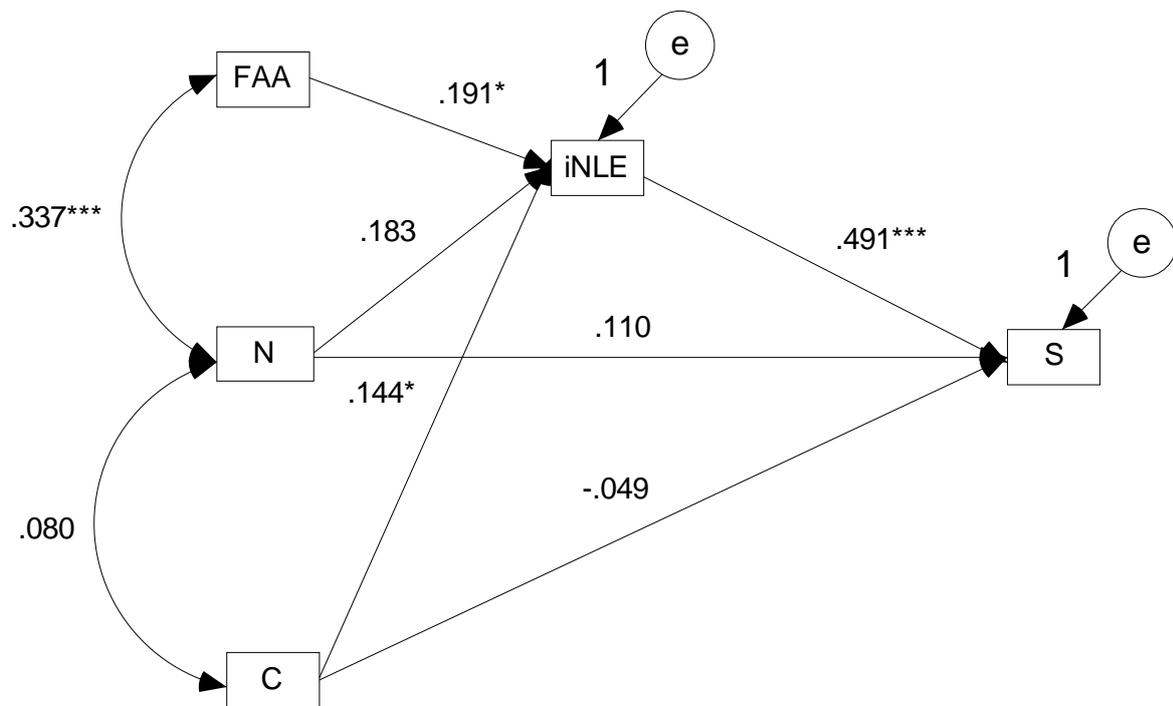


Table 3. Standardised beta values and fit indices of the blended models (BM).

	Yield 1		Yield 2		Shift	
	BM(N)	BM(V)	BM(N)	BM(V)	BM(N)	BM(V)
iNLE	.198*	.174*	.273**	.275**	.491***	.496***
FAA	-.269**	-.200*	-	-	-	-
V	-	-	-	.164	-	.111
N	-	-	.150	-	.110	-
C	-	-	-	-	-.049	-.058
N→ iNLE	.168	-	.193	-	.183	-
FAA→ iNLE	.198*	.184*	.176*	.184*	.191*	.200*
V→ iNLE	-	.168	-	.157	-	.145
C→ iNLE	-	-	-	-	.144*	.134
FAA↔N	.330***	-	.317***	-	.337***	-
FAA↔V	-	.352***	-	.352***	-	.363***
V↔ C	-	-	-	-	-	.165*
N↔C	-	-	-	-	.080	-
χ^2	2.668	0.011	0.659	0.888	0.148	0.143
df	1	1	1	1	2	2
CFI	0.955	1.000	1.000	1.000	1.000	1.000
GFI	0.989	1.000	0.997	0.996	1.000	0.984
RMSEA	0.118	0.000	0.000	0.000	0.000	0.000
PCLOSE	0.153	0.927	0.482	0.414	0.947	0.948

Note: $N = 120$. * $p < .05$, ** $p < .01$, and *** $p < .001$. Empty cells = pathways not included in the model. iNLE = intensity of Negative Life Events; FAA = Fearful-Avoidant Attachment; N = Neuroticism; C = Compliance; V = Vulnerability.

Discussion.

The aim of this study is to extend chapter 4 and pull together the findings in previous chapters. Some key findings emerged:

Yield 1:

The findings suggest that V and FATT are correlated; FATT indirectly affects Yield 1 through iNLE. V may be the aspect of N that may encourage relatively hostile reactions in others (Donnellan et. al., 2007; Scarr & McCartney, 1983) and the subsequent formation of fearful avoidant attachment patterns. This may cause a more negative perception of situations (Bowlby, 1988), leading to vulnerable interviewees rating negative events as more intensely negative. As a result, vulnerable interviewees may be more prone to negative performance expectations and a negative mindset (chapter 3 found iNLE to be an indicator of an underlying negative mindset). This negative mindset during interview may lead to the acceptance of misleading information (Gudjonsson & Clarke, 1986).

There is also a significant direct effect of FATT on Yield 1, but in the negative direction. Certain interviewees scoring high on FATT may have a tendency towards a negative perception of others and, as a result, may become more suspicious of the interviewer (Rydell & Bringle, 2007). Suspiciousness of the interviewer's motives may reduce cooperation during interview (Gudjonsson, 2003, p. 28). This may lead to a reduction in uncertainty and therefore resistance to misleading information during questioning (Gudjonsson & Clarke, 1986).

Yield 2:

As with Yield 1, V and FATT correlate significantly and there is a significant indirect effect of FATT on both Yield 2. Vulnerable interviewees may have a general (endogenous) susceptibility to distress, measured by V (or N in the case of Yield 2), as well as a high

degree of attachment anxiety and avoidance, which may lead to a more negative perception (shown by reporting iNLEs) of the interview post negative feedback. Such interviewees may be more prone to viewing the task of answering questions (after receiving negative feedback in response to their previous answers) as relatively arduous (McGroarty & Baxter, 2007). This may be due to those interviewees experiencing heightened uncertainty and expectations of success (Gudjonsson & Clarke, 1986) (which may ultimately stem from their insecure attachment tendencies and susceptibility to stress).

They may also feel less able to trust their memory as a result of being exposed to negative feedback in response to their initial answers (Gudjonsson, 2003, p. 197). To cope with the negative feedback, their resultant uncertainty and distress levels, vulnerable interviewees may become more accepting of the misleading information and answer shift (Gudjonsson, 1995).

Shift:

Findings show that FAA exerts a significant and positive indirect effect on shift through iNLE. As with Yield 1 and 2, FAA seems to encourage the reporting of more intense NLE; attachment anxiety and avoidance appears to generate a negative mindset and perception of situations. This negative mindset may lead to a lesser ability to cope with critical feedback during the GSS interview (in response to their initial answers). Such individuals may be less resilient to negative feedback and, in response to resultant uncertainty generated (Gudjonsson & Clarke, 1986), may answer shift.

Results also show that C exerts a significant and positive indirect effect on shift through iNLE. Individuals scoring high on trait C may expect negativity and have a pessimistic mindset (C and V appear to correlate significantly; the more susceptible to stress, the more compliant individuals appear to be). This pessimistic mindset may encourage the reporting of more intense NLE. Alternatively, perhaps such individuals feel that they should report more

intense NLEs (to please the experimenter) when completing the LEQ (although it should be noted that no such instruction was given though to participants). During interview, in response to negative feedback, this tendency towards compliance may manifest (once again) in response to perceived interpersonal conflict (Costa & McCrae, 1992). Interviewees may comply with the negative feedback – the feedback that they have made errors - and change their answers.

Interviewees scoring high in C may perceive compliance [with the negative feedback] as being more beneficial to them than not complying. Evidence suggests that vulnerable individuals tend to perceive the task of answering questions post negative feedback as more arduous and stressful (McGroarty & Baxter, 2007). Compliance with negative feedback may be a coping mechanism (chapter 4).

FAA and C seem to affect Shift independently. They lead to a negative mindset and a desire to avoid conflict (Bowlby, 1969; 1988). Attachment patterns have, as their main aim, the preservation of relationships (in this case the interviewer-interviewee relationship) (Muller, 2009). This negative mindset and conflict avoidance may mean that, during perceived interpersonal conflict (i.e. in response to negative feedback from the interviewer), trait C – an established pattern of behaviour – may surface and, in some cases, lead to shifting on the GSS.

Limitations and conclusion.

This finding does need to be verified and replicated though through further research, as there are some limitations to this study:

A limitation may be the gender skew of the current sample. This may have affected the current relationships between the variables. Studies investigating gender differences in

suggestibility on the GSS1 however indicate non-significant differences (Gudjonsson 2003, p. 379). This suggests that gender may not affect performance on the GSS significantly; it may just be the relationship between the observed measures that could be affected.

Nevertheless, the parameter estimates and fit statistics should thus be considered conservative estimates at this stage.

The NEO PI-R is used to measure compliance (rather than more reliable measures such as the Gudjonsson Compliance Scale; Gudjonsson, 1989). The NEO PI-R normally takes 35 minutes to complete in total (Costa & McCrae, 1992). To reduce the likelihood of participant fatigue (through minimising the length of the procedure, as participants are also completing the GSS1, the RSQ and the LEQ) and to ensure interviewees engaged as effectively as possible with the subsequent GSS interview, it was decided to measure both N and compliance using the NEO PI-R.

Difficulties in recruiting sufficient male participants also meant that a proportion of the data is shared with the previous study. The previous study uses the NEO PI-R to measure both N and compliance. This study also uses the NEO PI-R for the same purposes.

The correlation between iNLE and GSS scores in this study also seems lower in comparison to previous studies within this thesis (Drake, Bull & Boon, 2008 [chapter 1]; Drake & Bull, in press [chapter 2]). However, it is more similar to the correlations found in the previous studies (Drake, Egan & Bull, under review [chapter 3]; Drake, 2009 [chapter 4]). A further similarity between this chapter and the previous is that the sample sizes are almost identical (and significantly larger than in the Drake et. al., 2008 study and in chapter 2). These weaker correlations that seem to be emerging throughout the latter studies could be to do with sample size; as sample size increases the relationship between iNLE and GSS scores weakens (although remains statistically significant).

As mentioned in the previous chapter, cognitive hardiness moderates the effects of adversity on vulnerability (Beasley, Thompson & Davidson, 2003). This variation in relationship strength could be as a result of differences in cognitive hardiness between the different opportunity samples. The larger the sample, the more likely it is to recruit participants who may well report intense adverse life events but who, at the same time, experience different levels of cognitive hardiness. This would, in theory, render the correlation between iNLE and GSS scores weaker.

