Cognitive Scripts in Versatile and Repeat Offenders

David Hockey

September 2008

Thesis submitted in partial fulfilment of a Phd program at Cardiff University.

The viva was conducted on the 23rd of December 2008 completing the process of PhD status.

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Abstract

In recent years, cognitive theories of offender behaviour have lead to the development of rehabilitation programs. However, many of the cognitive theories which underpin these programs have not been fully developed nor have they been the subject of very much empirical investigation. For example, some of these programs have been applied to versatile offenders (i.e., those that commit a wide range of different types of offences), but cognitive theories, in general, have not been developed to account for such versatility. Moreover, there has been little investigation of the cognitive processes in versatile offenders. This thesis is concerned with the application of one cognitive theory, script theory, to offender behaviour, with particular reference to versatile offender behaviour. In Study 1, forty offenders broadly fitting the profile of 'versatile offender' with a mean age of 16 years old and a comparison group of forty non-offenders were given 4 vignettes to complete. In Study 2, a second group of 30 offenders and 35 non-offenders who were over 18 years of age were also compared. Each vignette contained a potential criminal situation that was set within typical situations in which they occur: a violent situation, vandalism, car theft and burglary. The vignette scenarios were derived from British Crime Survey statistics and comprised some of the most common offences to occur for younger age groups. The response format and subsequent analysis was consistent with previous uses of this methodology: initial categorization of actions within stages of scenario responses, followed by in depth analyses of the nature of these responses. The results of both studies provided evidence consistent with script-like knowledge structures across a range of offences for subsets of offenders. Study 3 employed a similar methodology to that used in Studies 1 and 2 in order to contrast a group of 'Elite' offenders (who had received no convictions during their adult lives) with a group of repeat

offenders. The results of this study confirmed that there was script-like knowledge in the repeat offenders, and that their knowledge and behaviour (as indexed by the responses to a burglary vignette) differed markedly from the Elite offenders. The conclusions drawn from the results are that repeat offenders who are versatile appear to process crime scene information similarly to repeat specialist offenders in that there are script-like characteristics. Therefore, both rehabilitation program designs and crime prevention methods would benefit from more use of the script theoretical framework in predicting offenders' linear processing patterns. Furthermore, the Elite group of offenders appear to use a comparatively lower risk strategy in terms of movements between different locations in and around a crime scene. This strategy is distinguishable from specific 'how to do' techniques used for breaking in to properties for example. Within the script framework, this strategy is explained by the use of an expansive set of sub-tracks to the principal script. Sub-tracks are predetermined sets of behaviours which negate a problem and then return the user back to the original course of the script. Such sub-tracks appear to be absent from the repeat offenders repertoire' of processing, hence the rigidity and concrete appearance to the processing of repeat offenders who fail to avoid periodical adjudications

Contents

Chapter 1: Introduction
1.1. Script theory, procedural knowledge and actions.....1
1.1.1. General empirical support for scripts.....2
1.2. Applications of script theory to criminal behaviour.....3
1.2.1. What is versatile offending.....4
1.2.2. Age differences in offending patterns.....5
1.3. Relationship between script theory and other theories of offending.....6
1.3.1. Information processing.....6
1.3.2. Farrington's (1996) theory.....7
1.4. Relationships between scripts and other areas of enquiry.....8
1.4.1. Modus Operandi.....8
1.4.2. Cognitive deficits.....9
1.4.3. Cognitive distortions.....10
1.4.4. Cognitive rehabilitation programs.....10
1.5. What is an Offence script.....10
1.6. Summary of aims.....12
Chapter 2: Assessment of the existence of offence scripts in young offenders (Study 1)
2.1. Overview.....14
2.2. Introduction.....14
2.3. Methodology.....16
2.3.1. The Vignette technique.....16
2.3.2. Response format.....18
2.3.3. Epistemology.....18
2.3.4. Vignette generation, rationale and nomenclature.....19
2.4. Method.....20
2.4.1. Participants, recruitment and ethics.....20
2.4.2. Materials.....23
2.4.3. Procedure.....25
2.4.4. Treatment of the responses provide by the participants.....25
2.5. Results.....27
2.5.1. Overall comparison between the Non-offender and the Offender groups.....27
2.5.2. Log-linear analysis.....30
2.5.2.1. Vignette 1: Potential Physical Assault.....31
2.5.2.2. Vignette 2: Potential Vandalism.....34
2.5.2.3. Vignette 3: Potential Car Theft.....37
2.5.2.4. Vignette 4: Potential Burglary.....39
2.5.2.5. Overview of the results.....41
2.5.3. Comparison between non-offenders and repeat offenders who provided 3 or more offence-related responses.....41
2.5.3.1. Vignette 1:.....43
2.5.3.2. Vignette 2:.....45
2.5.3.3. Vignette 3:.....47
2.5.3.4. Vignette 4:.....49

2.5.3.5. Overview of the results for the Non-offender and Offender sub groups....51
2.5.4.1. Comparison between the Specialist and Versatile offenders from within the Offender group, who provided 3 or more offence related responses....51
2.5.4.2. Vignette 1:....53
2.5.4.3. Vignette 2:....55
2.5.4.4. Vignette 3:....57
2.5.4.5. Vignette 4:....59
2.5.4.6. Overview of the results from the initial overall groups and the subgroups derived from the overall groups....61
2.5.5.1. Discussion of the overall analyses....62
2.5.5.2. Discussion of the non-offender, Specialist and Versatile subgroups....66
Chapter 3: Assessment of offence scripts in older offenders (Study 2)
3.1. Rationale....68
3.2. Introduction....68
3.3. Methodology....69
3.4. Participants, recruitment and ethics....70
3.5. Results....72
3.5.1. Overall comparison between the Non-offender and the Offender groups....72
3.5.1. Log-linear analysis....75
3.5.1.1. Vignette 1....75
3.5.1.2. Vignette 2....77
3.5.1.3. Vignette 3....80
3.5.1.4. Vignette 4....82
3.5.1.5. Overview of the results....84
3.5.2.1. Comparison between the Non-offender and Offender sub groups who provided 3 or more offence related responses....84
3.5.2.2. Vignette 1....86
3.5.2.3. Vignette 2....88
3.5.2.4. Vignette 3....90
3.5.2.5. Vignette 4....92
3.5.2.6. Overview of the results for the Non-offender and Offender sub groups....94
3.5.3.1. Comparison between Specialist and Versatile offender who provided 3 or more offence related responses....94
3.5.3.2. Vignette 1....96
3.5.3.3. Vignette 2....97
3.5.3.4. Vignette 3....98
3.5.3.5. Vignette 4....99
3.5.3.6. Overview of the results from the initial overall groups and the subgroups derived from the overall groups....100
3.5.4. Broad comparison between study 1 and study 2....100
3.5.5.1. Discussion of overall analyses....102
3.5.5.2. Discussion of analyses for subgroups....105
3.6. Rationale for Study 3....106

Chapter 4: Application of script theory to a group of Elite offenders (Study 3)
4.1. Introduction.....107
4.2. Rationale.....109
4.3.1. Method.....109
4.3.2. Vignette generation.....109
4.3.3. Participants, recruitment and ethics.....110
4.3.4. Materials.....111
4.3.5. Procedure.....114
4.3.6. Analysis.....114
4.4.1. Results.....115
4.4.2. Worked example of the Lag-sequencing method of analysis, using a single participant's data from the full results.....117
4.4.3. The complete results.....119
4.5. Discussion.....123
Chapter 5: General Discussion
5.1. Summary of the aims of the new results.....127
5.2. Theoretical and applied implications.....128
5.3. Future directions.....133
5.4. Reflexivity, limitations and advancements.....134
5.5. Concluding comments.....137
References..... 138
Appendix 1:.....Demographic Form
Appendix 2:.....Example list of how to respond
Appendix 3:.....Interview schedule
Appendix 4:.....Study 2 results based on the original categories used in Study 1

List of tables

Chapter 2: Study 1

Table 1a; Demographic statistics for Study 1 participants
Table 1b; Offence history classifications for the Offender group.
Table 2a; Preliminary statistics for the overall group (number of responses).
Table 2b; Preliminary statistics for the overall group (number of actions).
Table 2c; Preliminary statistics for the overall group (number of mode of choice).
Table 3a; Vignette 1 overall group frequency table
Table 3b; Vignette 1 summary of log-linear modelling for the overall group
Table 4a; Vignette 2 overall group frequency table
Table 4b; Vignette 2 summary of log-linear modelling for the overall group
Table 5a; Vignette 3 overall group frequency table
Table 5b; Vignette 3 summary of log-linear modelling for the overall group
Table 6a; Vignette 4 overall group frequency table
Table 6b; Vignette 4 summary of log-linear modelling for the overall group
Table 7; Preliminary statistics for the 3-offence subgroups (responses/actions/choice).
Table 8a; Vignette 1, 3-offence subgroup frequency table
Table 8b; Vignette 1, summary of log-linear modelling for the3-offence subgroup
Table 9a; Vignette 2, 3-offence subgroup frequency table
Table 9b; Vignette 2, summary of the log-linear modelling for the 3-offence subgroup
Table 10; Vignette 3, 3-offence subgroup frequency table
Table 10b; Vignette 3, summary of the log-linear modelling for the 3-offence subgroup
Table 11a; Vignette 4, 3-offence subgroup frequency table
Table 11b; Vignette 4, summary of the log-linear modelling for the 3-offence subgroup
Table 12; Preliminary statistics for the Specialist and Versatile subgroups (response/actions/choices).
Table 13a; Vignette 1 Specialist and Versatile subgroups frequency table
Table 13b; Vignette 1 summary of the log-linear modelling for the Specialist and Versatiles
Table 14a; Vignette 2 Specialist and Versatile subgroups frequency table
Table 14b; Vignette 2 summary of the log-linear modelling for the Specialist and Versatiles
Table 15a; Vignette 3 Specialist and Versatile subgroups frequency table
Table 15b; Vignette 3 summary of the log-linear modelling for the Specialist and Versatiles
Table 16a; Vignette 4 Specialist and Versatile subgroups frequency table
Table 16b; Vignette 4 summary of the log-linear modelling for the Specialist and Versatiles
Table 17; Summary of percentage values of the complete offence response for all groups and subgroups.

Chapter 3: Study 2

Table 18a; Demographic statistics for Study 2 participants.
Table 18b; Offence history classifications for the Offender group.
Table 19a; Frequency totals and associated percentage values for the number of non-offence versus offence responses provided by the Non-offender and the Offender groups
Table 19b; Mean and SEM totals for the number of action items (i.e., non-offence versus offence) provided by the Non-offender and Offender groups.

Table 19c; Frequency totals and percentage value for the mode of choice (i.e., A = offender and B = self) for the Non-offender and Offender groups, plus the number of participants in each group who provided 3 or 4 of the same choices across the 4 vignettes.
Table 20a; Vignette 1 overall group frequency table.
Table 20b; Vignette 1 Summary of Log-linear modelling for the overall group.
Table 21a; Vignette 2 overall group frequency table
Table 21b; Vignette 2 Summary of Log-linear modelling for the overall group.
Table 22a; Vignette 3 overall group frequency table
Table 22b; Vignette 3 Summary of Log-linear modelling for the overall group.
Table 23a; Vignette 4 overall group frequency table
Table 23b; Vignette 4 Summary of Log-linear modelling for the overall group.
Table 24; Preliminary statistics for the 3-offence subgroups (responses/actions/choice).
Table 25a; Vignette 1, 3-offence subgroup frequency table
Table 25b; Vignette 1 summary of log-linear modelling for the 3-offence subgroup
Table 26a; Vignette 2, 3-offence subgroup frequency table
Table 26b; Vignette 2 summary of log-linear modelling for the 3-offence subgroup
Table 27a; Vignette 3, 3-offence subgroup frequency table
Table 27b; Vignette 3 summary of log-linear modelling for the 3-offence subgroup
Table 28a; Vignette 4, 3-offence subgroup frequency table
Table 28b; Vignette 4 summary of log-linear modelling for the 3-offence subgroup
Table 29; Preliminary statistics for the Specialist and Versatile subgroups (response/actions/choices).
Table 30; Vignette 1
Table 31; Vignette 2
Table 32; Vignette 3
Table 33; Vignette 4
Table 34; Summary of percentage values of the complete offence response for all groups and subgroups.
Table 35a; Broad comparison between Study 1 and 2 on number of actions provided.
Table 35b; Broad comparison between Study 1 and 2 on number of choices.
Chapter 4: Study 3
Table 36a; Overall frequencies of items and associated probability values for the categories provided by both the Offender group and the Elite group.
Table 36b; Lag-sequence worked example of a single participant from the Offender group
Table 36c; Event lag-sequence movements between stages of behaviour for both the Offender and the Elite groups, taken to 9 lags.

Appendices

Chapter 1

Introduction

1.1. Script theory, procedural knowledge and actions

Schank and Abelson (1977) developed script theory as a way of characterizing the human knowledge structures that underpin complex patterns of behaviour. Scripts are assumed to represent well-known sequences of events, with some involving more than one actor during social encounters (e.g., the waiter and customer in a restaurant). Scripts are standardised across individuals in their sequencing of events, and are held to facilitate a common goal (e.g., going to a restaurant for the goal of eating). A holder of such a *situational script* will be able to participate effectively in a social interaction through sequential knowledge of their own and other people's assumed roles. Schank and Abelson (1977) proposed that scripts prevent the need for conveying mundane information (e.g., such as *how* soup is eaten when relaying a story about a restaurant, although the eating of soup may be mentioned as one action within a restaurant script). Once a script sequence is familiar, the actions that form part of the script are assumed to be executed with minimal processing; with the benefit that cognitive capacity can be made available for processing other tasks simultaneously. Schank and Abelson (1977) contrast situational scripts with *instrumental scripts* (e.g., driving a car), which they describe as being similar to situational scripts in that they prescribe a sequence of actions, though these instrumental scripts tend to have an ordering of actions that is particularly rigid. Instrumental scripts are not necessarily always goal bound and do not typically require the involvement of another actor. Finally, they refer to *personal scripts*, which are described as being relatively unique to the individual, and operating within a situational script, if the holder has a goal that is beyond the standard categories and actions associated with that situational script (e.g. a customer in a restaurant wishing to arrange a date with the waitress or waiter; for a further and recent discussion of script theory see Fiske & Taylor, 1991). A more detailed definition of a script, in the context of the behaviour of interest in the current thesis (offending), will be

presented in Section 1.5. In addition, Schank and Abelson's (1977) script theory also considers that interferences can occur. These interferences occur when some enabling condition for an impending action is missing. In such cases, the script holder responds with what Schank and Abelson (1977) call a 'prescription' (i.e., that may result in them leaving the script altogether, or to take corrective action). These prescriptions provide the script holder with a range of alternatives that temporarily deviate from the principal track of the script, in order to navigate around the problem before returning to the original script and, therefore, the script goal; although abandoning the original goal in favour of another can sometimes occur. Schank and Abelson (1977) use the example of ordering a particular item on the menu, but when the order is brought to the table, it is incorrect. The smooth running of the script is disrupted, as the script holder selects from the range of prescriptions available (e.g., return the dish, re-order, swap with a friend or ignore the mistake and continue with the meal).

1.1.1. General empirical support for scripts

Early empirical support for script theory was found by Bower, Black, and Turner (1979) who collected situational script norms, for everyday activities (e.g., eating in a restaurant, a lecture, grocery shopping, getting-up, and visiting a doctor), from undergraduates attending a North American university. Using vignettes (herein short, open-ended scenarios), Bower et al. (1979) asked participants to list up to 20 actions associated with the vignette. They found that there was considerable agreement between the nature of the characters, props, actions and sequences that were listed by the participants. This agreement was assumed to reflect the fact that people share scripts for such everyday activities.

Schank and Abelson (1977) also introduce the notion of *script headers* which serve as preconditioned triggers to a given script. In actual situations, environmental cues are deemed to be the triggers for behaviour sets. Previous research (Freedman, Rosenthal, Donahoe &

Schlundt, 1978; Crick & Dodge, 1994; Palmer & Hollin, 1996) has shown that when vignettes (containing common situations for potentially antisocial outcomes) have been presented to relevant adolescent participant groups, the "maladjusted" (Crick & Dodge, 1996) participants interpreted the cues in a hostile manner and responded in a similar fashion, while the control group found alternative ways to respond.

1.2. Applications of script theory to criminal behaviour

Script theory was developed to account for the capacity of people to understand and predict the sequence of stages in a social event (e.g., visiting a restaurant), but it has now been applied to a range of maladjustive (see above) and criminal behaviours. This approach has typically been applied to repeat offenders of specific criminal acts. For example, within the script theory framework, research has revealed evidence of sequential or procedural knowledge across the offence type of burglary (Wright & Decker, 1994; Cornish, 1994; Hammond & Brown, 2005) or within parts of a burglary event (Nee & Meenaghan, 2006). Script theory has also been applied to acts of violence. For example, Huesmann and Eron (1989; see also Huesmann, 1994) suppose that the trait 'aggression' triggers a cycle of repeated and automated hostile responses to situations, which they termed scripts (for an application of script theory to sexual offences, see Ward & Hudson, 2000). Some of these applications have included drawing parallels between the *modus operandi* (MO) of offenders and script-like response patterns.

The findings that lend support to the application of script theory to offender behaviour have been, in turn, used as the impetus for: (1) treatment programs (e.g., generic cognitive rehabilitation programs, such as 'Think First', McGuire, 2000), that attempt to help offenders think more effectively in problem situations rather than resort to offending; (2) aids to criminal investigations, that draw on the notion that an offender's general life traits are

evident in the MO of their offence commissioning (Canter, 2000); (3) crime displacement (Cornish & Clark, 1987), which involves designing properties and estates to be less criminogenic.

However, with particular reference to treatment programs and as aids to criminal investigations, script theory has been applied to discrete offence types, while most offenders are actually versatile (Farrington, Synder & Finnegan, 1988; Halliday, 2001; Klein, 1984): versatile in the sense that that they are likely to be involved in both violent and dishonest acts, as well as other 'street offences' (e.g., vandalism). There is a paucity of evidence that allows one to be confident that script theory applies to such versatile offenders. One of the principal aims of this thesis is to investigate the applicability of script theory to versatile offenders. These offenders represent the largest proportion of the offending population (Halliday, 2001), and an investigation of the applicability of script theory to this population would therefore provide a basis on which to develop a more complete understanding of criminal behaviour. It is certainly possible that versatile criminals would be less likely to have acquired scripts for offending than more specialist offenders, who repeatedly engage in the same criminal activities. In summary, the question of whether or not script theory applies to the behaviour of versatile offenders is both an open and important one. One of the aims of this thesis is to assess this question.

1.2.1. What is versatile offending?

The Cambridge study (West & Farrington, 1977) was a longitudinal study which tracked the lives, and in particular any criminal activity, of some 400 hundred males born in London in 1953 and 1958. Research on this cohort showed that many offenders are versatile (Farrington et al, 1988; Klein, 1984) in that they commit a range of different offences (e.g., burglary and other property offences of dishonesty, car related offences, vandalism, violent acts). Versatile

offenders tend to be predominately property offenders, with a relatively small proportion (approximately 25%) of the convictions being for violence (Halliday, 2001).

1.2.2. Age differences in offending patterns

Soothill, Francis and Fligelstone (2002) noted that the offenders in the Cambridge Study can be put into categories derived from their ages and clusters of offence types. Thus offenders could be divided into 5-year strips (e.g., 10-15, 16-21and 21-26 years old) and their offences could be grouped into latent classes (labelled A, B, C etc.) depending on the similarity of offence types. Within this taxonomy, class F (i.e., all kinds of theft, including burglary to shoplifting, likely to be violent, involvement in robbery, aggravated burglary and kidnapping, a variety of car crime including theft from cars, theft of vehicles, driving licence offences and criminal damage) appears to be closest to Farrington et al. (1988) and Klein's (1984) notion of versatility: versatile offenders and latent class F include the same street offences. Offenders within this category tended to have a high rate of recidivism during the age strips 10-15 that rose further during the 16-20 year olds (peaking at 18 and dropping off thereafter; see Soothill, et al, 2002; Halliday, 2001). Soothill et al. (2002) suggested that the reduction in offending after the age of 18 might reflect that individual offenders are: switching between classes; are no longer committing crimes; or, that they are not getting caught.

Another important aim of this thesis was to examine the applicability of script theory to different age cohorts. In Study 1 (described in Chapter 2), the age range of the offenders was from 16 to 18 years, and in Study 2 (described in Chapter 3) the range was from 19 to 58 years. The use of two age groups allows the generality of any effects to be established. Moreover, if script knowledge develops or changes as a consequence of experience then one might anticipate differences between the two age cohorts in either the extent or content of the scripts that they hold.

1.3. Relationship between script theory and other theories of offending

Some theories of crime are based on motivational drives or criminal personalities. They do not focus on actual criminal events, but rather on criminogenic personalities (e.g., Eysenck's, 1977, theory of criminality), life course pathologies (Moffitt, 1993), or traits (e.g., Gottfredson & Hirschi's, 1990, General Theory of Crime). These causal theories need not relate, in any direct way, to one of the central ideas under investigation in the current thesis: namely, that the possession of scripts might underpin some features of versatile offending. Conversely, other theories tend to focus on specific crime types, such as 'burglary' (e.g., Cornish & Clarke's, 1987, Rational Choice Theory) or acts of 'violence' (Huesmann, 1994), but do not typically consider generic criminality and are not obviously applicable to versatile criminals. However, some general theories of crime are cognitive in nature or include a cognitive component (e.g., Farrington's Multi Factor Theory, 1996). It is these final two types of theory that is most related to the ideas under scrutiny in this thesis and how these theories relate to script theory will now be considered.

1.3.1. Information processing theory

One of the leading cognitive models for some types of offending is Crick and Dodge's (1994) Information Processing theory. This model proposes that children's social behaviour is a function of sequential steps of processing, including processing of social cues, interpretation of social cues, clarification of goals, response access or construction, response decision and behavioural enactment. In one study that provides support for this model, teachers provided aggression ratings for 624 third to sixth grade boys and girls from 4 metropolitan schools in the United States of America (USA; Crick & Dodge, 1996). These ratings were also supplemented with scores from both an assessment tool known as the 'Intent Attribution Instrument', and peer-on-peer ratings of aggression. Analysis of these scores revealed that

some children, with what was termed 'proactive aggression', responded in distinctive ways to other children. These distinct ways were typically linked to the interpretation of a wider set of social cues for motivating aggression, and for using aggression to obtain goals. The model focuses on a reciprocal process, wherein previous social knowledge influences which cues are attended to, which in turn determines the development of the social knowledge database; and these two processes jointly guide future behaviour. In particular, children selectively attend to certain situational and internal cues, encode and then interpret them. This selection and interpretation process is influenced, in part, by past events, which are stored in long-term memory and represented in the form of mental structures such as schemas and scripts (forming a database). This database directly influences the "on-line" processing of social cues, leading to social behaviour. The model supposes that maladjusted children will engage in automated as opposed to controlled processing of socially negative behaviours, typically aggression; and that such automatic responses are facilitated through pre-emptive or script-based knowledge structures, which are classically conditioned and lacking in reflective processes. This model was derived to explain aggression in maladjusted children (Hollin, 2002), but its general utility has not been investigated. The fact that it relies on script-based knowledge is at least consistent with the suggestion that script theory might have some general applicability.

1.3.2. Farrington's (1996) theory

Farrington (1996) has proposed a general analysis of criminality, which is a multi-levelled theory of accumulative risk factors. This theory has four basic stages: Energising, directing, inhibiting and decision making. Of the four stages, the first three are related to developmental processes, particularly motivational drives. The fourth, decision-making stage is the one that is most obviously related to the ideas under consideration in this thesis. This stage includes perceived and real opportunities for offending with a cost/benefits analysis of immediate

situational factors, such as the likelihood of being caught relative to the possession of material goods. This final stage draws from the Rational Choice Theory (Cornish & Clarke, 1987) of choice making, where an offender's choice making is viewed as bounded by physical and environmental restraints, and notably by limited cognitive processing. However, similar to Cornish and Clarke's Rational Choice theory, Farrington's theory does not specify a particular model of decision making or processing and lacks a detailed description of the cognitive processes that might lie behind, for example, the involvement of versatile offenders in a range of different crime events. That is, the theory does not explain the characteristics of rigidity, concrete orientated and procedural processes observed in repeat offenders.