An implication is that some interviewees may still believe their recollection of the GSS narrative – so not believe they have made errors – and therefore not feel uncertain as to their memory (Gudjonsson & Clarke, 1986). Such interviewees may just feel that compliance with the instruction that they have made errors may lead to a better outcome for them (or be more beneficial). In some cases, uncertainty may not necessarily be a pre-requisite for shifting on the GSS.

These current findings suggest further that attachment anxiety and avoidance (as well as trait compliance with respect to Shift) is related to an endogenous susceptibility to distress. In turn, these factors may be the basis of the negative mindset (measured by iNLE), which Gudjonsson and Clarke (1986) consider central to bringing about the suggestible response during questioning. Such behaviour may manifest as false statements, recollections, and confessions during interview.

CHAPTER 6: CONCLUSION

The overall aim of this thesis has been to gain insight into the possible psychological mechanism governing performance on the Gudjonsson Suggestibility Scale. It uncovers the possible reason why vulnerable interviewees may be more prone to developing a negative mindset during interview, leading to expectations of success and (sometimes) uncertainty (see chapter 5), and vulnerability during questioning.

My first study (my BSc dissertation) found a correlation between the [reported] experience of intensely negative NLEs and interrogative suggestibility. This study suggests that interviewees reporting intense NLEs are significantly more susceptible to the leading questions, as well as to negative feedback, administered during the GSS interview. Chapter 2 (Drake & Bull, in press) replicated the above conclusion. It also provides additional evidence suggesting that the reported experience of intense adversity may be linked to increased interrogative suggestibility, as a result of such interviewees being less able to cope with pressure during questioning. The link between NLEs and interrogative suggestibility on the GSS seems not to be attributable to field dependence. Further research by Gudjonsson et. al., (2008; 2009) has also found links between the experience of intense adverse life events and reported false confessions amongst student populations. To an extent this replicates (and corroborates) findings from chapter 1 and 2, especially since interrogative suggestibility and false confessions can be related (see Gudjonsson, 1991; Henkel & Coffman, 2004; Kassin, 1997; Santtila, Alkiora, Ekholm, & Niemi, 1999).

Subsequent chapters (chapters 3 to 5) sought to understand the psychological mechanism governing performance on the yield 1, yield 2 and shift dimensions of the GSS. Chapters 3 and 4 (Drake, 2009; Drake, Egan & Bull, in submission) investigated, independently, the effects of attachment anxiety (chapter 3), neuroticism and compliance (chapter 4) and iNLE

on interrogative suggestibility. Chapter 4 identified the role of neuroticism and compliance in bringing about suggestible behaviour. It also concluded that it seems to be the impact or perception of adversity (an indicator of an underlying negative mindset; see chapter 3) which seemed to be the most central in encouraging suggestible responses on the GSS. The number of NLEs, or the fact that NLEs occur, seems less relevant to explaining suggestible behaviour (see chapter 4).

Each chapter prior to chapter 5 has reached a slightly different conclusion as to the psychological mechanism governing performance on the Gudjonsson Suggestibility Scale. Chapter 3 proposed that attachment anxiety and iNLE contribute significantly to Yield 2 and Shift, but not Yield 1. When this model was extended in Chapter 4 evidence for the role of neuroticism (N) (and iNLE) being relevant to Yield 2 emerged; it also shows that neuroticism and compliance (and iNLE) significantly affect Shift scores. Yield 1 was not, however, well explained; neuroticism was included within the model of best fit (see chapter 4) but it did not exert a significant influence.

Chapter 1 to 4 provided the impetus for an integrative chapter 5, the role of which was to unify the various inferences emerging from each of the previous chapters. Chapter 5 analysed the relationship between each of the variables explored independently within each of the previous chapters integrating results into an overall structure. Using structural equation modelling this chapter explored the effects of attachment anxiety and avoidance (chapter 3), Neuroticism (chapter 4), iNLE (chapter 1-4), on GSS scores. It also explored which facet of neuroticism was most relevant to explaining GSS performance (considering that chapter 4 highlights the role of neuroticism in GSS scores). Chapter 5 showed that attachment anxiety and avoidance, as well as vulnerability (a specific manifestation of N), and iNLE contributed significantly to performance on all three GSS subscales, yield 1

included. The neuroticism domain best explains both yield 2 and shift (alongside attachment anxiety and avoidance [FAA], C and iNLE), which corroborates findings in chapter 4.

Vulnerability (a facet of neuroticism), however, provides the best account of yield 1 scores (alongside FAA and iNLE).

It is important to investigate the cause of this psychological vulnerability, as knowledge of the mechanism may help to inform the effective treatment and management of suggestible behaviour during interview. It may also help us understand why vulnerable individuals are more inclined towards making false statements and/or confessions during interview.

(Gudjonsson, Young & Bramham, 2007).

This final chapter will discuss and evaluate the findings to emerge from this thesis. It will do so by addressing the question of why (and when) innocents can make false confessions/statements during questioning. This chapter will also reflect on what has been learned about the concept of interrogative suggestibility, discuss the limitations of the current work, as well as offer suggestions for further research into understanding the psychology of vulnerability during police interview.

Why can innocents be vulnerable during questioning?

To briefly re-iterate what was mentioned in chapter 1: recent research suggests police induced false confessions are present in 15-20% of DNA exoneration cases (Kassin et. al., in press). Gary Dotson was the first to be exonerated in 1989 through the use of DNA testing, and there have been around 200 further wrongful conviction cases overturned since then.

This figure only represents those false confessions that are: (i) not disproved before trial, (ii) do not result in a guilty plea, (iii) those in which DNA evidence is not available, and/or (iv)

those given in minor criminal cases, or from juveniles. Further studies have revealed that false confessions can occur even within the more educated student population when questioned by police (Gudjonsson et. al., 2006; 2008; 2009). This suggests the 15-20% of false confessions probably represents a minority of the cases that have come to light over the decades; the tip of the iceberg in terms of the actual number of false confessions made during police interview.

Over 100 years ago Hugo Munsterberg (1908) wrote an entire chapter on “untrue confessions”, in which he attempted to try to understand the cause of such occurrences; some of the words he used to describe the possible causes of this phenomenon were *promises, threats and suggestion*. The idea that suggestions and coercion may be a factor in inducing false confessions/statements was thus already being considered a possibility. Psychological research has since continued and plays a significant role in the study and prevention of wrongful convictions. The aim of such work has been to understand why certain individuals are more prone to being induced to making false statements, during questioning – this forming the basis of subsequent wrongful convictions (Drizin & Leo, 2004).

Sean Hodgson’s recently quashed conviction highlights the troubling and controversial nature of confessions obtained during questioning. Sean Hodgson made several (voluntary) confessions to police during custodial interview (although he pleaded not guilty at trial) and was sentenced back in 1982, spending nearly 30 years behind bars as an innocent man. Little did Police know that Sean Hodgson actually had mental health problems, a history of/tendency towards pathological lying, and an obsession with confessing to crimes that he was not involved with. It appears that these factors made it almost impossible for him to withstand the pressure of questioning. An eagerness to please, perhaps a need for attention

(even negative), amongst other things may have exacerbated this, leading to these voluntary but nonetheless false confessions.

The majority of police induced false confessions occur due to suspects being unable to cope with the pressure of police questioning, which can sometimes involve harsh tactics with (uncooperative) suspects (Gudjonsson, 2003). Confirmation of existing beliefs is can also be sought during questioning (Kassin, Goldstein, & Savitsky, 2003), as investigative interviewers sometimes have certain ideas/beliefs about who may have perpetrated the offence, and then seek evidence for this in their subsequent questioning of suspects. Alternatively interviewers may interpret any evidence through their existing beliefs regarding the event(s) in question, showing confirmatory bias in their thinking.

The Central Park Jogger (CPJ) case is an example of this (see Kassin et. al., in press). In 1989, five teenagers were videotaped confessing to CPJ murder, but later said they were coerced. Five false confessions were made within a single police investigation to the brutal rape and assault of a young female jogger. Each confession was immediately withdrawn by the teenagers. The teenagers claimed that they confessed due to police coercion; the promise that they could go home. Persuasive tactics can be (and were) used, to the point where the innocent(s) felt compelled to confess. The five were, of course, eventually exonerated in 2002 on the basis of DNA and the confession of actual perpetrator.

Confessions can be wholly unreliable, yet extremely weighty in the eyes of the court (Drizin & Leo, 2004). Since that time the Courts have set guidelines regarding the admissibility of confession evidence. In an attempt to protect vulnerable suspects, confessions obtained through coercion are not permitted to be used as evidence. This is fine, if it were not for the

fact that evidence is starting to emerge suggesting that the reliability of statements/confessions may ultimately come down to how the suspect perceives and interprets the interview (and not necessarily what actually takes place) ([chapter 4] Drake, 2009; [chapter 3] Drake, Egan & Bull, in submission; and chapter 5).

Even if there are no obvious signs of coercive tactics used during interview, vulnerable suspects may still feel that they are not given the chance to tell the truth and continue to feel under pressure (Jakobsson-Öhrn & Nyberg, 2009), which may well have an impact on the reliability of their evidence. A confession may well seem voluntary on the surface (and therefore be admissible in Court – and given significance) but it may still, in reality, be the product of perceived coercion and therefore unreliable. Proving though that the so-called voluntary confession is, in fact, a product of the suspect feeling coerced is difficult, since it would be very hard to reliably determine whether or not a suspect feels or perceives pressure during an interview. There is a danger then that seemingly voluntary (but actually police induced) false confessions may still contribute to wrongful convictions, despite the efforts/guidelines of the Courts.

Regardless of the age, capacity or state of the confessor, what (false) confessors tend to have in common is a decision (at some point during the interview process) that confession will be more beneficial to them than continuing to maintain their innocence. Being sensitive to pressure can be a serious psychological vulnerability during police interview (Gudjonsson, 2003). This sensitivity can lead to the acceptance of misleading suggestions, false statements and confessions.

The Gudjonsson and Clarke 1986 model is the established theoretical framework explaining interrogative suggestibility. Several factors are said to be important in eliciting a suggestible response: (i) uncertainty surrounding the correct answer(s) to the question(s), (ii)

expectations of success: interviewees may feel that the interviewer expects them to know the correct answer, (iii) the use of negative feedback during the interview, designed to unnerve the interviewee, and (iv) the establishment of interpersonal trust/rapport between the interviewer and interviewee; this seems to enhance the believability of the negative feedback, rendering it more penetrative. Central to their proposal is that the suggestible individual has a relatively negative mindset both at the start and throughout the interview. It is this which may predispose such interviewees to heightened states of uncertainty and expectations of success in response to the questions (and therefore suggestibility).