1.4. Relationship between script theory and other areas of enquiry

1.4.1. *Modus operandi* (MO)

Sequential knowledge of well known events that are in some cases goal directed, are central to script theory and are clearly related to some ways of characterizing aspects of criminality. For example, the lifestyle routine activities of *offending* (Felson, 1987) and the MO of an offender (Hammond & Brown, 2005) appear to be very sequential and sometimes goal directed. Hammond and Brown (2005) examined 60 solved burglaries. The first 50 were attributed to a single offender during an eight-month period, while the remainder were randomly selected from the same time period and geographical area. The MOs of each burglary were compared on the basis of 12 features or variables (e.g., method of entry, items stolen, time of day or night etc.). A simple binary coding scheme was used to score the presence or absence of each feature, resulting in a 60 x 12 matrix. Each offence was represented by a pattern of 12 features that was called a 'profile'. Where some patterns were identical they were classified as a single profile, resulting in there being 27 unique profiles. The authors made use of three statistical methods: latent class analysis, cluster analysis, and multiple scalogram analysis. In general, these methods achieved a 90% hit rate

(approximately) in identifying the 50 offences committed by the one perpetrator, as well as distinguishing these offences from the randomly selected burglaries. These results suggest that the MO of this particular target offender was relatively consistent. The focus of, for example, Hammond and Brown (2005) on sequential processing during a potential criminal or antisocial event has provided one way of exploring the cognitive mechanisms that lie behind repeat offender's actions (i.e., in this example a burglar).

1.4.2. Cognitive deficits

Offenders have also been observed to display what is termed limited cognitive processing (Ross & Ross, 1995), collectively labelled as cognitive deficits or differences (Hollin, 2002; McGuire, 2000). Within this perspective, Ross and Ross (1995) consider one limitation or difference to reflect a bias towards concrete thinking, which results in long-term goals and consequences being subordinate to the 'here and now' orientation. Research shows that delinquents often do better on nonverbal tasks, such as object assembly and block design, relative to verbal tasks. This pattern of performance is held to be indicative of poorer abstract processing (Walsh, Petee, & Beyer, 1987). The suggestion that there is a bias towards concrete thinking in offenders is related to the presumed characteristics of some scripts (e.g., the focus on an immediate goal aim). Also, offenders appear to prefer concrete aims and are not only unable to manipulate abstract ideas (Farrington, 1997), but their minds are also considered to be closed to other perspectives, in that they think rigidly (Raynor, 2002; Ross & Ross, 1995). It has also been suggested that offenders generally posses a lack of self control (Gottfredson & Hirschi, 1990), which Hollin (2002) conceptualizes as a failure to deploy cognitive appraisal between impulse and action.

1.4.3. Cognitive distortions

Gibbs (1996) has proposed that cognitive distortions might play an important role in offending. This theory is largely concerned with pre- and post-rationalisations for offending, which come in the form of primary and secondary distortions. According to this view, offenders rationalise their offending by placing the blame onto the victims, (e.g., 'they deserve to have them stolen') in the case of car theft (Hollin, 2002). However, while these rationalizations might be evident in versatile offenders, they seem unlikely to provide the basis for other characteristics of versatile offenders described previously (e.g., the MO).

1.4.4. Cognitive rehabilitation programs

Some cognitive rehabilitation programs (such as Think First, McGuire, 2000) are based upon the notion that offenders lack alternative solutions to unforeseen problems (whether these problems are predictable or not). These programs attempt to help offenders to think ahead and develop ideas and strategies for reacting to the prevailing circumstances, in such a way as to plan a legitimate course of action as opposed to an impulsive reaction at the time of need. The cognitive component of such programs operates on the premise of breaking the cycle of thinking, which leads to offence-related solutions. This cycle of processing that underpins offending is considered to be limited and impoverished, in part because of its habitual occurrence. It has already been noted that some patterns of habitual interaction have been characterised by appealing to scripts.

1.5. What is an offence script?

The previous sections have established a firm basis for the suggestion that investigating the utility of script theory in the context of versatile offending in different age groups would be a useful and important addition to our understanding of criminal behaviour. What is needed now is a clear definition of an offence script. In the context of everyday behaviour, that is

unrelated to crime, various descriptions and applications of the script framework have shared common features with each other. That is, procedural knowledge of well known events where the script activity leads to immediate goals *or* concrete thinking; the minimal processing required for well known scripts *or* habitual macro lifestyles and micro level behaviour patterns; script headers *or* cues to respond impulsively (see Fiske & Taylor, 1991 for a discussion on the role of scripts in social events).

For the present purposes, a definition of an offence script must be able to take account of key features common to all script types while allowing for unique situations in which some offending can take place. There are three key elements, which would need to feature in such an offence script:

1. *A central component of an offence script is that, like other scripts, they involve sequential or procedural knowledge of routine and habitual behaviours concerning events.* This ingredient is the common denominator of Schank and Abelson's (1977) description of social, personal and instrumental scripts; other elements of these three types of script are not always relevant to an offence script. For example, whereas the latter three types of scripts require specific personal, social and instrumental elements, offences can involve elements of each type of script (e.g., a burglary can be conducted either alone or as part of a team).

2. *Offence scripts have goals, of which some are clearly identifiable while others are less so.* For the present purposes, an offence script must lead to a goal end, which would amount to an infringement of criminal law. Note, that this objective definition need not rely on the completion of an act to constitute an offence script because some criminal acts can be evoked but aborted before completion (e.g., going equipped for burglary, or attempted burglary). This component avoids the issue of having to infer the goals of participants.

3. *An offence script must make provision for personal experience of offending as well as hypothetical knowledge*. This element of the definition is required because some non-offenders (e.g., an experienced police officer or an experienced field researcher) can hold similar procedural knowledge to an offender of how an offence occurs, without ever committing an offence.

Resulting definition of an offence script

Offence scripts embody procedural knowledge or habitual behaviour of an event leading to a goal end from which a partial or completed execution would amount to a criminal offence.

For the purpose of clarity a hypothetical offence script that an individual holds, will be distinguished from an offence response. An offence response, refers to the actions that participants list for a given vignette (see below) that if executed would amount to a criminal offence.

1.6. Summary of aims

The aims of this thesis were to provide a detailed examination of the applicability of script theory to versatile and repeat offenders who have different amounts of experience in offending. In order to achieve these aims, three studies were conducted. The first two studies (Studies 1 and 2) were with two age groups of offenders, within which there were subgroups of versatile and non-versatile offenders (i.e., specialist offenders and those who do not meet the definition of versatile). Both studies used the same methodology, which involved soliciting actions associated with a set of vignettes. The questions of central interest were whether the actions would conform to the definition of scripts presented immediately above, and if so whether evidence for such scripts differed according to the type and age of the offender. In both studies, a comparison group of non-offenders was also included. The final study (Study 3) used similar methodology to contrast the responses of repeat offenders with a

small group of 'Elite' offenders (who had not received any convictions during their adult lives). The aim of this study was to assess whether or not there were differences between the script-like or procedural knowledge held by the two groups.

Chapter 2

Assessment of the existence of offence scripts in young offenders

2.1. Overview

The aim of Study 1 was to examine the existence, content and extent of script-like knowledge in versatile and repeat offenders, as well as an age-matched group of non-offenders. In order to do so, participants were confronted with vignettes designed to evoke a potentially criminal response. In the first series of analyses, an overall comparison between two groups (i.e., non-offenders versus offenders) was made regarding the number of offence related responses, the number of offence related actions, and the mode of choice made when responding (as another person or as themselves). Subsequent analyses involved comparisons of subsets of the two principal groups (offenders and non-offenders); one of these comparisons was between versatile and specialist offenders.

2.2. Introduction

Results from a number of studies across different offence types suggest that some offenders follow repeated patterns of behaviour from which there is minimal deviation when offending. For example, Huesmann, Eron, Lefkowitz and Walder (1984) conducted a longitudinal study examining the stability of aggression. They interviewed 409 participants from a previous study some 22 years earlier, when measures of aggression had been taken by peer and teacher ratings as well as self-report. The later interview measures included self-report and spouse ratings. It was found that the early measures of aggression were strong predictors of the later measures of aggression, which could also manifest in other forms of antisocial behaviour and criminality. The theoretical interpretation that Huesmann et al. (1984) offered for these, and related observations from similar studies, was that through the presence of an innate or genetic drive, in combination with repeated exposure to aggression, the opportunity is created for developing a predisposition to habitually aggressive responses by forming mental

structures in memory, triggered by associated cues. The limited social skills observed in such behaviour are thought to result from: a limited range of pro-social responses; a focus on the 'here and now'; and a poor evaluation of appropriate responses. As noted by Huesmann (1994), these aggressive behaviours manifest in the form of cognitive script-like responses.

Michael, Hull and Zahm (2001) conducted a study on auto burglary (i.e., car break-ins). The method that they utilised involved initial focus group discussions designed to orientate a further two stages (i.e., interviews with informants including undercover law enforcement agents, and on site analyses). In one example, 12 residential auto-burglars behaviour patterns were described by the informants. Seven of these auto-burglars had been known to repeat the same pattern for more than a decade, and so there was a great deal of confidence about what was known of their behaviours; particularly relative to how other auto-burglars who came from other areas to commit their offences. The resulting analysis revealed evidence of behavioural scripts that described the general sequence of behaviours used in conducting the offence.

Tunnell (1992) and Wright and Decker (1994) interviewed burglars in the USA regarding the process of burglary, from the planning to the execution stages, and to the disposal of goods. For example, Wright and Decker (1994) noted that burglaries took place in stages, with the decision to offend beginning away from the property. This decision to offend was then followed by identifying the property most suitable for an attack. The next stages included: a procedure to ensure that the property was vacant; how to enter it; whether there was a search method; what to take; how to leave, and how to dispose of the goods. They analysed the data thematically and suggested that offenders operate in stages or sequences, which they termed scripts. However, without a comparison group of Non-offenders, it was impossible to assess whether they too would have followed a similar set of stages, and therefore difficult to assess

the role of experience in generating the procedural stages.

Nee and Meenaghan (2006) examined the target selection methods and search patterns when inside of the property, during a house burglary simulation exercise. The participants were offenders imprisoned for burglary (i.e., what Nee & Meenaghan termed 'failed burglars') and other imprisoned offenders who were serving time for offences other than burglary, but were self-declared burglars. These burglars processed information about target selection and search patterns at a rate of efficiency, which was deemed to be at a level that would be displayed by experts in legitimate fields of work (Nee & Meenaghan, 2006). The research by Wright and Decker (1994) and Nee and Meenaghan's (2006) revealed that experienced burglars had a very specific procedural knowledge of a burglary situation, together with high efficiency levels of execution.

The studies outlined above provide evidence that repeat offenders of specific crime types exhibit script-like knowledge under some circumstances. However, the extent to which these findings generalize to other groups of offenders and situations is less clear. Therefore, the aim of Study 1 was to investigate whether both versatile and repeat offenders possess script-like knowledge of offence situations, and to compare their knowledge to a matched group of non-offenders.

2.3. Methodology

2.3.1. The vignette technique.

Vignettes can be described as short stories about individuals or situations, which make reference to perceptions, beliefs or attitudes. Vignettes can be generated from previous research findings or in collaboration with other professionals in the field (Hughes, 1998). When the vignette is short and simple, with a number of limited dimensions to be explored, each interview can contain all such dimensions. Once a vignette has been developed, it can be

administered during a face-to-face interview between researcher and participant (Finch, 1987). Vignettes can be designed to evoke more or less specific responses from the participants. For example, Bower et al. (1979) examined aspects of script theory using the vignette technique. As outlined in Chapter 1, they asked undergraduate students to write a list of events or actions for five common situations: attending a lecture, visiting a doctor, shopping at a grocery store, eating at a fancy restaurant, and getting up in the morning to go to school. In order to collect what they termed "free association norms" the instructions asked participants to describe what people generally do when they go to, for example, a restaurant. There were some additional notes accompanying the instructions which informed participants that they (the experimenters) were interested in the 'common actions of a routine'. The instructions to participants were to start their responses with arriving (e.g., at the restaurant) and to end them with leaving. They also instructed the participants to include about 20 actions. The precise instructions turned out to be critical as the initial results produced narratives, so the instructions were modified to 'list actions'. The Bower et al. (1979) study did not compare the script norms of the undergraduates from the USA to another group. Consequently their vignettes were constructed on the bases of their relevance to undergraduate participants. The vignettes did not include a caption describing a specific context in which to locate the story, as it was assumed that the titles of the vignette would suffice.