The aim of this thesis has been to try to understand the underlying psychological mechanism that may encourage this vulnerability to occur during interview, under inappropriate interview conditions (Home Office, 2007). As mentioned, chapters 1 and 2 uncovered a link between the reported experience of intense negative life events and interrogative suggestibility on the GSS. The reported experience of intense adverse life events appears particularly related to sensitivity to negative feedback (chapter 3); this sensitivity can be observed by interviewees changing their initial answers (to questions) in response to negative feedback given by the interviewer in response to the interviewee's answers. Subsequent work reveals an association between the experience of major adverse life events and reported false confessions (Gudjonsson, Sigurdsson & Sigfusdottir, 2008; 2009). These studies demonstrate that the experience of intense life adversity might be linked to interrogative suggestibility through a lesser resilience to interrogative pressure. The experience of intense adversity appears to create a lesser ability to cope with pressure. Vulnerable interviewees may be more inclined towards ineffective coping methods (e.g. compliance) in the face of interpersonal conflict/pressure during interview ([chapter 4] Drake, 2009; Gudjonsson, 1995).

An investigative interview may be considered a dyadic social interaction (Ofshe & Leo, 1997). Gudjonsson and Clarke (1986) recognise the importance of this interviewer-interviewee interaction in encouraging suggestibility during interview. Previous studies provide some support for this (Baxter & Boon, 2000; Baxter, Jackson and Bain, 2003). They demonstrate that a negative interviewer demeanour can have an adverse effect on GSS performance, which shows that the interviewer, even in absence of explicit pressure, can bring about a suggestible response in an interviewee. Negative (or even neutral) interviewer demeanour may be perceived more negatively by vulnerable individuals due to their insecure attachment patterns (Bowlby, 1988), rendering these individuals more open to any inaccurate information.

The studies in the later chapters of this thesis shows that vulnerable interviewees also seem to have an endogenous, and possibly even partly genetically influenced (Donnellan et. al., 2007; 2008), tendency/predisposition towards distress (see chapter 5). This may be the basis of (and lead to the formation of) insecure attachment patterns within such individuals. Insecure attachment is characterised by a high degree of attachment anxiety and/or attachment avoidance.

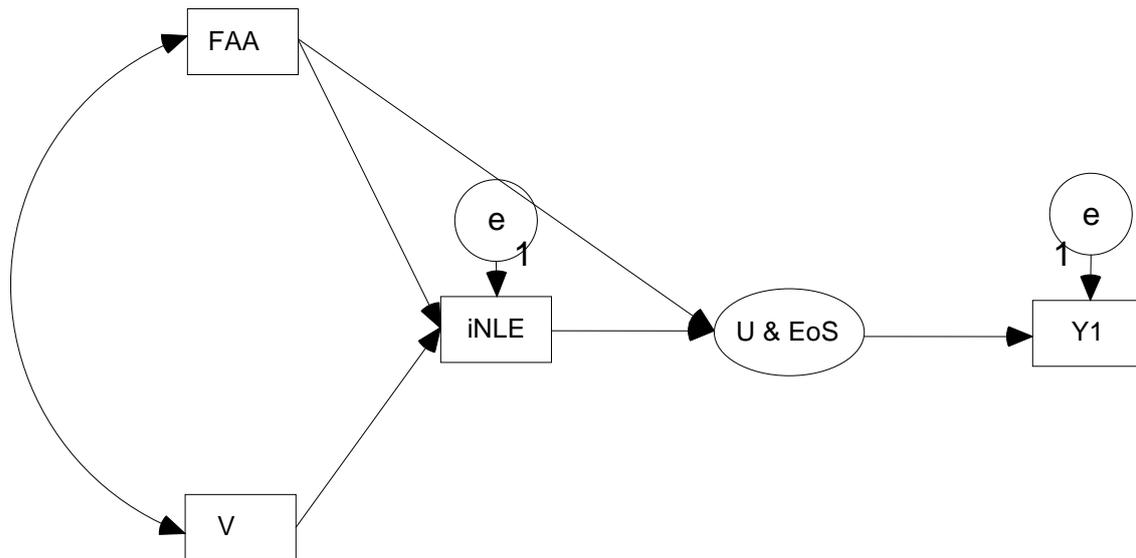
Vulnerable interviewees are more prone towards conflict avoidance during interview; they may wish to avoid (expected) negativity and thus may be eager to please the interviewer (Muller, 2009). Attachment behaviour is mainly concerned with the maintenance of emotional, psychological and physical proximity with a significant other person (Bowlby, 1988). Avoiding negative thoughts (i.e. that the interviewer may have ulterior/negative motives for asking the questions) linked to the interviewer may help to preserve the interviewer-interviewee relationship but, as a result, may also encourage the acceptance of misleading suggestions during questioning (even in the absence of explicit negative feedback

or pressure).

There is also a direct influence of attachment anxiety and avoidance (i.e. fearful avoidant attachment patterns [FAA]) on Yield 1 within the GSS which is significant, but in the negative direction. This is contrary to what was hypothesised in chapter 5. Perhaps certain interviewees scoring high on FAA may have a tendency towards a negative perception of others and, as a result, may become more suspicious of the interviewer (Rydell & Bringle, 2007). Suspiciousness of the interviewer's motives may reduce cooperation during interview (Gudjonsson, 2003, p. 28). This may lead to a reduction in uncertainty and therefore resistance to misleading information prior to negative feedback (Gudjonsson & Clarke, 1986).

It seems then that both high V and FAA may lead to relative interrogative resistance within interviewees as well as suggestibility. FAA patterns result from a relatively high level of both attachment anxiety and avoidance (Griffin & Bartholomew, 1994). Attachment anxiety is related to emotion oriented coping and the regulation of effective processes (Fraley & Shaver, 2006). Attachment avoidance governs degree of detachment and suspiciousness (Donnellan et. al., 2008). Perhaps if attachment anxiety is dominant relative to attachment avoidance, within fearful avoidant interviewees, suggestibility may result; if attachment avoidance, relatively speaking, outweighs attachment anxiety, interviewees may be prone to a suspicious cognitive set and relative resistance. Further research is needed to investigate this possibility.

Yield 1



Path diagrams to show the psychological mechanism governing Yield 1 (Y1) subscale on the GSS (see chapter 5). iNLE = intensity of Negative Life Events; FAA = Fearful-Avoidant Attachment (observed by a high attachment anxiety and avoidance); V = Vulnerability (an endogenous susceptibility to stress). U = Uncertainty, EoS = Expectations of Success – an *assumed* latent variable (Gudjonsson & Clarke, 1986).

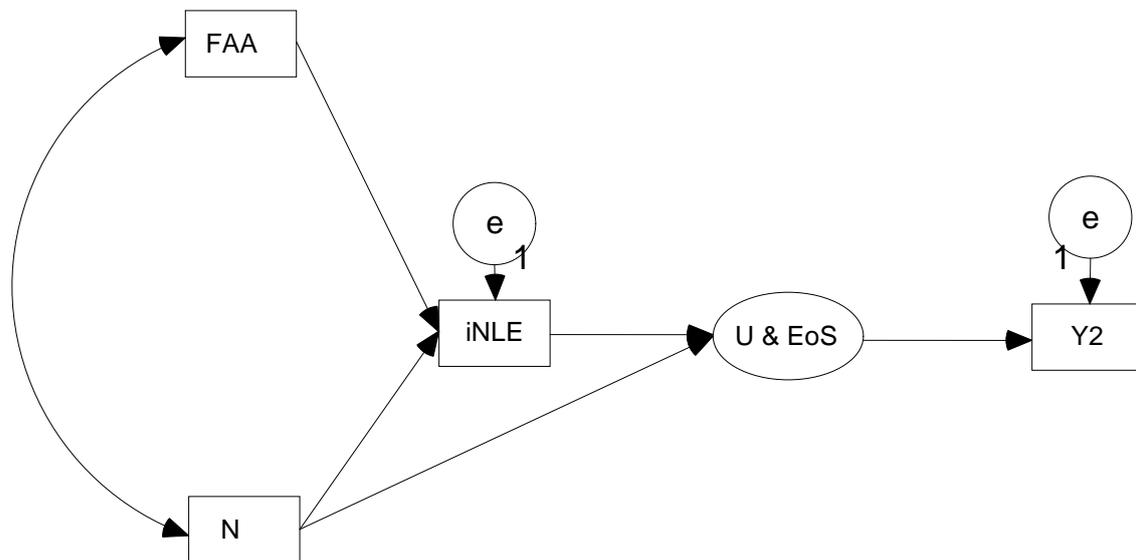
Once negative feedback is given on the GSS, vulnerable behaviour seems to be caused solely by the negative mindset/perception [of the negative feedback] within vulnerable individuals (and less by insecure attachment tendencies directly, as with Yield 1) (see chapters 3 to 5).

The extent to which interviewees accept inaccurate (and sometimes incriminating) information, and change their answers, in response to pressure may depend upon their perception of the negative feedback; how negatively they interpret the negative feedback.