However, for the purpose of this thesis, the construction of the vignettes for use in Studies 1 and 2, needed to take into account the fact that the comparison group of non-offenders might lack direct experience of committing criminal offences. For this reason, and unlike in the Bower et al. (1979) study, it was necessary to provide the participants with a brief context for each vignette.

2.3.2. Response format

Rahman (1996) suggests that because vignettes have a variety of uses in that they can be combined with several different response formats, such as fixed choice questions (e.g., A or B), or with open-ended questions (e.g., what would you, or what do think another person would do in this situation?), or a combination of the two. When the questions are open-ended, the participant has maximum opportunity for their own interpretation (Finch, 1987; Rahman, 1996). This format can also provide the option of responding in the first and/or the third person, which might allow respondents to provide more information as the format is less personal and less threatening (Finch, 1987). Additionally, Schank and Abelson (1977) used the term 'headers', which act as cues or triggers to call up the script memory of an event. By including a question at the beginning of a vignette, which asks the participant to provide a brief account of what they think the story in the vignette is about and presents the participants with an opportunity to crystallise their own thoughts and interpretation prior to responding.

In the Bower et al. (1979) study, the instructions that were given to participants turned out to be critical, in that when they were invited to provide a story to the vignette, participants tended to write narratives. Due to the problems with the first set of instructions in the Bower et al. (1979) study, the instructions in this thesis emphasised that the participants' task was to list actions.

2.3.3. Epistemology

Script theory is positioned within the 'naïve realist' epistemology (Schank & Abelson, 1977). Naïve realism, in this context, relies on treating data as being transparent and unproblematic in terms of it being contextually free of interview, social interaction and other social influences when being gathered. Inferences about the data are then made on a similar bases and explained within a relevant theoretical framework, which in turn is treated as 'real' (May,

1996).

2.3.4. Vignette generation, rationale and nomenclature

The British Crime Survey (BCS) provides data relating to the volume of each crime type, within the survey's data collection remit, and more specific data. In the case of domestic burglary, for example, the BCS collects data regarding the number of burglaries that occurred during the day and the number of burglaries that occurred at night. Similarly, data is collected on the method of entry and whether the property was occupied during the crime. The vignettes in this study were derived from amongst the most commonly occurring offences reported from the BCS results together with a descriptive caption providing the context in which they have also been found to typically occur (in particular, in the BCS 2002/3). Studies 1 and 2 are concerned with the content and form of responses across a range of potential criminal situations. Typically, when script theory has been examined, the vignette technique has been used to elicit responses (e.g., Bower et al., 1979; Crick & Dodge, 1996). This is because vignettes are held to be an appropriate way to access a respondent's procedural knowledge of a given situation. In Studies 1 and 2, the vignettes can potentially provide an assay of the participants' perception of the situation and their procedural knowledge; here data regarding the other beliefs or attitudes also associated with the use of the vignette technique are of peripheral relevance to that aim.

In terms of coding responses, as mentioned in Chapter 1, offence related responses are those that would lead to an offence if the actions described were actually carried out. Conversely, non-offence related responses are those that would not lead to an offence if they were to be conducted. Response items are the actions that are provided within a response, where a response has been designated 'offence' or 'non-offence' the items within that response will be similarly designated 'offence related items' or 'non-offence related items. For example, a

participant may provide two offence related responses and two non-offence related responses. Within each offence related response there may be five items written, totalling 10 offence related items across the two responses. The participant may provide four items per non-offence related response, totalling 8 non-offence related items across the two responses.

Finally, for both ethical reasons (i.e., so that participants do not incriminate themselves) and for research purposes (i.e., being able to distance themselves from their responses), participants are given a choice of response mode. The choices were 'A' (i.e., the participant responds in the third person, possibly as they consider an offender would respond), or 'B' (i.e., as the participant themselves would respond). Mode of choice, however, does not prevent a participant from choosing an offence or non-offence related response to the vignettes.

2.4. Method

2.4.1. Participants, recruitment and ethics.

Convictions do not necessarily represent an offender's complete criminal experience: a single conviction can include a number of related and unrelated offences, and convictions do not include undetected crimes committed by the adjudicated offender (Maguire, 2007). Therefore, all self-declared offenders were initially grouped together, and all self-declared non-offenders formed the comparison group.

Table 1a: Age means and standard deviations for the Offender and Non-offender groups.

Groups	Mean	N	Std. Deviation
Offender group	16.20	40	.405
Non-offender group	16.40	40	.496

A group of forty offenders between the ages of 16 to 17 years old (see upper row Table 1a)

were drawn mainly from a local probation service, with others from a local college. Each offender self-declared previous convictions for various offences (e.g., burglary, criminal damage, shoplifting, assault, car theft and theft from cars) in a brief demographic questionnaire (see Appendix 1). Conviction rates ranged from one to five per offender (Mean = 2.88; SD = 1.265).

A second (comparison) group of forty 16 to 18 year old participants with no self-declared convictions were drawn from two local colleges. The Offender and Non-offender groups were comparable in terms of their age (see lower row of Table 1a). Educational attainment was typically minimal, even in the Non-offender group.

The college, from which most of the Non-offender group and some of the Offender group were drawn, was chosen because of its specific role in offering courses to school leavers with minimal or no formal qualifications or employment. All participants were asked to provide a list of the number of formal qualifications previously gained. An analysis of variance (ANOVA) confirmed that there were no differences between the Offender and Non-offender groups in terms of formal qualifications (i.e., GCSEs and above), ($F_{(1,78)}$ =.514, p>0.05) or age ($F_{(1,78)}$ = 3.900, p>0.05).

Recruitment took place over an 18-month period. Participant recruitment tended to come in small batches. That is, some participants attended the establishment concurrently with other participants, whilst some participants attended the same establishments during periods when no other participants were in attendance.

In conjunction with the ethical guidelines set out by the relevant institutions (i.e., the British Psychological Society and Cardiff University), an application was submitted to the

appropriate ethics committee within the University (i.e., the School of Psychology Ethics Committee). This application resulted in a series of modifications to the methodology. Of particular note, was the inclusion that participants were given the option to answer vignette questions in the first or third person. It was supposed that this change would facilitate the participants in providing information without the perceived risk of incriminating themselves. This modification was, in any case, consistent with previous research using vignettes (see Section 2.3.2). However, there were no ethics committees at any of the establishments from where participants were recruited. Instead, the assessment of research proposals was based on appraisals given by high level management personnel, together with the appropriate consideration to relevant other staff members at each establishment.

Initial recruitment of participants derived from indirect contact in the form of introductory group discussions, where the relevant member of staff within an establishment would inform the group of service users about the research. For example, a probation officer would advise the group that the research was entirely independent of the probation service and the choice to participate or not had no influence on the probationary period of the potential participant. A fortnightly schedule of days and times containing sign-up slots would be placed in the reception areas. Potential participants were free to book an appointment, although there was also a contact number in order to allow greater anonymity (i.e., a participant could block out a relevant slot without providing a name, and make the booking by phone). This process was time consuming, as it often resulted in occasions where a pre-booked slot would not result in the appointment being kept by the potential participant. This, eventuality would frequently occur without forewarning of the cancellation. On occasions, these cancellations would represent the entire purpose of my trip to that particular establishment, whilst on other occasions it would represent a gap between slots of bookings.

As previously mentioned a conviction may actually incorporate any number of separate offences over a period of time. These separate offences may include the same or different types of crimes. While some offenders had convictions for a single offence type (e.g., driving offences or burglary), others had convictions for a mixture of different offence types. Some single offence type offenders were also repeat offenders, while those with a mixture of offence types typically had three or more convictions and were therefore versatile in addition to being repeat offenders (see Table 1b for a breakdown of the offenders into subgroups).

Table 1b: Offence History Classifications for the Offender group. N = 40.

Offence History Groupings
16 = Versatile offenders
14 = Specialists offenders
10 = Unclassified offenders

Note: Unclassified = not enough convictions to determine group.

2.4.2. Materials

Materials were as follows: A demographic questionnaire (see Appendix 1); a partial copy of the restaurant response outputs taken from the study by Bower et al (1979; see Appendix 2); four vignettes constructed with reference to the BCS (2002/3) data; a short semi-structured interview, designed to tease out any potential ambiguities (see Appendix 3).

At the top of each vignette a caption read:

First read the story then decide how to respond by listing the actions that either you Or someone else would go through during that situation.

(A) List up to about 20 or so actions you think an offender would do/may have done in this situation.

Or

(B) List up to about 20 or so actions that you would do/may have done in this situation.

A or B?

This was then followed by the specific vignette descriptions;

Vignette 1

Most assaults take place between males. They usually occur on a street close to a pub. For example one man might deliberately bump into another.

Decide what the situation is about.....

Then start with walking down the road towards another similar male who is walking towards you....finish the story with walking away.

Vignette 2

When vandalism occurs to cars, it's usually done by scratches to the bodywork whilst the cars are parked in the street. It might be a mindless attack or an act of revenge on the driver. For example, it was the car involved in a road rage incident previously.

Decide what the situation is about.....

Then start with seeing the target car parked in a street.....finishing the story with walking away.

Vignette 3

Often, when cars are stolen they are more than 10 years old and entry is gained by forcing the door lock. These thefts tend to occur when the cars are parked somewhere on a street and between the hours of midnight and 6am.

Decide what the situation is about.....

Then start with spotting the car parked on the street....finish the story with walking away from the car.

Vignette 4

Burglaries commonly take place between the hours of 6pm and midnight. In about half of those cases there is no one on the premises and entry is gained by forcing the back door. Decide what the situation is about.....

Then start with approaching a house believed to be unoccupied....finishing the story with walking away.

2.4.3. Procedure

The interviews were conducted on a one-to-one basis and began by asking participants to complete an initial questionnaire regarding their criminal history, their participation in any rehabilitation programs, their age and educational background. After completion of this demographic questionnaire (see Appendix 1), participants were shown a copy of the restaurant script from the Bower et al. (1979; see Appendix 2) study as an example of how to respond. Once all 4 vignettes had been completed a short semi-structured interview (see Appendix 3) was conducted where participants were able to ask questions, add any new information or make suggestions. In addition, participants were asked to provide a time frame for their responses (i.e., whether they had thought of the response for the first time during the interview or an estimated age of when they may have first had those thoughts). Due to a problem with the reading and writing abilities of many participants that was evident at the outset of the research, a decision was taken to follow the same procedure by reading aloud the instructions and assisting with the writing of the responses of the participants.

2.4.4. Treatment of the responses provided by participants

For the most part, participants produced far fewer items (approximately 12 per participant across the two groups) than the 20 that were suggested. The items that participants generated were subjected to a detailed initial process of categorization, in which semantically related

items (i.e., the actions listed by participants) for offence-related responses were grouped and given the same over-arching label. For example, in Vignette 1 many participants included items related to the label 'Physical' (e.g., "punch first if aggravated", "I hit him"). Category labels were devised in order to capture, at a semantic level, the main characteristic(s) of the grouped items. In creating the labels associated with particular vignettes (see relevant sections 2.5.2.1, 2.5.2.2, 2.5.2.3 and 2.5.2.4 for details) it was possible to categorise the overwhelming majority of the items for offence-related responses. Within this scheme, participants can provide responses in a single category (e.g., Physical) or several categories for a given vignette. Repeat actions for a given category were dealt with in the following two ways: for the purposes of the overall analyses all items were included in the sum totals; for the Log-linear analysis, a dichotomous coding is required in which case it is only on the first occasion of an item being mentioned for a particular category that it is counted. Rater reliability checks were conducted on a periodical basis (i.e., 2 additional visits with approximate 3 month intervals). For example, once the categories had been devised, several revisits to the items were made, where the items were blindly re-categorised using the existing labels. This process provided a high degree of stability in terms of the categorisation of the items, resulting in minimal re-categorisation.