The experience of intense adverse life events, their insecure attachment style, and fundamentally a (partly biological; Donnellan et. al., 2007; 2008) tendency towards distress appears to contribute to this negative mindset (see chapter 5). An endogenous susceptibility to distress (Costa & McCrae, 1992) appears to lead to the formation of insecure attachment

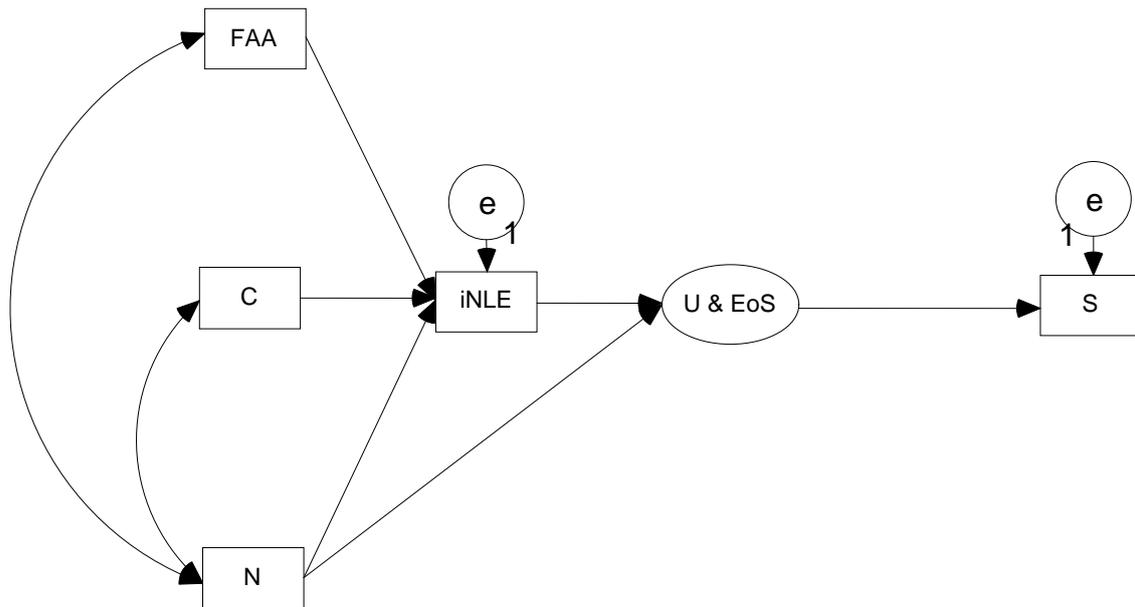
patterns within vulnerable interviewees (Scarr & McCartney, 1983). Negative emotionality, worry, and anxiety appear to encourage hostile interactions (Donnellan, Assad, Robins & Conger, 2007), and ergo seem to lead to insecure inter-personal attachment patterns. Insecure attachment patterns may in turn lead to a negative perception of events and others (causing such individuals to report more intensely negative adverse life events) (Bowlby, 1988). During interview a lesser resilience to the negative feedback results, exacerbating uncertainty, evoking expectations of success within the interviewee, and inducing vulnerability (Gudjonsson & Clarke, 1986). This vulnerability could manifest as false statements/recollections and confessions during interview.

Yield 2:



Path diagrams to show the psychological mechanism governing Yield 2 (Y2) subscale of the GSS (see chapter 5). iNLE = intensity of Negative Life Events; FATT = Fearful-Avoidant Attachment (observed by a high attachment anxiety and avoidance); N = Neuroticism (an endogenous susceptibility to stress); U = Uncertainty, EoS = Expectations of Success – an *assumed* latent variable (Gudjonsson & Clarke, 1986).

Shift:



Path diagrams to show the psychological mechanism governing the Shift (S) subscale of the GSS (see chapter 5). iNLE = intensity of Negative Life Events; FAA = Fearful-Avoidant Attachment (observed by a high attachment anxiety and avoidance); V = Vulnerability (an endogenous susceptibility to stress); C = Compliance (an inclination towards compliant coping during interpersonal conflict. This may manifest during interview in response to U & EoS; Drake, 2009); U = Uncertainty, EoS Expectations of Success – an *assumed* latent variable (Gudjonsson & Clarke, 1986).

Susceptibility to emotionality/fear/anger/anxiety appears to be rooted in the primordial elements of the brain (Corbalis & Lea, 1999; Oler et. al., 2009; Pape, Jungling, Seidenbecher, Lestling & Reinscheid, 2010) – maybe these occasionally unhelpful susceptibilities maintain themselves within the human population due to some evolutionary value. It could well be that being suggestible/malleable does have advantages as a survival mechanism within hostile/adverse environments (or, as we now know, those perceived as such). Being malleable may create (and preserve) relationships with (perceived) authority figures (Muller, 2009). This may perhaps be the ultimate reason why suggestibility and false confessions (within the context of a custodial interview) is so strongly and consistently related to the

experience of intense adversity (see chapters 1-5; Drake, 2009; Drake & Bull, in press; Drake et al., 2008; Drake, Egan & Bull, in submission. Also see Gudjonsson, 2008; 2009).

Apart from during police interview (where this behaviour can lead to negative consequences), being easily influenced in the face of adversity (in other situations) may pay advantageous dividends. If born with a predisposition towards distress/worry/anxiety, for example, and exposed to hostile and aggressive environmental (family) conditions, malleability may be perceived by such individuals as more beneficial to them. It may allow such individuals to successfully negotiate and cope with their (hostile) environment. Through repeated exposure to negative feedback and/or reactions from others, such individuals may learn to distrust their own judgment (Gudjonsson, 2003, p. 197). This environment may help cultivate an individual that may be more prone to suggestible behaviour during dyadic interactions – especially high stake or stressful interactions (such as a police interview). Research shows that stress and state anxiety tends to correlated with interrogative suggestibility (Gudjonsson, 1988).

Previous work shows that state anxiety is more important than trait anxiety (in influencing the GSS see Gudjonsson, 2003, p. 385); however, those studies (e.g. my BSc dissertation [2004-2005]; Gudjonsson, 1983; 1988; Haraldsson, 1985) only examined direct correlations between trait anxiety and interrogative suggestibility. When considering neuroticism not just in isolation but within a network of (other relevant) psychological variables using structural equation modelling, although neuroticism does not have a direct effect on interrogative suggestibility, it emerges as a relevant indirectly influencing variable. Neuroticism exerts its influence on interrogative suggestibility through insecure attachment patterns and the negative mindset of the individuals; such interviewees may then be more prone to state

anxiety during interview (being more susceptible to stress), evoking expectations of success and uncertainty, and therefore suggestibility (Gudjonsson & Clarke, 1986).

We can now begin to see that effectively managing suggestibility/vulnerability during [police] interview could prove difficult, and becoming ever more so with age (see chapter 2).

These findings suggest that, during interview, the emphasis should be on boosting the interviewee's perception of their ability. This may be achieved by the interviewer being encouraging and providing constructive feedback in response to answers. Vulnerable interviewees also tend to feel the need to provide an answer, thinking it unsatisfactory to say that they cannot remember (Gudjonsson, Young & Branham, 2007; Home Office, 2007).

The danger is that, in response to open questions such as "tell me..." vulnerable interviewees may fabricate information in order to comply with the implicit instruction communicated in the question ([chapter 4]; Drake, 2009).

The interviewer should ideally be a facilitator, assisting the interviewee so that they do not choose compliance as an option – but, instead, feel in control of the interview. This should ensure the retrieval of reliable information from the interviewee. The interviewee's perception of the interview seems fundamental to the accuracy of the information obtained.

These implications are supported by the current guidelines in *Achieving Best Evidence* (UK Home Office, 2007) as well as by other applied forensic research into the effective interviewing of children and vulnerable adults (Fisher & Geiselman, 1992; La Rooy & Lamb, 2008; La Rooy, Lamb, & Pipe, 2008; Milne, 1999; Milne & Bull, 1999).

When considering suspect vulnerability within the UK it is critically important that there are safeguards designed to protect potentially vulnerable individuals during police questioning.

Initially at interview, one such safe-guard is the presence of an appropriate adult (for communication) and a legal representative. At Court, if the Judge considers the information

in interview was unfairly obtained, then it can be excluded under Section 76 and 78 PACE 1984. Another avenue of protection is the training of the interviewers. This is an area which is particularly sparse with regard to research. Even when interviewers ask open ended or open specific questions, vulnerable interviewees could still give misleading and/or unreliable answers. Therefore the interviewer needs to consider their questioning strategy and how they may reduce the affects of suggestibility or compliance. Additional problems also tend to come through when “the principles of investigative interviewing are not reflected in standard police practice” (Williamson, 1993, p. 98). It is essential that investigative interviewers are properly trained and that this is maintained and refreshed. The introduction and use of 'ground rules' (i.e. telling the interviewee that it is Ok to say "Don't know") could also be significant in protecting the reliability and credibility of the information.

The aim of this thesis has been to explain/offer preliminary insight into the underlying psychological mechanism that may give rise to interrogative suggestibility/vulnerability during interview. Based upon the theoretical findings, insight is offered into how vulnerable behaviour may be best managed; this appears to coincide with what (other) applied research in the area of investigative interviewing has also concluded (based upon actual suspects) (La Rooy & Lamb, 2008; La Rooy, Lamb, & Pipe, 2008; Milne, 1999; Milne & Bull, 1999).

This provides evidence suggesting that (at least to an extent) the current theoretical models explaining interrogative suggestibility may well be an accurate reflection of the psychology of suggestible behaviour; the current models seem to have predictive validity. The models seem to predict “what works” most effectively when interviewing vulnerable individuals (according to the current guidelines).

Vulnerability during interview may essentially be the product of merging influences that could be, to an extent, biologically based (e.g., susceptibility to distress/attachment anxiety

and avoidance; Donnellan et. al., 2008) with environmental influences (parental attachment patterns/adverse life experiences). This may well be the fundamental mechanism which, when combined with the Gudjonsson and Clarke (1986) model, may bring us a deeper insight into the psychology of vulnerability during police interview. These findings may help us understand one of the major reasons why innocents sometimes make false confessions and statements during questioning.

Interrogative suggestibility: What else has been learned?

The importance of (negative) perception.

Over the course of this thesis it has become very apparent that it is the perception of adversity which is critical in bringing about vulnerability during police interview) not so much the fact that it occurs or which type of event takes place. Even when one considers the types of major life events such as the ones Gudjonsson et. al. (2008; 2009) found to be linked with reported false confessions (e.g., victimisation, being sexually abused by an adult within or outside of the family, the death of parent or sibling, being witness to or experiencing violence at home involving adults, amongst others), the primary reason why such events may exert such a strong influence upon individuals may well be due to how they are perceived and internalised by the individual. Most people regard events such as these as serious; however, if internalised and attributed to factors within the person (Ross, 1977) such as their own [lack of] intelligence or other variables that make the individual feel responsible for having brought the traumatic event on themselves, these serious adverse life events are likely to be the most damaging.

Attribution tendencies (and coping) may therefore be highly relevant, moderating the extent to which events regarded as intense, serious, or major exert their influence on interview

suggestibility levels. This may be likely considering the link between self perception and attribution tendencies (Peterson, Maier, & Seligman, 1995); insecure attachment may bring about a negative self perception of self, others and events, which may lead to internal attribution tendencies – such individuals may experience more intense adverse life events and, most crucially, attribute their cause to factors within themselves (particularly preoccupied and fearful individuals, with a high level of attachment anxiety). On the contrary, those with a tendency to attribute cause externally (e.g., bad teaching when failing an exam), may also experience harrowing events, due to their relatively positive self perception (perhaps down to a more secure attachment pattern), but those events are less likely to make their mark as easily. These individuals may be more resilient to adversity, meaning that during interview they would be better able to withstand any pressure, and be less sensitive to interviewer influence.