Following analysis of the overall content of the participants' responses (number of offence-related responses in the groups and subgroups, number of items in each response, and mode of response), the principal method for analysing structure within this volume of categorical data is Log-Linear Analysis (Howitt & Cramer, 2005). The objective of log linear analysis is to find the most parsimonious model (i.e., the most economical model), which best accounts for the data by eliminating any categories, which have *not* significantly affected the difference between the saturated model (i.e., the model which accounts for all of the data) and the final most economical model (i.e., the parsimonious model). In situations where there are a large

number of categories, each containing zero or minimal frequency counts, it is better to collapse some categories together to increase the power of the test (Giles, 2002). This procedure is conducted in such a way as to provide a summary of those collapsed categories (e.g., in Vignette 2, a participant may describe a particular way of attacking a car, "scratch it", and another may simply refer to attacking the car in a more general way "do some damage", both of these would come under the category labelled as Vandalism). Howitt and Cramer (2005) note that the final parsimonious models should not be taken as the definitive outcome, and suggest that all the available information should be considered before a final interpretation of the results is made.

2.5. Results

2.5.1. Overall comparison between the Non-offender and the Offender groups.

The aim of the initial set of analyses was to provide a broad examination of the existence, content and extent of knowledge in specific, potential offence situations. This preliminary set of analyses includes all participants from both groups, incorporating all responses (i.e., offence and non-offence related) across all four vignettes. The analysis of each participant's data consisted of three components: (1) whether the response was an offence or a non-offence related response; (2) the number of action items mentioned within the responses; and (3) whether the participant responded as 'A' (e.g., an offender) or 'B' (as self).

Table 2a Frequency totals, followed by associated percentage values in brackets, for the number of non-offence versus offence responses provided by the Non-offender and the Offender groups.

Categories	Non-offence response totals	Offence response totals
Non-offenders N = 40	86 (53.75%); 15 Ps. = 3/4 response Ties = 15 participants	74 (46.25%); 10 Ps. = 3/4 response
Offenders N = 40	45 (28.12%); 3 Ps. = 3/4 response Ties = 11 participants	115 (71.87%); 26 Ps. = 3/4 response

Note: the figures in Table 2a are based on the total number of responses (i.e., from all participants in each of the given groups) designated as 'Non-offence' and 'Offence' responses. The table reads from left to right: Number of actual responses in a given category (i.e., non-offence or offence); associated percentage values in brackets; and the number of participants (Ps.) who provided three or four responses for that category. Included in the rows is the number of participants who provided ties (i.e., two non-offence and two offence related responses).

The participants were divided according to whether they produced 3 or 4 of the same response type (i.e., non-offence or offence). This categorisation is subsequently used in Section; 2.5.3. Inspection of Table 2a shows that the Non-offender group was somewhat more likely to produce non-offence related responses (i.e., 86) than offence related (i.e., 74). A Binomial test revealed that the proportion of participants in the Non-offender group who produced 3 or 4 non-offence responses (relative to the total number that provided 3 or 4 responses of either kind) was not significant, $p>0.05$. In contrast, inspection of Table 2a shows that the Offender group were more likely to produce offence related responses (i.e., 115) than non-offence related responses (i.e., 45). Table 2a also shows that there was a significant number of participants in the Offender group who produced 3 or 4 offence-related responses (relative to those producing 3 or 4 responses of either kind) $p<0.05$. A Fisher's Exact Probability test confirmed that there was a difference in the proportions of participants producing offence related responses $p<0.05$. Moreover, a Mann-Whitney U test showed that the number of offence related responses provided by the two groups differed significantly ($Z = -4.259$; $p<0.01$).

Table 2b: Means and SEMs for the number of actions (i.e., Non-offence versus Offence), provided by the Non-offender and the Offender groups.

Non-offenders N = 40		Offenders N = 40	
Non-offence actions	3.60 (0.511)	Non-offence actions	1.80 (0.291)
Offence actions	9.53 (1.098)	Offence actions	14.98 (0.886)

Inspection of Table 2b also reveals that the mean number of action items for offence related responses was greater than the actions for the non-offence related responses. It is also apparent that while the Offender group produced more action items for offence related responses than did the Non-offender group, if anything the reverse was the case in respect to the items in non-offence related responses. An ANOVA with group and actions (i.e., offence versus non-offence) as factors revealed a significant effect of group ($F_{(1,78)}=9.331$; $p<0.05$), an effect of actions ($F_{(1,78)}=112.414$; $p<0.01$), and an interaction between these two factors ($F_{(1,78)}=16.197$; $p<0.01$). Analysis of simple main effects revealed that there was an effect of action in both groups ($F_{(1,78)}=21.63$; $p<0.01$), and that there was an effect of group for the offence items ($F_{(1,136)}=25.42$; $p<0.01$), but not the non-offence items ($F_{(1,136)}=2.77$; $p>0.09$). In summary, both groups produced more offence related items than non-offence related items. This is surprising in the context of the Non-offender group (who, unlike the offender group, produced a relatively equal number of offence and non-offence responses). The implication of this finding is that participants tend to produce more items (per response) for offence related than non-offence related responses.

Table 2c: Frequency totals and associated percentage values for mode of choice (i.e., A = offender or B = self) for both the Non-offender and Offender groups.

	Non-offenders, N = 40	Offenders, N = 40
Choice 'A'	40 (25%)	8 (5%)
Choice 'B'	120 (75%)	152 (95%)
Offence 'A'	26 (35.14%)	5 (4.35%)
Offence 'B'	48 (64.86%)	110 (95.65%)

Note: There were five ties (i.e., participants who provided two choice A's and two choice B's) in the Non-offender group and one tie in the Offender group, all of which were excluded from the Binomial test.

The upper rows of Table 2c, show that pooled across all responses both of the groups were more likely to use choice 'B' over choice 'A'. Binomial tests conducted on the frequencies in the upper rows confirmed that a significantly greater proportion of responses were made using option B in both groups, $ps<0.01$. A Fisher's Exact Probability test confirmed that the proportions who chose A and B in the two groups were significantly different, $p<0.05$. The lower rows of Table 2c show the options used for offence related responses. Inspection of these frequencies reveals that both groups were more likely to use option B than A, but that this bias was most apparent in the Offender group. Binomial tests confirmed that there was a bias to choose option B in the Offender group, $p<0.01$, but not in the Non-offender group, $p>0.05$. A Fisher's Exact Probability test confirmed the impression that the proportions of offence choice A and offence choice B differed significantly between the two groups, $p<0.05$.

2.5.2. Log-linear analysis

A log-linear analysis is used to determine the most economical model of categories for each vignette in both the Non-offender and Offender groups. To do so, each response to a vignette was converted into a set of categories. For example, in the potential physical assault vignette (Vignette 1) a participant might have produced four items relating to the category labelled 'Physical', two relating to the category labelled 'Verbal' and none relating to the category

labelled 'Depends'. This response would be coded as 0, 0, 1 (i.e., 0 represents presence and 1 represents absence). Each of these analyses is preceded by a table showing associated frequency totals and percentage values of category occurrences. These analyses were supplemented by standard nonparametric tests (Binomial tests) conducted on the basis for participants to provide a *complete offence response* (in this example: 'Physical*Verbal*Depends') versus all *other* categorical responses, and the Fisher's Exact Probability test was used to compare the proportions of complete offence response/other responses between groups.

2.5.2.1. Vignette 1: Potential Physical Assault

Vignette 1 is about the potential for a physical assault, which typically occurs on a street. The category labels for listed actions were as follows: (1) 'Physical' (e.g., "I hit him", "punch first if aggravated"). In this category, responses are included which related directly to a physical assault. (2) 'Verbal' (e.g., "if he's rude, say lets go then", "I'll knock you out"). Here, actions are included that related to a verbal assault, which might be: a pre-physical offence; during the physical attack or post attack. (3) 'Depends' (e.g., includes such actions as "see what he does" and "give him a chance to back down"). It is likely that a response in this category marks an individual's contribution or readiness for participation in an aggressive act.

Table 3a: Vignette 1 (Potential Physical Assault) frequency counts and associated percentages of occurrence for the categories 'Physical', 'Verbal' and 'Depends' for both the Non-offender and the Offender groups.

	Non-offenders N = 40	Offenders N = 40
Categories	Cases	Cases
Non-offence responses	21 (52.5%)	12 (30%)
Physical	3 (7.5%)	3 (7.5%)
Verbal	0 (0%)	3 (7.5%)
Depends	0 (0%)	0 (0%)
Physical*Verbal	6 (15.6%)	12 (30%)
Physical*Depends	1 (2.5%)	0 (0%)
Verbal*Depends	1 (2.5%)	1 (2.5%)
Physical*Verbal*Depends	8 (20%)	9 (22.5%)

Inspection of Table 3a reveals that the cell with the highest percentage was for the categories 'Physical*Verbal' in the Offender group. The cell with the highest percentage in the Non-offender group was for the response that included all of the categories (that is, the *complete offence response*). Binomial tests revealed that there was no bias toward using the complete offence response (rather than the remaining/other categories) in either of the two groups, *ps*>0.05. Independent log-linear analysis was conducted on the two groups using only those participants who provided an offence related response.

Table 3b: Summary of Log-linear modelling from Vignette 1 (Potential Physical Assault) for both the Non-offender and the Offender groups.

Non-offender group N = 19	Estimate	Std. Error	Z	Sig.
Constant	-2.251	1.094	-2.058	.040
Physical	2.890	1.027	2.814	.005
Verbal	1.322	.563	2.349	.019
Offender group N = 28				
Constant	-1.540	.740	-2.082	.037
Physical	1.792	.540	3.318	.001
Verbal	2.120	.611	3.470	.001

Note: The table shows the groups and the number of participants included in the analyses. The 'Estimate' column shows the ratio to respond or not respond in the specified category (in this case, physical or verbal). The 'Z' column indicates the relative importance of the category in explaining the frequencies in the table (e.g., Table 3a). The higher the Z score, the greater the contribution of the corresponding cell to the overall strength of the relationships in the distribution of the data. The significance values show that the particular cell is contributing to the explanation of the data in Table 3a.

The final parsimonious model for the Non-offender group was not significantly different from the saturated model (likelihood ratio, LR (5, N=19) $\chi^2 = 3.207$; p>0.05), which included the categories 'Physical' and 'Verbal'. Inspection of the upper rows of Table 3b shows that whilst both categories significantly contributed to the model (see the significance column), the category 'Physical' contributed the most to the model (i.e., the Z value is greater for 'Physical' than 'Verbal'). The lower rows of Table 3b show that the categories 'Verbal' and 'Physical' are contributing significantly to the model for the Offender group. Although it is the category 'Verbal' which is contributing the most (i.e., see the Z column). Similarly, the Offender group's final parsimonious model was also not significantly different from the saturated model (LR (5, N=28) $\chi^2 = 6.618$; p>0.05).

In summary, the categories 'Physical' and 'Verbal' were critical to both groups with both models being a good fit to the data. The results indicate that there is little difference in the response structure between the two groups in their offence-related responses. The two groups did not differ in the proportion of complete offence responses: Offender group = 9/28 (i.e., 9 complete offence response versus 19 other) and Non-offender group = 8/19 (8 complete versus 11 other), $p>0.05$ (Fisher's Exact Probability).

2.5.2.2. Vignette 2: Potential Car Vandalism

Vignette 2 is about the potential for vandalism to a motor vehicle parked on a street. The categories are labelled as: (1) 'Approach' (e.g., "go to car", "then walk up to it"). Responses included in this category require an individual to indicate that they are moving towards the car with the intention of committing a criminal offence. (2) 'Observe' (e.g., "look around", "look about check it's clear"). This category is concerned with comments that are related to a second phase of the criminal act, in terms of checking whether there are witnesses and suitability of the target. (3) 'Vandalise', (e.g., "wreck the car", "puncture all the tyres"). This category refers to the actual act of vandalism.