Cognitive hardiness may also have a moderating effect on the degree to which individuals become vulnerable as a result of (reportedly) experiencing intense adversity (Beasley et. al., 2003). Individuals who perceive intense adversity but are relatively cognitively hardy may be less likely to be vulnerable during questioning; they may be less easily influenced by leading questions and/or pressure during interview. Overall, though, although there are moderating influences, it seems to be the extent to which situations and the negative feedback is negatively perceived which dictates the degree to which interviewees may be suggestible during questioning.

The Gudjonsson Suggestibility Scale.

Common to all three subscales is that attachment anxiety and avoidance indirectly affects suggestible responses (i.e. Yield 1, Yield 2 and Shift), through the experience of intense adversity. This indirect effect may reflect the formation of the negative mindset within vulnerable interviewees (Gudjonsson & Clarke, 1986). iNLE seems to indicate a negative mindset (or the presence of a negative mindset; see chapter 3); high levels of attachment anxiety and avoidance seem to result in the negative perception of events, situations, and others – and thus the reporting of more intensely negative adverse life events. This negative mindset is what generates uncertainty, expectations of success, and suggestible behaviour – observed as the acceptance of misleading information, both in the absence of and in response to negative feedback, and answer shifting (Gudjonsson & Clarke, 1986).

There are though some differences between the three GSS subscales. This may explain why, across this thesis, Yield 2 and Shift tends to correlate more strongly than Yield 1 and Shift (also see Gudjonsson, 2003). The psychological mechanism encouraging Yield 2 and Shift is quite similar, in that there is a direct pathway from neuroticism to Yield 2/Shift. Both Yield 2 and Shift seem to come about through a negative mindset within vulnerable interviewees, induced by fearful avoidant attachment patterns, (which influences the interpretation of the negative feedback). A direct endogenous sensitivity to distress seems also pertinent to Yield 2 and Shift, but to a lesser extent. Yield 2 and Shift have similar psychological mechanisms; they seem to be governed by similar factors, which may be a reason why they tend to be highly correlated. Yield 1 and 2 also share a common element; the extent to which attachment anxiety and avoidance is involved.

Yield 2 is marginally different from Shift, as compliance seems to not exert a significant influence within the best fitting model. Compliance seems significant when accounting for

answer-shifts in response to negative feedback, but not to explaining why vulnerable interviewees may accept misleading information during GSS interview. There seems a degree of variation, however, as to the role of compliance within suggestibility post negative feedback. Chapter 5 found that Yield 2 and compliance correlate significantly (when looking at the zero-order correlations). Compliance is an established response to (expected) interpersonal conflict and is a coping mechanism (Costa & McCrae, 1992; Gudjonsson, 1989). Compliance seems to have an effect, but as to its extent and whether it influences Shift and/or Yield 2 needs to be verified. A limiting factor within this work is that it uses the C facet from the NEO PI-R and not a more reliable measure of compliance (i.e. the Gudjonsson Compliance Scale; Gudjonsson, 1989). Usage of such an instrument, and with a larger sample of participants, may help to clarify the role of compliance within GSS scores post negative feedback.

If Yield 1 and Shift are compared, the psychological mechanisms are more dissimilar: (i) Neuroticism has a direct effect on shift (which may lead to a lesser resilience to the negative feedback; Gudjonsson, 1995) (Yield 1 does not have this). (ii) Yield 1 has the direct effect of attachment patterns onto suggestibility (Shift does not). Yield 1 seems to be governed predominantly by the attachment patterns and negative mindset of the interviewee. This suggests that, even when it comes to the acceptance of misleading information in the absence of explicit pressure, the two-way interaction (how the interviewee engages and perceives the interviewer) seems to still be a factor. This supports Gudjonsson and Clarke's (1986) assertion that rapport – or the presence of rapport – is fairly essential for suggestible behaviour to emerge. Research conducted by Baxter et. al. (2000; 2003; 2006) also supports this showing the influence of negative interviewer demeanour on Yield 1. The negative interviewer demeanour may be perceived and interpreted more negatively by the relatively

more suggestible interviewees (see chapter 3). These findings further suggest that there may well still be some implicit interviewer influences affecting the cognitive set of the interviewee, which in turn may dictate the extent to which misinformation (in the absence of explicit negative feedback) is accepted.

Performances on the GSS as a whole may well come down to sensitivity to interviewer influence or feedback, which may affect the degree to which interviewees accept the misleading information. Some interviewees would be sensitive to implicit interviewer influence (i.e. The mere presence of the interviewer and being more likely to perceive [and misconstrue] interviewer behaviour negatively, attributing those internally) and therefore more accepting of any misleading information prior to negative feedback (yield 1).

The acceptance of misleading information post negative feedback (yield 2) would be determined by the extent to which interviewees are sensitive to both the explicit negative feedback (delivered after the first round of questions) as well as the presence of the interviewer. Interviewees will still be answering questions from the interviewer, so the interviewer-interviewee relationship may still be a factor affecting the cognitive set of the interviewee during the second round of questions (Gudjonsson & Clarke, 1986). My findings suggest that attachment anxiety and avoidance is a dominant factor, alongside the negative mindset, in explaining Yield 2 effects (see chapter 5).

Shift scores appear determined largely by the degree to which individuals are sensitive to explicit negative feedback (these interviewees may not necessarily accept much of the misleading information [prior to negative feedback], but just be more likely to change answers in response to it). This group would not be so pervious to implicit interviewer influence. They may not be so sensitive to subtle changes in interviewer behaviour – and

therefore do not yield during the first round of questions; yet, on receipt of explicit negative feedback they comply, as a way of coping, and shift (see chapter 4).

Compliance and Yield 1 are not significantly related although there is evidence, albeit tentative, that compliance might be related to Shift (and maybe Yield 2 – see chapter 5).

Compliance is considered a coping mechanism in the face of interpersonal conflict or negativity; the GSS negative feedback from the interviewer may be perceived as “interpersonal conflict” and could induce compliant coping. Yield 1 scores though are obtained in the absence of explicit negative feedback, where there is relatively less “interpersonal negativity”, which could be a reason why compliance may not be a significant factor in Yield 1 scores. Based upon the above argument, shifting would be predicted to occur irrespective of high yield 1 scores (as has been found; shift and yield 1 scores throughout this thesis have not always been significantly correlated).

Certain types of vulnerable individuals on the GSS are perhaps relatively more resilient and therefore require explicit feedback to induce vulnerability. They may not be particularly perceptive to subtle implicit changes in demeanour (see Baxter et. al., 2000) and therefore not score high on the yield 1 dimension. With suggestibility it appears that the individual may experience a gradual decline in their ability to trust their memory in the face of uncertainty and therefore gradually acquires the tendency to trust others’ judgments and memories rather than their own (Gudjonsson, 2003, p. 197). With compliance, this is not the case; there is no evidence of memory distrust; the suspect/individual merely submits to the other’s request (Gudjonsson, 1989). Suggestible behaviour on the surface bares similarity with compliance, but has a different psychological cause. It may be that shifting on the GSS may be caused by compliance or suggestibility; yielding (especially yield 1) by suggestibility. This may be why yield 1 and shift do not always correlate significantly; compliance and suggestibility do

not always correlate significantly (Drake, 2009; Gudjonsson, 2003; Richard & Kelly, 2004). Interviewees who are compliant (but not suggestible) may not accept much of the misleading information prior to negative feedback, but still change their answers on receipt of negative feedback.

This may also be the reason why some vulnerable interviewees on the GSS score relatively highly on yield 1, but have not shifted. Perhaps those interviewees, scoring high on Yield 1 but not Shifting, are the suggestible individuals, who only need the presence of the interviewer to affect their mindset negatively, generate uncertainty and expectations of success and therefore suggestible behaviour (Gudjonsson & Clarke, 1986). Such interviewees have already accepted relatively high levels of misinformation during the first round of questions. When negative feedback is then given, that they have made errors, their already negative mindset is not so detrimentally affected. The negative feedback induces relatively little change in negative mindset (c.f. how it was before the negative feedback was given), therefore those interviewees may not shift answers. Such interviewees distrust their memory (see Gudjonsson, 2003) and, as a result, even post negative feedback, continue to yield to the misinformation. Here the negative feedback has little observable impact.

The most vulnerable individuals would score high on Yield 1 and Shift. Those interviewees would be easily influenced by the interviewer and, when negative feedback is given, believe that they have made errors. This may well affect their cognitive set detrimentally (Gudjonsson & Clarke, 1986), and cause shifting. The Shift subscale on the GSS could therefore be a reflection of both suggestibility and compliance; if it is suggestibility, high Shift scores would be accompanied by high Yield 1 scores; if interviewees are shifting through being compliant, they would be predicted to score relatively low on Yield 1. These predictions can and should be tested further.

Interrogative suggestibility: when does it matter and what is still to learn?

This research has uncovered a new group of vulnerable interviewees; those who are considered “normal” i.e. do not have any psychological disorder or disability but, through life circumstances, have become more easily influenced during social interactions. This can, of course, have adverse consequences during high stake interactions police interview.

However, research into interrogative suggestibility (and other types of psychological vulnerability, i.e. compliance and acquiescence) needs to be put into context. Just because certain individuals have a tendency towards being vulnerable (see PACE 1984 for the specific groups of vulnerable interviewees) does not mean that those vulnerabilities will definitely manifest during interview. It is the quality of the interview which will ultimately determine the quality or reliability of the evidence obtained from an interviewee. Only when the rigorous guidelines (see Home Office, 2007) are not adhered to and interviews with vulnerable persons are poorly planned, could problems such as suggestibility or compliance emerge. This is important to understand. An individual may well have a tendency towards being susceptible to distress, have a high level of attachment anxiety and avoidance, and be prone to a negative perception of situations, themselves and others. This does not mean though that those psychological factors will automatically translate into negative performance expectations and mindset (and therefore demand characteristics) during interview culminating in the retrieval of unreliable information.

There are many factors that could moderate the extent to which vulnerability might be expressed during an interview (despite the presence of the psychological factors highlighted over the course of this thesis as perhaps being relevant). To an extent, this thesis can be considered to represent only one side of a coin. It uncovers the psychological factors, within an individual, that could give rise to suggestible behaviour if the interview conditions are

inappropriate. It would be naive to think though that those factors are the only significant influences on suggestibility during interview. Even if these preliminary findings turn out to be repeatedly verified, there is more to suggestibility than this: what about when (potentially) vulnerable individuals enter the interview room? What are the significant factors that might moderate the extent to which this engrained/endogenous vulnerability is expressed?

The quality of the interview is one factor; interviewer demeanour especially (see research by Baxter et. al., 2000; 2003; 2006). There may well also be additional factors - external to the individual (i.e. the complexity of the narrative [in terms of the GSS] or scene witnessed) - which may interact with the psychological factors uncovered within this thesis as being important in encouraging suggestibility. Together these may influence the extent to which vulnerability could be expressed during police interview. If the narrative/event complexity is low, vulnerability may not be expressed to as great an extent - irrespective of whether individuals score high on the relevant psychological variables. However, if the narrative/event complexity is high, this may exacerbate/strengthen the effects of those relevant psychological variables, encouraging greater vulnerability during interview.

Interviewer demeanour as well as event/narrative complexity may be the principal factors, external to the interviewee, that occur during interview and interact with the psychology of the interviewee and effect the extent to which uncertainty and expectations of success are generated (Gudjonsson & Clarke, 1986).

Re-testing and further development.

The models produced within this thesis now need re-testing and developing. These issues will help to construct a (new) model of interrogative suggestibility. The re-testing of the current model(s), using the Gudjonsson Compliance Scale (Gudjonsson, 1989) rather than the C facet

of the NEO PI-R (alongside the other instruments), is a crucial step in its development. It should also be noted that the current suggestibility model represents the (possible) psychological mechanism governing this behaviour in adults within the “normal” population. Another step would be to: (a) investigate this model in children – to determine how the mechanism changes across time, from childhood to adulthood and across gender. Gender may well be a moderator, affecting the iNLE mediated relationship between neuroticism (Yield 2 and Shift)/vulnerability (Yield 1), FAA and GSS scores, and (b) investigate these effects within suspects.

A second objective would be to expand upon my final doctoral study (chapter 5). Like suggestible behaviour, compliance can also pose a threat to the reliability and credibility of information obtained during interview (references). To be suggestible, interviewees must privately accept/believe the misleading information. This is in contrast to compliant behaviour. It is important to investigate the mechanism governing compliance, and to understand the difference between the two distinct types of psychological vulnerability (in terms of how they occur; especially since there is tentative evidence within this thesis that compliance may be a component in the model of suggestibility). On the surface, suggestible and compliant behaviour can appear identical. Knowledge of the mechanism, and what the differences are, may help to inform the effective treatment and management of suggestible and compliant behaviour during police interview.

This thesis offers an insight into the possible underlying psychological mechanism that may give rise to vulnerable behaviour during questioning. When combined with the Gudjonsson and Clarke (1986) model, these findings may bring us a deeper insight into the psychology of vulnerability during police interview. Using a behavioural genetics and longitudinal research design (a twin study using both monozygotic and dizygotic twins), the next step will be to

investigate the extent to which the measured variables found to be relevant to suggestibility in the previous research - and the uncovered mechanism - can be accounted for by genetic and/or environmental influences (shared and non-shared; Donnellan, Burt, Levendosky & Klump, 2008). The objective: to build upon and develop this current research further, in order to elucidate the underlying psycho-biological mechanism governing interrogative suggestibility, compliance and police-induced false confessions. Such research would add to existing literature and be of use to the practitioners within the applied forensic setting.

References:

Andrews, B., & Wilding, J. M. (2004). The relation of depression and anxiety to life-stress and achievement in students. *British Journal of Psychology*, *95*, 509–521.

Baldwin, J. (1993). Police interviewing techniques. Establishing truth or proof? *British Journal of Criminology*, *33*, 325-352.

Baldwin, M. W. (1992). Relational schemas and the processing of social information. *Psychological Bulletin*, *112*, 461-484.

Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four category model. *Journal of Personality and Social Psychology*, *61*, 226-244.

Baxter, J. (1990). The suggestibility of child witnesses: A review. *Applied Cognitive Psychology*, *4*, 393–408.

Baxter, J. S. and Boon, J. C. W. (2000). Interrogative suggestibility: the importance of being earnest. *Personality and Individual Differences*, *28*, 753-762.

Baxter, J.S., Boon, J.C.W., & Marley, C. (2006). Interrogative pressure and responses to minimally leading questions. *Personality and Individual Differences*, *40*, 87-98.

Baxter, J.S., Jackson, M. and Bain, S.A. (2003). Interrogative suggestibility: interactions between interviewees' self-esteem and interviewer style. *Personality and Individual Differences, 35*, 1285-1292.

Beasley, M., Thompson, T., & Davidson, J. (2003). Resilience in response to life stress: The effects of coping style and cognitive hardiness. *Personality and Individual Differences, 34*, 77-95.

Becker, M. E. (2006). The impact of childhood adversity factors on posttraumatic stress and other functioning in adult women veterans. *Dissertation Abstracts International Section A: Humanities and Social Sciences, 66*, 2830.

Benton, A. L., & Bandura, A. (1953). Primary and Secondary Suggestibility. *Journal of Abnormal and Social Psychology, 48*, 336-340.

Biesanz, J.C., & West, S.G. (2004). Towards understanding assessments of the Big Five: Multitrait-multimethod analyses of convergent and divergent validity across measurement occasion and type of observer. *Journal of Personality, 72*, 845 – 876.

Binet, A. (1900). *La Suggestibilite*. Paris: Doin.

Blagrove, M., Cole-Morgan, D., & Lambe, H. (1994). Interrogative suggestibility: the effects of sleep deprivation and relationship with field dependence. *Applied Cognitive Psychology*, 8, 169-179.

Bowlby, J. (1969). *Attachment and loss: Vol. I Attachment*. New York: Basic Books.

Bowlby, J. (1988). *A secure base: clinical applications of attachment theory*. London: Routledge.

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult romantic attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46-76). New York: Guilford Press.

Brown, D. (1995). Pseudomemories: the standard science and the standard care in trauma treatment. *American Journal of Clinical Hypnosis*, 37, 1-24.

Bruck, M. & Melnyk, L. (2004). Individual differences in children's suggestibility: A review and synthesis. *Applied Cognitive Psychology*, 18, 947-996.

Bull, R., & Milne, R. (2004). Attempts to improve police interviewing of suspects. In G. D. Lassiter (Ed.) *Interrogations, confessions and entrapment*. New York: Plenum.

Burnette, J. L., Taylor, K., Worthington Jr. E. L., & Forsyth, D. R. (2007), Attachment working models and trait forgivingness: The mediating role of angry rumination, *Personality and Individual Difference*, 42, 1585–1596.

Burnette, J. L., Davis, D. E., Green, J. D., Worthington Jr. E. L., & Bradfield, E. (2009). Insecure attachment and depressive symptoms: The mediating role of rumination, empathy and forgiveness. *Personality and Individual Differences*, 46, 276-280.

Cemalcilar, Z., Canbeyli, R., & Sunar, D. (2003). Learned helplessness, therapy, and personality traits: An experimental study. *The Journal of Social Psychology*, 143, 65-81.

Clarke-Stewart, K. A., Malloy, L. C., & Allhusen, V. D. (2004). Verbal ability, self-control, and close relationships with parents protect children against misleading suggestions. *Applied Cognitive Psychology*, 18, 1037-1058.

Cohen, L. H., Burt, C. E., & Bjorck, J. P. (1987). Life stress and adjustment: Effects of life events experienced by young adolescents and their parents. *Developmental Psychology*, 23, 583–592.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlational analysis for the behavioural sciences* (3rd edition). Lawrence Earlbaum Associates. Mahwah: NJ.

Collins, N.L., & Read, S.J. (1990). Adult Attachment, Working Models and Relationship Quality in Dating Couples. *Journal of Personality and Social Psychology*, 58, 644-663

Corballis, M.C. & Lea, S.E.G. (1999). *The Descent of Mind: Psychological Perspectives on Hominid Evolution*. Oxford: University Press.

Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO PI-R) and NEO Five Factor Inventory (NEO FF-I) Professional manual*. Odessa, FL: Psychological Assessment Resources.

Cutler, S. E., Larsen, R. J., & Bunce, S. C. (1996). Repressive coping styles and the experience and recall of emotion: A naturalistic study of daily affect. *Journal of Personality*, 64, 379-405.

Cyranowski, J. M., Bookwala, J., Houck, P., Pilkonis, P., Kostelnik, B., & Ellen, F. (2002). Adult attachment profiles, interpersonal difficulties, and response to interpersonal psychotherapy in women with recurrent major depression. *Journal of Social and Clinical Psychology*, 21, 191-217.

DeWitte, M. & De Houwer, J. (2008). Adult attachment and attention to positive and negative emotional face expressions. *Journal of Research in Personality*, *42*, 498-505.

Digman, J.M. (1997). Higher-order factors of the Big Five. *Journal of Personality and Social Psychology*, *73*, 1246 – 1256.

Donnellan, M. B., Assad, K. K., Robins, R. W., & Conger, R. D. (2007). Do negative interactions mediate the effects of negative emotionality, communal positive emotionality, and constraint on relationship satisfaction? *Journal of Social and Personal Relationships*, *24*, 557-573.

Donnellan, M. B., Burt, S. A., Levendosky, A. A., & Klump, K. L. (2008). Genes, personality and attachment in adults: A multivariate behavioral genetic analysis. *Personality and Social Psychology Bulletin*, *34*, 3-16.

Drake, K. E. (2009). Interrogative suggestibility: life adversity, neuroticism and compliance. *Personality and Individual Differences*. (doi: 10.1016/j.paid.2009.11.030)

Drake, K. E. & Bull, R. (in press). Life adversity and field-dependence: individual differences in interrogative suggestibility. *Psychology, Crime and Law*.

Drake, K. E., Bull, R., & Boon, J. C. W. (2008). Interrogative suggestibility, self-esteem, and the influence of negative life events. *Legal and Criminological Psychology, 13*, 299-310.

Drake, K. E., Egan, V., & Bull, R. (in submission). Interrogative suggestibility: linking attachment style and life adversity to Gudjonsson Suggestibility Scale performance.

Drizin, S. A., & Leo, R. A. (2004). The problem of false confessions in the post-DNA world. *North Carolina Law Review, 82*, 891–1007.

Dumas, J. A., & Hartman, M. (2003). Adult age differences in temporal and item memory. *Psychology and Aging, 18*, 573-586.

Egan, V. (2009). The ‘Big Five’: Neuroticism, Extraversion, Openness, Agreeableness and Conscientiousness as an organisational scheme for thinking about aggression and violence. In M. McMurrin & R Howard (Eds.), “Personality, Personality Disorder, and Risk of Violence: An Evidence-based Approach”, John Wiley & Sons, Ltd., Chichester, UK.

Egan, V., Deary, I.J., & Austin, E. (2000). The NEO-FFI: emerging British norms and an item-analysis suggest N, A, and C are more reliable than O and E. *Personality and Individual Differences, 29*, 907 – 920.

Elander, J., West, R. & French, D. (1993). Behavioural correlates of individual differences in road traffic crash risk: An examination of methods and findings. *Psychological Bulletin*, 113, 279-294.