Table 4a: Vignette 2 (Potential Car Vandalism) frequency counts and associated percentage values for the categories 'Approach', 'Observe' and 'Vandalise' for both the Non-offender and Offender groups.

	Non-offenders N = 40	Offenders N = 40
Categories	Cases	Cases
Non-offence responses	23 (57.5%)	7 (17.5%)
Approach	2 (5%)	5 (12.5%)
Observe	0 (0%)	0 (0%)
Vandalise	4 (10%)	7 (17.5%)
Approach*Observe	0 (0%)	0 (0%)
Approach*Vandalise	9 (22.5%)	12 (30%)
Observe*Vandalise	2 (5%)	8 (20%)
Approach*Observe*Vandalise	0 (0%)	1 (2.5%)

Inspection of Table 4a shows that the cell with the highest percentage was for the interaction of categories, 'Approach*Vandalise' in the Offender group. Similarly, the Non-offender group's corresponding cell was for the same interaction of categories. Unsurprisingly, there was a significant bias towards the 'other' category in both groups, $ps<0.05$ (Binomial tests). Independent log-linear analysis was conducted on the two groups using those participants who provided an offence related response.

Table 4b: Summary of log-linear modelling for Vignette 2 (Potential Car Vandalism) for both the Non-offender group and the Offender group.

Non-offender group N = 17	Estimate	Std. Error	Z	Sig.
Constant	-.473	.785	- .603	.546
Observe	-2.015	.753	-2.677	.007
Vandalise	2.015	.753	2.677	.007
Offender group N = 33				
Constant	.503	.498	1.010	.313
Observe	-.981	.391	-2.509	.012
Vandalise	1.723	.485	3.548	.001

The final parsimonious model for the Non-offender group included the categories: 'Observe' and 'Vandalise', although the model is significantly different from the saturated model (LR (4, N=17) χ^2 = 6.561; p<0.05). This fact indicates that the distribution of the data cannot be adequately explained without the saturated model. The results for the Offender group, shown in the lower half of Table 4b, reveal that the parsimonious model also consists of the categories 'Observe' and 'Vandalise', but is a good fit to the data (LR (4, N=33) χ^2 = 17.696; p>0.05). Inspection of the 'Z' column in Table 4b indicates that the category 'Vandalise' is contributing the most to the models for both groups.

In summary, there was a greater tendency for responses in the Offender group to include associations between categories than in the Non-offender group. The log-linear analysis confirmed that observation by revealing that the categories 'Observe' and 'Vandalise' were critical to the Offender group. In contrast the parsimonious model for the Non-offender group inadequately explained the data. However, the Offender group did not produce a greater proportion of complete offence response (i.e., 1/33) than the Non-offender group (0/17). A Fisher's Exact Probability test confirmed that there was no difference in these proportions between the two groups, p>0.05.

2.5.2.3. Vignette 3: Potential Car Theft

Vignette 3 was about the potential for cars being stolen, or otherwise interfered with, when parked on a street. The categories are labelled in the following ways: (1) 'Approach' (e.g., "see car", "cross over to it"). The category encapsulates the beginnings of the offence, where the individual moves towards the target vehicle and observes the surroundings for witnesses and target suitability. (2) 'Break-in' (e.g., "pull open top of door", "use screw driver to bust lock"). This category includes responses that are committing a criminal act, in terms of breaking into the vehicle. (3) 'Drive-away', (e.g., "drive it", "joy riding"). This category relates to actually taking the car away.

Table 5a: Vignette 3 (Potential Car Theft) frequency totals and associated percentage values for the categories 'Approach', 'Break-in' and 'Drive-away' for both the Non-offender and Offender groups.

	Non-offenders N = 40	Offenders N = 40
Categories	Cases	Cases
Non-offence responses	15 (37.5%)	13 (32.5%)
Approach	0 (0%)	0 (0%)
Break-in	0 (0%)	0 (0%)
Drive-away	0 (0%)	1 (2.5%)
Approach*Break-in	1 (2.5%)	0 (0%)
Approach*Drive-away	3 (7.5%)	1 (2.5%)
Break-in*Drive-away	17 (42.5%)	10 (25%)
Approach*Break-in*Drive-away	4 (10%)	15 (37.5%)

Table 5a shows that the cell with the highest percentage is for the interaction of categories 'Break-in*Drive-away' in the Non-offender group; and that the cell with the highest percentage for the Offender group was in the complete offence response. The Non-offender

group showed a bias to the 'other' category, $p<0.05$, whereas the Offender group did not, $p>0.05$ (Binomial tests). A log-linear analysis was conducted for the participants in the two groups who provided an offence related response.

Table 5b: Summary of log-linear modelling for Vignette 3 (Potential Car theft) for both the Non-offender and the Offender groups.

Non-offender group N = 25	Estimate	Std. Error	Z	Sig.
Constant	-2.813	1.136	-2.476	.013
Break-in	1.992	.615	3.237	.001
Drive-away	3.178	1.020	3.117	.002
Offender group N = 27				
Constant	5.10E-012	.707	.000	1.000
Break-in*Drive-away	2.526	.735	3.437	.001

The final parsimonious model for the Non-offender group included the categories 'Break-in' and 'Drive-away', but was significantly different from the saturated model (LR (5, N=25) χ^2 = 14.468; $p<0.05$) indicating that a model cannot adequately explain the distribution of the data without the saturated model. Conversely, the parsimonious model for the Offender group included the interaction of categories 'Break-in*Drive-away' and was not significantly different from the saturated model (LR (2, N=27) χ^2 = 1.007; $p>0.05$), indicating a good fit to the data.

Finally, the Offender group produced a greater proportion of complete offence responses (15/27) compared to the Non-offender group (4/25), $p<0.05$, Fisher's Exact Probability test.

2.5.2.4. Vignette 4: Potential burglary

Vignette 4 is about a potential house burglary. The categories are labelled as: (1) 'Approach' (e.g., "look around the premises", "smash window to get in"). The category includes responses which relate to the initial stage of committing a burglary, such as looking around, breaking in and entering; (2) 'Search' (e.g., "first to main bedroom", "go through each room in order"). This category is related to search methods of the intruder; (3) 'Steal' (e.g., "grab what's there", "take stuff which can be sold easy"). This category includes responses that are related to the actual theft of property once inside the premises.

Table 6a: Vignette 4 (Potential Burglary) frequency totals and associated percentage values for the categories 'Approach', 'Search' and 'Steal' for both the Non-offender and the Offender groups.

	Non-offenders N = 40	Offenders N = 40
Categories	Cases	Cases
Non-offence responses	26 (65%)	12 (30%)
Approach	1 (2.5%)	0 (0%)
Search	1 (2.5%)	0 (0%)
Steal	0 (0%)	0 (0%)
Approach*Search	4 (10%)	3 (7.5%)
Approach*Steal	0 (0%)	0 (0%)
Search*Steal	0 (0%)	1 (2.5%)
Approach*Search*Steal	8 (20%)	24 (60%)

Inspection of Table 6a shows that the cell with the highest percentage is for the complete offence response in the Offender group. The Non-offender group's highest percentage response was also for the corresponding cell. The Non-offender group showed no bias for the complete offence response, $p>0.05$, but the Offender group did show such a bias, $p<0.05$ (Binomial tests). A log-linear analysis was conducted on the two groups using the participants who provided an offence related response.

Table 6b: Summary of Log-linear modelling for Vignette 4 (Potential Burglary) for both the Non-offender group and the Offender groups.

Non-offender group N = 14	Estimate	Std. Error	Z	Sig.
Constant	-1.036	.844	-1.227	.220
Approach	1.705	.769	2.218	.027
Offender group N = 28				
Constant	-2.388	.849	-2.814	.005
Approach	.916	.418	2.190	.028
Search	2.120	.611	3.470	.001
Steal	2.120	.611	3.470	.001

The final parsimonious model for the Non-offender group included the category 'Approach' and was not significantly different from the saturated model (LR (4, N=13) χ^2 = 6.788; p>0.05). The Offender group's final parsimonious model included the categories, 'Approach', 'Search' and 'Steal'. Similarly, this model was also not significantly different from the saturated model (LR (4, N=28) χ^2 = 5.384; p>0.05). In both groups the parsimonious models consisted of a category or categories, which contributed significantly towards their composition, showing that the models are a good fit to the data. The model for the Offender group included more categories than that for the Non-offender group.

In summary, the Offender group produced a greater proportion of complete offence categories (24/28) than the Non-offender group (8/14), but statistical analysis showed that this difference failed to reach the conventional level of statistical significance (p=0.059; Fisher's Exact Probability test).

2.5.2.5. Overview of the results

The results show that the Offender group produced more offence-related responses than the Non-offender group. Participants in the Offender group also showed more evidence of structuring to their responses, in the sense that many included all of the categories (49 of a possible 116 offence related responses); there was less evidence of such structuring in the Non-offender group (13 of a possible 74; $p<0.05$; Fisher's Exact Probability test). The contrast between the groups in terms of producing a complete offence response was most apparent for the Potential burglary and Potential car theft vignettes (Offender group: 39 of a possible 55 offence-related responses; Non-offender group: 12 of a possible 39; $p<0.05$; Fisher's Exact Probability test).

2.5.3. Overall comparison between Non-offenders and repeat Offenders who provided 3 or more offence-related responses

The previous series of analyses conducted on Non-offenders and Offenders was to examine the existence, content and extent of procedural knowledge for offence related situations. However, Halliday (2001) makes a distinction between different types of offenders and categorises, including those offenders with three or more convictions as labelled habitual[1]. As noted in Chapter 1, the issue of the influence of experience on underlying procedural or script knowledge is an interesting one that will be addressed in Chapter 3, in which an older group of participants are assessed. However, it is also possible to address this issue within the first cohort of participants. Thus, a further series of analyses was conducted on a subgroup of habitual offenders from the original Offender group and a comparison subgroup from the original Non-offender group. The Offender subgroup consisted of those participants who self-

1. Offenders can be sub-categorised in different ways, such as according to the volume of convictions over time and crime type (Halliday, 2001). For the purposes of this current research, only the basic categorisation of

declared three or more convictions. Furthermore, because the purpose of this study was to examine the procedural knowledge of habitual offenders across a range of scenarios, another criteria was applied (i.e., only those who provided 3 or more offence related responses were included). This second distinction also provided the inclusion criteria for the comparison Non-offender subgroup.

Table 7: Overall summary of all four vignettes incorporating: the frequency totals and associated percentages for the number of offence related responses (upper row); Sum totals, means and SEMs for the number of offence related items within the responses (middle row); Frequency totals and associated percentage values for the number of offence choices for both the Non-offender and Offender subgroups (lower row).

	Non-offenders N = 10	Offenders N = 26
Offence		
Responses	31 of a possible 40 (77.5%)	91 of a possible 104 (87.5%)
Actions	182; mean=18.20 (SEM=2.180)	474; mean=18.23 (SEM=.745)
Choices	A = 8 (26%) B = 23 (74%)	A = 4 (4.4%) B = 87 (95.6%)

Note: The figures in Table 7 are based on the total number of responses in each category of 'Offence' and 'Non-offence' for the subgroups.

Inspection of Table 7 (see upper rows) reveals that the number of offence related responses was relatively similar in the two groups. A Mann-Whitney U test confirmed this impression ($Z = -2.174$: $p>0.05$). Table 7 (see middle rows) also shows the number of items or actions produced for the offence-related responses. An ANOVA confirmed the impression that the groups did not differ appreciably in the number of offence actions that they produced $F_{(1,34)} = .001$; $p>0.05$). Finally, Table 7 (see lower rows) shows that participants in the Offender subgroup were more likely to use option 'B' when making an offence response than those in the Non-offender subgroup. Fisher's Exact Probability confirmed that there was a difference in the proportions of A/B choices between the two groups $p<0.05$. Mann-Whitney U tests showed that the groups differed in their use of option B ($Z = -3.248$; $p<0.05$), although not in

'habitual' (i.e., 3 convictions or more vs. less than 3 convictions) is used.

their use of option A ($Z = -2.481$; $p>0.05$).