Emmett, D., Clifford, B. R., & Gwyer, P. (2003). An investigation of the interaction between cognitive style and context reinstatement on the memory performance of eyewitnesses. *Personality and Individual Differences*, 34, 1495–1508.

Essex, M. J., Klein, M. H., Cho, E. U., & Kraemer, H. C. (2003). Exposure to maternal depression and marital conflict: Gender differences in children's later mental health symptoms. *Journal of the American Academy of Child and Adolescent Psychiatry*, 46, 728–737.

Eysenck, H. J., & Furneaux, W. D. (1945). Primary and secondary suggestibility: an experimental and statistical study. *Journal of Experimental Psychology*, 35, 485-503.

Feldman Barrett, L. (1997). The relationships among momentary emotion experiences, personality descriptions, and retrospective ratings of emotions. *Personality and Social Psychology Bulletin*, 23, 1100-1110.

Fisher, R. P., & Geiselman, R. E (1992). Memory-enhancing techniques for investigative interviewing: The Cognitive Interview. Springfield, IL: Charles Thomas.

Fiske, D. W. (1949). Consistency of the factorial structures of personality ratings from different sources. *Journal of Abnormal and Social Psychology, 44*, 329-344.

Fleischman, D. A., Wilson, R. S., Gabrieli, J. D. E., Bienias, J. L., & Bennett, D. A. (2004). A longitudinal study of implicit and explicit memory in older persons. *Psychology and Aging, 19*, 617-625.

Fraley, R. C., & Shaver, P. R. (2000). Adult romantic attachment: Theoretical developments, emerging controversies, and unanswered questions. *Review of General Psychology, 4*, 132-154.

Fruzzetti, A. E., Toland, K., Teller, S. A., & Loftus, E. F. (1992). Memory and eyewitness testimony. In M. Gruneberg & P. Morris (Eds), *Aspects of memory*, Vol. 1: *The practical aspects*. New York: Routledge.

Garry, M., Manning, C.G., Loftus, E.F., & Sherman, S.J. (1996). Imagination inflation: Imagining a childhood event inflates confidence that it occurred. *Psychonomic Bulletin & Review, 3*, 208-214.

Gentzler, A. L. & Kerns, K. A. (2006). Adult attachment and memory of emotional reactions to negative and positive events. *Cognition and Emotions, 20*, 20-42.

Griffin, D., & Bartholomew, K. (1994). Models of the self and other: Fundamental dimensions underlying measures of adult attachment. *Journal of Personality and Social Psychology, 67*(3), 430-445.

Goodman, G. (2006). Children's eyewitness memory: a modern history and contemporary commentary. *Journal of Social Issues, 62*, 811-832.

Gudjonsson, G. H. (2006). First Annual Lionel Haward Lecture 2006. Keynote address given at the Division of Forensic Psychology Annual conference 2006, University of Central Lancashire, UK, June 20- 22.

Gudjonsson, G. H. (2003). *The psychology of interrogations and confessions: A handbook*. Chichester: Wiley.

Gudjonsson, G. H. (1997). *The Gudjonsson Suggestibility Scales Manual*. Hove: Psychology Press.

Gudjonsson, G. H. (1995). The effects of interrogative pressure on strategic coping. *Psychology, Crime and Law, 1*, 309-318.

Gudjonsson, G. H. (1992). Interrogative suggestibility: factor analysis of the Gudjonsson Suggestibility Scale (GSS 2). *Personality and Individual Differences, 13*, 479-481.

Gudjonsson, G. H. (1991). Suggestibility and compliance among alleged false confessors and resisters in criminal trials. *Medicine, Science and the Law*, 31, 147-151.

Gudjonsson, G. H. (1989). Compliance in an interrogative situation: A new scale. *Personality and Individual Differences*, 10, 535-540.

Gudjonsson, G. H. (1988). Interrogative suggestibility: Its relationship with assertiveness, social evaluative anxiety, state anxiety and method of coping. *British Journal of Clinical Psychology*, 27, 159–166.

Gudjonsson, G. H. (1987). A parallel form of the Gudjonsson Suggestibility Scale. *British Journal of Clinical Psychology*, 26, 215-221.

.

Gudjonsson, G. H. (1984). A new scale of interrogative suggestibility. *Personality and Individual Differences*, 5, 303–314.

Gudjonsson, G. H. (1983). Suggestibility, intelligence, memory recall and personality: an experimental study. *British Journal of Psychiatry*, 142, 35-37.

Gudjonsson, G. H., & Clarke, N. K. (1986). Suggestibility in police interrogation: A social psychological model. *Social Behaviour*, 1, 83–104.

Gudjonsson, G. H., Sigurdsson, J. F., & Bragason, O. O. (2008). Interrogative suggestibility, compliance and false confessions among prisoners and their relationship with attention deficit hyperactivity disorder (ADHD) symptoms. *Psychological Medicine*, 38, 1037-1044.

Gudjonsson, G. H., Sigurdsson, J. F., & Sigfusdottir, I. D. (2008). False confessions and individual differences. The importance of victimization among youth. *Personality and Individual Differences*, 45, 801-805.

Gudjonsson, G. H., Sigurdsson, J. F., & Sigfusdottir, I. D. (2009). Interrogations and false confessions among adolescents in seven countries in Europe. What background and psychological factors best discriminate between false confessors and non-false confessors? *Psychology, Crime and Law*, 15, 711-728.

Gudjonsson, G. H., Young, S., & Bramham, J. (2007). Interrogative suggestibility in adults diagnosed with attention-deficit hyperactive disorder (ADHD). A potential vulnerability during police questioning. *Personality and Individual Differences*, 43, 737-745.

Gudjonsson, G. H., Sigurdsson, J. F., Asgeirsdottir, B. B., & Sigfusdottir, I. D. (2006). Custodial interrogation, false confession, and individual differences: A national study among Icelandic youth. *Personality and Individual Differences*, 41, 49-59.

Gudjonsson, G. H., Sigurdsson, J. F., Einarsson, E., & Einarsson, J. H. (2008). Personal versus impersonal relationship compliance and their relationship with personality. *Journal of Forensic Psychiatry & Psychology, 19*, 502-516.

Gudjonsson, G. H., Sigurdsson, J. F., Lydsdottir, L. B., & Olafsdottir, H. (2008). The relationship between adult romantic attachment and compliance. *Personality and Individual Differences, 45*, 276-280.

Haraldsson, E. (1985). Interrogative suggestibility and its relationship with personality, perceptual defensiveness and extraordinary beliefs. *Personality and Individual Differences, 5*, 765-767.

Henkel, L. & Coffman, K. J. (2004). Memory distortions in coerced false confessions: a source monitoring framework analysis. *Applied Cognitive Psychology, 18*, 567-588.

Hill, A. B. & Kemp-Wheeler, S. M. (1986). Personality, life-events and subclinical depression in students. *Personality and Individual Differences, 7*, 469-478.

Home Office (1992). Memorandum of Good Practice on Video Recorded Interviews with Child Witnesses for Criminal Proceedings. Home Office.

Home Office (2003). Guidance for Appropriate Adults. Home Office.

Home Office (2007). *Achieving Best Evidence*. Home Office.

Howard, R. & Hong, N. S. (2002). Effects of coping style on interrogative suggestibility. *Personality and Individual Differences*, 33, 479-485.

Inbau, F. E., Reid, J. E., Buckley, J. P., & Jayne, B. C. (2001). *Criminal interrogation and confessions* (4th ed.). Gaithersburg, MD: Aspen.

Jakobsson-Öhrn, H. & Nyberg, C. (2009). *Searching for truth or confirmation?* Paper to be presented within a symposium entitled: "Theoretical developments and practical dilemmas: New findings related to the interviewing of vulnerable persons. iIRG conference; University of Teeside; UK.

Joseph, S. & Linley, A. (2008). In *Trauma recovery and growth: Positive psychological perspectives on post-traumatic stress*. Joseph, S (Ed.) & Linley, A. (Ed.). pp. 339-356. Hoboken, NJ, US; John Wiley & Sons Inc.

Kaissidis-Rodafinos, A., & Anshel, M. H. (2000). Psychological predictors of coping responses among Greek basketball referees. *Journal of Social Psychology*, 140, 329–344.

Kassin, S. (1997). The psychology of confession evidence. *American Psychologist*, 52, 221-233.

Kassin, S. M., Goldstein, C. J., & Savitsky, K. (2003). Behavioral confirmation in the interrogation room: On the dangers of presuming guilt. *Law and Human Behavior, 27*, 187–203.

Kassin, S. M., Drizin, S. A., Grisso, T., Gudjonsson, G. H., Leo, R. A., & Redlich, A. D. (in press). Police-induced confessions: Risk factors and recommendations. *Law and Human Behavior*.

Koriat, A., & Goldsmith, M. (1994). Memory in naturalistic and laboratory contexts: Distinguishing the accuracy-oriented and quantity-oriented approaches to memory assessment. *Journal of Experimental Psychology: General, 123*, 297–315.

Koriat, A., & Goldsmith, M. (1996). Monitoring and control processes in the strategic regulation of memory accuracy. *Psychological Review, 103*, 490–517.

La Rooy, D. & Lamb, M. (2008). What happens when young witnesses are interviewed more than once? *Forensic Update, 1-7*.

La Rooy, D., Lamb, M. E., & Pipe, M-E. (2008). *Repeated Interviewing: A critical evaluation of the risks and potential benefits*. In K. Kuehnle & M. Connell (Eds.) *Child Sexual Abuse: Research, Evaluation, and Testimony for the Courts*. Wiley.

Leavitt, F. (1997). False attribution of suggestibility to explain recovered memory of childhood sexual abuse following extended amnesia. *Childhood Abuse and Neglect, 21*, 265-276.

Lee, C. M., Beauregard, C., & Bax, K. A. (2005). Child-related disagreements, verbal aggression, and children's internalising and externalising behaviour problems. *Journal of Family Psychology, 19*, 237-245.

Levin, I. P., & Hart, S. S. (2003). Risk preferences in young children: Early evidence of individual differences in reaction to potential gains and losses. *Journal of Behavioral Decision-making, 16*, 397-413.

Linley, A., Joseph, S., & Loumidis, K. (2005). Trauma work, sense of coherence, and positive and negative changes in therapists. *Psychotherapy and Psychosomatics, 74*, 185-188.

Loftus, E. F. & Palmer, J. E. (1974). Reconstruction of automobile destruction: An example of the interaction between language and memory. *Journal of Verbal Learning and Verbal Behavior, 13*, 585-589.

Magnus, K., Diener, E., Fujita, F., & Pavot, W. (1993). Extraversion and Neuroticism as Predictors of Objective Life Events: A Longitudinal Analysis. *Journal of Personality and Social Psychology, 65*, 1046-1053.

Main, M. (1991). Metacognitive knowledge, metacognitive monitoring, and singular (coherent) vs. multiple (incoherent) models of attachment. In Parkes, C. M., Stevenson-Hinde, J., & Marris, P. *Attachment across the life cycle*. London: Tavistock/Routledge.

Maner, J. K., Richey, J. A., Cromer, K., Mallott, M., Lejuez, C. W., Joiner, T. E., & Schmidt, N. B. (2007). Dispositional anxiety and risk-avoidant decision-making. *Personality and Individual Differences, 42*, 665-675.

Mazzoni, G.A.L., Loftus, E.F., & Kirsch, I. (2001). Changing beliefs about implausible autobiographical events: A little plausibility goes a long way. *Journal of Experimental Psychology: Applied, 7*, 51-59.

McCall, M. E., & Struthers, N. J. (1994). Sex, sex-role orientation and self-esteem as predictors of coping style. *Journal of Social Behaviour and Personality, 9*, 801–810.

McConville, M. & Hodgson, J. (1993). *Custodial legal advice and the right to silence*. London: HMSO.

McGroarty, A & Baxter, J. S. (2007). Interrogative pressure in simulated forensic interviews: The effects of negative feedback. *The British Journal of Psychology, 98*, 455-465.

McGroarty, A & Baxter, J. S. (2009). Interviewer behaviour, interviewee self-esteem and response change in simulated forensic interviews. *Personality and Individual Differences*, 47, 642-646.

Milgram, S. (1974). *Obedience to authority*. London: Tavistock

Milne, R. (1999). The Cognitive Interview: Current research and applications. *Edited issue of Psychology, Crime and Law*, 5, 1-202.

Milne, R. & Bull, R. (1999). *Investigative interviewing: Psychology and practice*. Chichester: Wiley.

Moston, S., Stephenson, G.M., & Williamson, T. M. (1992). The effects of case characteristics on suspect behaviour during questioning. *British Journal of Criminology*, 32, 23-40.

Muller, R. T. (2009). Trauma and dismissing (avoidant) attachment: Intervention strategies in individual psychotherapy. *Psychotherapy Theory, Research, Practice, Training*, 46, 68-81.

Noftle, E. E. & Shaver, P. R. (2006). Attachment dimensions and the Big Five personality traits: Associations and comparative ability to predict relationship quality. *Journal of Research in Personality*, 40, 179-208.

- Norbeck, J. S. (1984). Modification of life event questionnaires for use with female respondents. *Research in Nursing Health, 7*, 61–71.
- Norman, W. T. (1963). Toward an adequate taxonomy of personality attributes: Replicated factor structure in peer nomination personality ratings. *Journal of Abnormal and Social Psychology, 66*, 574-583.
- Ofshe, R. J. & Leo, R. A. (1997). The social psychology of police interrogation: the theory and classification of true and false confessors. *Studies in Law, Politics and Society, 16*, 189-251.
- Oler, J. A., Fox, A. S., Shelton, S. E., Christian, B. T., Murali, D., Oakes, T. R., Davidson, R. J., & Kalin, N. H. (2009). Serotonin transporter availability in the amygdale and bed nucleus of the stria terminalis predicts anxious temperament and brain glucose metabolic activity. *The Journal of Neuroscience, 29*, 9961-9966.
- Olvera, N., Remy, R., Power, T. G., Bellamy, C., & Hays, J. (2001). Observed maternal strategies and children's health locus of control in low income Mexican Americans. *Journal of Family Psychology, 15*, 451-463.
- Pallant, J. (2007). *SPSS survival manual (3rd Ed.)*. McGraw Hill: Open University Press.
- Pape, H. C., Jungling, K., Seidenbecher, T., Lestling, J., & Reinscheid, R. K. (2010). Neuropeptide S: A transporter system in the brain regulating fear and anxiety. *Neuropharmacology, 58*, 29-34.

Pearse, J. & Gudjonsson, G. H. (1999). Measuring influential police interviewing tactics: a factor analytic approach. *Legal and Criminological Psychology, 4*, 221-238.

Pearse, J. & Gudjonsson, G. H. (1996). Police interviewing techniques at two South London police stations. *Psychology, Crime and Law, 3*, 63-74.

Peterson, C., Maier, S.F., Seligman, M.E.P. (1995). *Learned Helplessness: A Theory for the Age of Personal Control*. New York: Oxford University Press.

Peterson, A., & Taylor, B. (1980). The biological approach to adolescence: Biological change and psychological adaptation. In J. Adelson (Ed.), *Handbook of Adolescent Psychology* (pp. 117–155). New York: Wiley.

Quas, J. A., Qin, J., Shaaf, J., & Goodman, G. S. (1997). Individual differences in children's and adult's suggestibility and false event memory. *Learning and Individual Differences, Special Issue: II. Children's False Memories, 9*, 359-390.

Quintana, S. M., & Maxwell, S. E. (1999). Implications of recent development in structural equation modelling for counselling psychology. *The Counseling Psychologist, 27*, 485-527.

Richardson, G & Kelly, T. P. (2004). A study in the relationship between interrogative suggestibility, compliance and social desirability in institutionalised adolescents. *Personality and Individual Differences, 36*, 485-494.

Rosenman, S. & Rodgers, B. (2004). Childhood adversity in an Australian population. *Social Psychiatry and Psychiatric Epidemiology*, 39, 695-702.

Rosenman, S. & Rodgers, B. (2006). Childhood adversity and adult personality. *Australian and New Zealand Journal of Psychiatry*, 40, 482-490.

Ross, L. (1977). The intuitive psychologist and his shortcomings: Distortions in the attribution process. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (vol. 10, pp. 173–220). New York: Academic Press.

Rydell, R. J. & Bringle, R. G. (2007). Differentiating reactive and suspicious jealousy. *Social Behavior and Personality*, 35, 1099-1114.

Safford, S. M., Alloy, L. B., Abramson, L. Y., & Crossfield, A. G. (2007). Negative cognitive style as a predictor of negative life events in depression-prone individuals: A test of the stress generation hypothesis. *Journal of Affective Disorders*, 99, 147-154.

Santtila, P., Alkiora, P., Ekholm, M., & Niemi, P. (1999). False confessions in a robbery: the roles of suggestibility, anxiety, memory disturbance and withdrawal symptoms. *Journal of Forensic Psychiatry*, 10, 399-415.

Sarason, I., Johnson, J., & Siegel, J. (1978). Assessing the impact of life changes: Development of the life experiences survey. *Journal of Consulting and Clinical Psychology*, 46, 932–946.

Scarr, S. & McCartney, K. (1983). How people make their own environments: A- story of genotype → environment effects. *Child Development*, 54, 424-435.

Seligman, M. E. P. (1992). *Helplessness: On depression, development, and death*. San Francisco: Freeman.

Simpson, J. S., Rholes, W. S., & Phillips, D. (1996). Conflict in close relationships: An attachment perspective, *Journal of Personality and Social Psychology* 71, 899–914.

Singh, K. K. & Gudjonsson, G. H., (1992). Interrogative suggestibility among adolescent boys and its relationship with intelligence, memory, and cognitive set. *Journal of Adolescence*, 15, 155-161.

Stern, W. (1910). Abstracts of lectures on the psychology of testimony and on the study of individuality. *American Journal of Psychology*, 21, 270–282.

Stern, W. (1939). The psychology of testimony. *Journal of Abnormal and Social Psychology*, 34, 3–20.

Stukat, K. G. (1958). *Suggestibility: a factor and experimental analysis*. Stockholm: Almgvist & Wiksell.

Swearing, E. & Cohen, L. (1985). Life events and psychological distress: A prospective study of young adolescents. *Developmental Psychology*, *21*, 1045-1054.

Taylor, L. C., Clayton, J. D., & Rowley, S. J. (2004). Academic socialisation: understanding parental influences on children's school-related development in the early years. *Review of General Psychology*, *8*, 163-178.

Thelwell, R. C., Lane, A. M., & Weston, N. J. V. (2007). Mood states, self-set goals, self-efficacy and performance in academic examinations. *Personality and Individual Differences*, *42*, 573–583.

Todman, J., & Drysdale, E. (2004). Effects of qualitative differences in initial and subsequent computer experience on computer anxiety. *Computers in Human Behaviour*, *20*, 581–590.

Vermigli, P. & Toni, A. (2004). Attachment and field dependence: individual differences in information processing. *European Psychologist*, *9*, 43-55.

Wei, M., Mallinckrodt, B., Russell, D. W., & Abraham, T. W. (2004). Maladaptive perfectionism as a mediator and moderator between adult attachment and depressive mood. *Journal of Counseling Psychology*, *51*, 201-212.

Wells, G. L., Memon, A., & Penrod, S. D. (2006). Eyewitness evidence: improving its probative value. *Psychological Science in the Public Interest, Supplement, 7*, 45-75.

Williamson, T. (1993). From interrogation to investigative interviewing; strategic problems in police questioning. *Journal of Community and Applied Social Psychology, 3*, 89-99.

Witkin, H. A., (1950). Individual differences in ease of perception of embedded figures. *Journal of Personality, 19*, 1-15.

Witkin, H. A., Dyk, R. B., Faterson, H. F., Goodenough, D. R., & Karp, S. A. (1962). *Psychological differentiation: studies of development*. London: John Wiley & Sons.

Witkin, H. A., Oltman, P. K., Raskin, E., & Karp, S. E. (1971). *A manual for the embedded figures tests*. Palo Alto, CA: Consulting Psychologists Press.

Wolfradt, U. & Meyer, T. (1998). Interrogative suggestibility, anxiety and dissociation among anxious patients and normal controls. *Personality and Individual Differences, 25*, 425–432.

APPENDIX I: SUMMARY OF CASES OF WRONGFUL CONVICTION OVER PAST TEN YEARS IN ENGLAND AND WALES.

NAME OF CASE:	Year of conviction	Year of Appeal	Nature of vulnerability
1. Ashley King	1986	1999	Borderline IQ, suggestibility, compliance
2. Donald Pendleton	1986	2000	Suggestibility, compliance, acquiescence, anxiety proneness
3. Iain Hay Gordon (Belfast)	1953	2000	Suggestibility, confabulation, sensitivity about sexuality
4. Anthony Steel	1979	2003	Borderline IQ, suggestibility, compliance
5. Robert Adams	1976	2005	Alcoholic, suggestibility, compliance, anxious extravert
6. Raymond Gilmour	1982	2007	Suggestibility – inability to cope with pressure.