2.5.3.1. Vignette 1: Potential Physical Assault

Table 8a: Vignette 1 (Potential Physical Assault) frequency totals and associated percentage values for categories 'Physical', 'Verbal' and 'Depends' for both the Non-offender and the Offender subgroups who provided 3 or more offence related vignettes.

	Non-offenders N = 10	Offenders N = 26
Categories	Cases	Cases
Non-offence responses	1 (10%)	5 (19.2%)
Physical	1 (10%)	2 (7.6%)
Verbal	0 (0%)	1 (3.8%)
Depends	0 (0%)	0 (0%)
Physical*Verbal	4 (40%)	11 (42.3%)
Physical*Depends	0 (0%)	0 (0%)
Verbal*Depends	0 (0%)	1 (3.8%)
Physical*Verbal*Depends	4 (40%)	6 (23%)

Inspection of Table 8a reveals that the cell with the highest percentage was for the categories 'Physical*Verbal' in the Offender subgroup. The Non-offender subgroup's highest percentage was also for the interaction of categories 'Physical*Verbal' and the complete offence response (i.e., 'Physical*Verbal*Depends'). Binomial tests revealed that there was no bias toward using the complete offence response in either of the two subgroups, $ps>0.05$. Independent log-linear analysis was conducted on the two subgroups using only the participants who provided offence related responses.

Table 8b: Summary of log-linear modelling for Vignette 1 (Potential Physical Assault) for both the Non-offender and the Offender subgroups who provided three or more offence related responses.

Non-offender subgroup N = 9	Estimate	Std. Error	Z	Sig.
Constant	-.693	1.000	-.693	.488
Verbal	2.079	1.061	1.961	.050
Offender subgroup N = 21				
Constant	-2.351	.976	-2.409	.016
Physical	2.251	.743	3.028	.002
Verbal	2.251	.743	3.028	.002

The upper half of Table 8b reveals that the final parsimonious model for the Non-offender subgroup included the category 'Verbal'. The model was not significantly different from the saturated model (LR (2, N= 9) χ^2 = 1.386; p>0.05) indicating a good fit to the data. However, the upper half of Table 8b indicates that the category 'Verbal' was on the borderline of contributing significantly to the model. Similarly, in the lower half of Table 8b the Offender subgroup's parsimonious model included the categories 'Physical' and 'Verbal' and was also not significantly different from the saturated model (LR (5, N=21) χ^2 = 4.687; p>0.05) also indicating a good fit to the data.

In summary, the log-linear analysis suggested that the Offender subgroup produced more structured responses than the Non-offender subgroup (i.e., due to the additional category). A Fisher's Exact Probability test failed to confirm any difference between the proportions of complete offence responses in the two subgroups, p>0.05 (4/9 for the Non-offender subgroup and 6/21 in the Offender subgroup). The interpretation of the analysis for the Non-offender subgroup should be qualified by the observation that there were relatively few participants in the Non-offender subgroup. Notwithstanding this caveat, the results from the analysis of the

subgroups parallel those from the overall analysis (see Section 2.5.2.1).

2.5.3.2. Vignette 2: Potential Car Vandalism

Table 9a: Vignette 2 (Potential Car Vandalism) frequency totals and associated percentage values for the categories 'Approach', 'Observe' and 'Vandalise' for both the Non-offender and the Offender subgroups who provided three or more offence related responses.

	Non-offenders N = 10	Offenders N = 26
Categories	Cases	Cases
Non-offence responses	1 (10%)	1 (3.8%)
Approach	0 (0%)	5 (19.2%)
Observe	0 (0%)	0 (0%)
Vandalise	2 (20%)	5 (19.2%)
Approach*Observe	0 (0%)	0 (0%)
Approach*Vandalise	5 (50%)	9 (36%)
Observe*Vandalise	2 (20%)	6 (23%)
Approach*Observe*Vandalise	0 (0%)	0 (0%)

Table 9a shows that the cell with the highest percentage was for the categories 'Approach*Vandalise' in the Non-offender subgroup; and the corresponding cell with the highest percentage was also for the same interaction of categories in the Offender subgroup. Binomial tests confirmed that there was a bias towards the 'other' category in both the subgroups $ps<0.05$. Independent log-linear analysis was conducted on the two subgroups using only the participants who provided an offence related response.

Table 9b: Summary of log-linear modelling for Vignette 2 (Potential Car Vandalism) for both the Non-offender and the Offender subgroups for participants who provided three or more offence-related responses.

Non-offender subgroup N = 9	Estimate	Std. Error	Z	Sig.
Constant	1.135	.531	2.138	.032
Observe	-1.253	.802	-1.563	.118
Offender subgroup N = 25				
Constant	-17.953	.715	-25.111	.001
Vandalise	19.562	.558	35.072	.001

Table 9b shows that the final parsimonious model for the Non-offender subgroup included the category 'Observe', but produced a significantly different model from the saturated model (LR (1, N=9) χ^2=; p<0.05). The category closest to a significant contribution was 'Observe' and therefore the model was not a good fit to the data. In contrast, the Offender subgroup's parsimonious model included the category 'Vandalise'. This model was not significantly different from the saturated model (LR (2, N=25) χ^2 = 1.000; p>0.05), indicating that 'Vandalise' was a strong contributor within the model which was collectively a good fit to the data. Given the zero count for complete offence responses in both subgroups it is not surprising that there was no difference between the proportions of complete/other responses, p<0.05 (Fisher's Exact Probability Test).

The analysis for the Offender subgroup reveals a broadly similar pattern to the overall analysis with the exceptions that 'Observe' was not a part of the final parsimonious model in the Offender subgroup and the absence of 'Vandalise' in the Non-offender subgroup (see Section 2.5.2.2).

2.5.3.3. Vignette 3: Potential Car Theft

Table 10a: Vignette 3 (Potential Car theft) frequency totals and associated percentage values for both the Non-offender and Offender subgroups that provided 3 or more offence related responses.

	Non-offenders N = 10	Offenders N = 26
Categories	Cases	Cases
Non-offence responses	1 (10%)	3 (11.5%)
Approach	0 (0%)	0 (0%)
Break-in	0 (0%)	0 (0%)
Drive-away	0 (0%)	1 (3.8%)
Approach*Break-in	0 (0%)	0 (0%)
Approach*Drive-away	1 (10%)	0 (0%)
Break-in*Drive-away	5 (50%)	6 (23.2%)
Approach*Break-in*Drive-away	3 (30%)	16 (61.5%)

Table 10a shows that the cell with the highest percentage is for the complete offence response in the Offender subgroup; the corresponding cell with the highest percentage in the Non-offender subgroup is for the interaction of categories 'Break-in*Drive-away'. Parallel Binomial tests revealed that both the Non-offender and the Offender subgroups showed no bias towards the complete offence response, $ps>0.05$. Independent log-linear analysis was conducted on the two subgroups using only the participants who provided an offence related response.

Table 10b: Summary of log-linear modelling from Vignette 3 (Potential Car theft) for both the Non-offender and Offender subgroups who provide three or more offence related responses.

Non-offender subgroup N = 9	Estimate	Std. Error	Z	Sig.
Constant	-.693	1.000	-.693	.488
Break-in	2.079	1.061	1.961	.050
Offender subgroup N = 23				
Constant	-.693	1.000	-.693	.488
Break-in	3.091	1.022	3.023	.002

The final parsimonious model for the Non-offender subgroup, shown in the upper half of Table 10b was not significantly different from the saturated model (LR (2, N=9) χ^2 =1.892; p>0.05). The model included the category 'Break-in', although it was on the borderline of contributing significantly to the model. The Offender subgroup's final parsimonious model was also non significant (LR (2, N=23) χ^2 = 6.103; p>0.05), and also included the category 'Break-in'. The models suggest that the category 'Break-in' is critical to both subgroups. In addition to the two models being a good fit to the data, the two subgroups did not differ in terms of the proportions of complete offence responses: 3/9 for the Non-offender subgroup and 16/23 for the Offender subgroup, p>0.05 (Fisher's Exact Probability test).

The pattern of results observed for the Offender subgroup was similar to the Offender group, though the category 'Drive-away' was dropped from the final parsimonious model in the Offender subgroup. Similarly, the final parsimonious model for the Non-offender subgroup, unlike the group from which it was drawn, also did not include the category 'Drive-away' (see Section 2.5.2.3).

2.5.3.4. Vignette 4: Potential Burglary

Table 11a: Vignette 4 (Potential Burglary) frequency totals and associated percentages for the categories 'Approach', 'Search' and 'Steal' for both the Non-offender and Offender subgroups who provided three or more offence-related responses.

	Non-offenders N = 10	Offenders N = 26
Categories	Cases	Cases
Non-offence responses	6 (60%)	4 (15.3%)
Approach	0 (0%)	0 (0%)
Search	0 (0%)	0 (0%)
Steal	0 (0%)	0 (0%)
Approach*Search	0 (0%)	0 (0%)
Approach*Steal	2 (20%)	2 (7.7%)
Search*Steal	0 (0%)	5 (19.3%)
Approach*Search*Steal	2 (20%)	15 (57.7%)

Inspection of Table 11a shows that the cell with the highest percentage was for the categories 'Approach*Search*Steal' in the Offender subgroup; the corresponding cell with the highest percentage for the Non-offender subgroup was also for the same category, but with the addition of the categories 'Approach*Steal'. There was no bias towards the complete offence response in either the Non-offender or the Offender subgroups, *ps*>0.05 (Binomial tests). Independent log-linear analysis was conducted on the two subgroups using only the participants who provided an offence-related response.

Table 11b: Summary of the log-linear modelling from Vignette 4 (Potential Burglary) for both the Non-offender and Offender subgroups for participants who provided three or more offence related responses.

Non-offender subgroup N = 4	Estimate	Std. Error	Z	Sig.
Constant	.916	.632	1.449	.147
Search	.000	.894	.000	1.000
Offender subgroup N = 22				
Constant	-.788	.809	-.975	.330
Approach*Steal	1.224	.509	2.405	.016
Search*Steal	2.303	.742	3.105	.002

Table 11b shows that the final parsimonious model for the Non-offender subgroup was not calculable due a lack of power. However, the final parsimonious model for the Offender subgroup included the categories, 'Approach*Steal' and 'Search*Steal'. The model was not significantly different from the saturated model (LR (1, N=22) χ^2 = 1.089; p>0.05). However, a Fisher's Exact Probability test did not reveal any differences between the proportions of complete offence responses in the two subgroups p>0.05 (2/4 in the Non-offender subgroup and 15/28 in the Offender subgroup).

This pattern of results is in some respects similar to that observed for the overall groups, with the exception that 'Approach' was a part of the final parsimonious model in the Non-offender group instead of 'Search'. In addition, the categories 'Search' and 'Steal' formed the main effects for the final parsimonious model in the Offender group's overall results (see Section 2.5.2.4) as opposed to the interaction of categories observed in Table 11b.

2.5.3.5. Overview of results for the Non-offender and Offender subgroups

Although the subgroups of participants who produced three or four offence-related responses were relatively small (especially in the Non-offender group), the results still suggest that there was more structure to the responses produced by the Offender subgroup than the Non-offender subgroup. However, there was little indication that the pattern of results for the Offender subgroup and the Offender group as a whole were very different. These comparisons are, however, difficult given the fact that the Offender subgroup necessarily included a smaller number of participants than the whole group. Further discussion of the implications of these results is postponed until after an analysis of the next section of results is completed.

2.5.4.1. Comparison between Specialist and Versatile offenders from within the Offender group, who provided 3 or more offence-related responses.

Within the category of 'Offender' there are subcategories based on either volume of crime or crime type (Halliday, 2001). One distinction is made between different types of habitual offenders based on the type of crimes committed. One category, labelled as 'Specialist' offenders, are those who have three or more convictions for the same offence type, and, a second category, labelled 'Versatile' offenders, are those who have three or more convictions for different offence types (Farrington, 1996; Klein, 1984). For the purposes of the final set of analyses in Chapter 2, this distinction has been adopted, with the exception that it is based upon self-reports of convictions. In addition, the three or more offence-related responses criterion, that was adopted in the previous series of analyses, has been retained in the current series to provide continuity and because of the aim of the study (i.e., to examine the content and extent of responses across scenarios by habitual offenders). However, due to the low numbers of recruited participants who could be categorised as 'Specialists' in any given offence type, all those categorised as 'Specialists' are grouped for the purposes of this study

(e.g., specialist car thieves and specialist burglars are placed into the same group). The composition of the Specialist group was as follows: three violent specialist offenders (of which only one provided three or more offence responses); no vandalism specialists; eight 'car thief specialists' of which seven provided three or more offence-related responses; and two burglary specialists, both of whom provided three or more offence-related responses.

Table 12: Overall summary of all four vignettes incorporating: the frequency totals and associated percentages for the number of offence related responses (upper row); Sum totals, means and SEMs for the number of offence related items within the responses (middle row); Frequency totals and associated percentage values for the number of offence choices for both the Specialist and Versatile subgroups (lower row).

	Specialists N = 10	Versatiles N = 16
Offence		
Responses	34 of a possible 40 (85%)	57 of a possible 64 (87.7%)
Actions	194; mean=19.40 (SEM=1.157)	280; mean=17.50 (SEM=.953)
Choices	A = 4 (11.76%); B = 30 (88.24%)	A = 0 (0%); B = 57 (100%)

Inspection of the upper rows of Table 12 shows that the Versatile subgroup produced a marginally higher percentage for the number of offence responses. However, a Fisher's Exact Probability test revealed that there was no difference in the proportion of offence responses, $p>0.05$. The Middle rows of Table 12 show that the mean value of offence actions for the Specialist subgroup is somewhat higher than the Versatile subgroup, although an ANOVA showed that this difference was not significant ($F_{(1,24)} = 1.576$; $p>0.05$). The lower rows of Table 12 show that the Specialist subgroup chose option 'A' predominately, whereas the Versatile subgroup chose 'B' predominately. A Fisher's Exact Probability test confirmed that there is a significant difference in the proportions choosing A/B between the two subgroups, $p<0.01$. This is a dramatic difference between the subgroups, the basis for which is not immediately apparent. However, it does confirm that the two subgroups, which were created on the basis of self-reported criminal activity, differ in another respect.

2.5.4.2. Vignette 1: Potential Physical Assault

Table 13a: Vignette 1 (Potential Physical assault) frequency totals and associated percentage values for the categories 'Physical', 'Verbal' and 'Depends' for the Specialist and Versatile subgroups.

	Specialists N = 10	Versatiles N = 16
Categories	Cases	Cases
Non-offence responses	3 (30%)	2 (12.5%)
Physical	1 (10%)	1 (6.2%)
Verbal	0 (0%)	1 (6.2%)
Depends	0 (0%)	0 (0%)
Physical*Verbal	6 (60%)	5 (31.2%)
Physical*Depends	0 (0%)	0 (0%)
Verbal*Depends	0 (0%)	1 (6.2%)
Physical*Verbal*Depends	0 (0%)	6 (37.5%)

Table 13a shows that the cell with the highest percentage was for the categories 'Physical*Verbal' in the Specialist subgroup; the corresponding cell with the highest percentage in the Versatile subgroup was for the complete offence category (i.e., 'Physical*Verbal*Depends'). Binomial tests confirmed that the Specialist subgroup showed a bias towards the 'other' category, $p<0.05$, but there was no such bias shown for the Versatile subgroup $p>0.05$. Independent log-linear analysis was conducted on the two subgroups using the participants who provided an offence-related response.

Table 13b: Summary for log-linear modelling from Vignette 1 (Potential Physical Assault) in both the Specialist and Versatile subgroups.

Specialist subgroup N = 7	Estimate	Std. Error	Z	Sig.
Constant	.405	.816	.497	.619
Verbal	1.466	.906	1.619	.105
Versatile subgroup N = 14				
Constant	-2.639	1.225	-2.155	.031
Physical	1.792	.764	2.346	.019
Verbal	2.565	1.038	2.472	.013

The upper half of Table 13b reveals that the final parsimonious model for the Specialist subgroup included the category 'Verbal', though this was a significantly different model from the saturated model, thus a goodness-of-fit test was not compiled. As shown in the lower half of Table 13b, the Versatile subgroup's parsimonious model included the categories 'Physical' and 'Verbal' and was not significantly different from the saturated model (LR (4, N=14) χ^2 = 1.798; p>0.05). The two categories contributed significantly to the model.

The results from this analysis, albeit on a relatively small sample, suggest that the Specialist and Versatile subgroups differ in the pattern of the categories used in their responses to this vignette. However, the Fisher's Exact Probability test showed that there was no significant difference between the proportions of complete offence responses between the groups (p>0.05; 0/7 for the Specialist subgroup versus 6/8 for the Versatile subgroup).

2.5.4.3. Vignette 2: Potential Car Vandalism

Table 14a: Vignette 2 (Potential Car Vandalism) frequency totals and associated percentages for the categories 'Approach', 'Observe' and 'Vandalise' for both the Specialist and the Versatile offender subgroups.

	Specialist N = 10	Versatiles N = 16
Categories	Cases	Cases
Non offence response	0 (0%)	1 (6.2%)
Approach	0 (0%)	5 (31.2%)
Observe	0 (0%)	0 (0%)
Vandalise	2 (20%)	3 (20%)
Approach*Observe	0 (0%)	0 (0%)
Approach*Vandalise	4 (40%)	5 (18.7%)
Observe*Vandalise	4 (40%)	2 (12.5%)
Approach*Observe*Vandalise	0 (0%)	0 (0%)

Table 14a reveals that the cell with the highest percentage is for the interaction of categories 'Approach*Vandalise' and 'Observe*Vandalise' in the Specialist subgroup; the corresponding cell with the highest percentage in the Versatile subgroup was the category 'Approach'. Binomial tests showed a bias towards the 'other' category in both subgroups, $ps<0.05$. Independent log-linear analysis was conducted on the two subgroups using only the participants who provided an offence related response.

Table 14b: Summary of log-linear modelling from Vignette 2 (Potential Car vandalism) for both the Specialist and Versatile subgroup.

Specialist subgroup N = 10	Estimate	Std. Error	Z	Sig.
Constant	1.281	.483	2.653	.008
Approach	-.405	.645	-.628	.530
Observe	-.405	.645	-.628	.530
Versatile subgroup N = 15				
Constant	-18.179	.856	-21.228	.000
Approach	19.788	.730	27.096	.001
Vandalise	19.277	.632	30.480	.001

The upper half of Table 14b reveals that the final parsimonious model for the Specialist subgroup included the categories 'Approach' and 'Observe', though the model was significantly different from the saturated model (LR (1, N=10) χ^2 = 5.822; p<0.05). The Versatile subgroup's final parsimonious model included the category 'Approach' and 'Vandalise'. Table 14b shows that both categories are contributing significantly to the model, which was not significantly different from the saturated model (LR (2, N=15) χ^2 = .000; p>0.05), and indicative of a good fit to the data. The proportions of complete offence responses did not differ significantly between the two subgroups (0/6 in the Specialist and 0/15 in the Versatile subgroup, p>0.05; Fisher's Exact Probability test).

2.5.4.4. Vignette 3: Potential Car Theft

Table 15a: Vignette 3 (Potential Car theft) frequency totals and associated percentages for the categories 'Approach', 'Break-in' and 'Drive-away' for both the Specialist and Versatile subgroups.

	Specialists N = 10	Versatiles N = 16
Categories	Cases	Cases
Non-offence response	0 (0%)	2 (12.5%)
Approach	0 (0%)	0 (0%)
Break-in	0 (0%)	0 (0%)
Drive-away	0 (0%)	1 (6.2%)
Approach*Break-in	0 (0%)	0 (0%)
Approach*Drive-away	0 (0%)	0 (0%)
Break-in*Drive-away	3 (30%)	4 (25%)
Approach*Break-in*Drive-away	7 (70%)	9 (56.2%)

Table 15a shows that the cell with the highest percentage is for the categories with the complete offence response in the Specialist subgroup (i.e., Approach*Break-in*Drive-away); the corresponding cell with the highest percentage for the Versatile subgroup was also for the complete offence response. There was no bias towards the complete offence response in either of the two subgroups, *ps*>0.05 (Binomial tests). Independent log-linear analysis was conducted for the two subgroups using only the participants who provided an offence related response.

Table 15b: Summary of log-linear modelling from Vignette 3 (Potential Car theft) for both the Specialist and Versatile subgroups.

Specialist subgroup N = 10	Estimate	Std. Error	Z	Sig.
Constant	1.253	.535	2.344	.019
Approach	.762	.647	1.177	.239
Versatile subgroup N = 14				
Constant	.368	.586	.627	.530
Approach	.588	.588	1.054	.292
Break-in	2.565	1.038	2.472	.013

The upper half of Table 15b reveals that the final model for the Specialist subgroup did not produce a parsimonious model, thus a goodness-of-fit test was not compiled. The Versatile subgroup's parsimonious model included the category 'Break-in' as a significantly contributing category. The model was not significantly different from the saturated model (LR (1, N=14) $\chi^2 = 2.201$; $p>0.05$), indicating a good fit to the data.

In summary, although the log-linear analysis provided some evidence that the groups differed in their responses to this vignette, the descriptive statistics are not consistent with this impression. The Fisher's Exact Probability test revealed that the proportion of complete offence responses (7/10 for the Specialist subgroup versus 9/14 for the Versatile subgroup) did not differ between the groups, $p>0.05$.

2.5.4.5. Vignette 4: Potential Burglary

Table 16a: Vignette 4 (Potential Burglary) frequency totals and associated percentages for the categories 'Approach', 'Search' and 'Steal' for both the Specialist and Versatile subgroups.

	Specialists N = 10	Versatiles N = 16
Categories	Cases	Cases
Non-offence responses	3 (30%)	1 (6.2)
Approach	0 (0%)	0 (0%)
Search	0 (0%)	0 (0%)
Steal	0 (0%)	0 (0%)
Approach*Search	0 (0%)	0 (0%)
Approach*Steal	0 (0%)	0 (0%)
Search*Steal	1 (10%)	0 (0%)
Approach*Search*Steal	6 (60%)	15 (93.7%)

Table 16a shows that the cell with the highest percentage is for the complete offence response (i.e., Approach*Search*Steal) in the Versatile subgroup; the corresponding cell with the highest percentage in the Specialist subgroup was also for the same category. Binomial tests showed that there was no bias towards the complete offence response in the Specialist subgroup, $p>0.05$, but there was in the Versatile subgroup, $p<0.05$. Independent log-linear analysis was conducted on the two subgroups using only the participants who provided an offence related response.

Table 16b: Summary of log-linear modelling from Vignette 4 (Potential burglary) for both the Specialist and Versatile subgroups.

Specialist subgroup N = 7	Estimate	Std. Error	Z	Sig.
Constant	-1.022	.846	-1.207	.227
Approach	.405	.645	.628	.530
Search	.847	.690	1.228	.219
Steal	.847	.690	1.228	.219
Versatile subgroup N = 15				
Constant	-5.368	1.696	-3.270	.001
Approach	2.708	1.033	2.622	.009
Search	2.708	1.033	2.622	.009
Steal	2.708	1.033	2.622	.009

The upper half of Table 16b reveals that the final parsimonious model for the Specialist subgroup included the categories 'Approach', 'Search' and 'Steal'. However, the model was significantly different from the saturated model (LR (4, N=7) χ^2 = 19.936; p<0.05). Similarly, the Versatile subgroup's parsimonious model also included the same categories and was also significantly different from the saturated model (LR (4, N=15) χ^2 = 14.963; p<0.05). This indicates that neither of the subgroups' models was a good fit to the data, probably due to the almost exclusive pooling of category occurrences at one end of the table. However, the lower rows of Table 16b show that unlike in the Specialist subgroup's parsimonious model, the categories are significantly contributing to the Versatile subgroup's final model.

In summary, both the Specialist and the Versatile subgroups produced a particularly high degree of structuring for offence-related responses with little difference between the two groups. However, the small group sizes coupled with the distribution of the data being skewed

at one end of the range require that the results are interpreted with some caution. The Versatile subgroup produced a large number of complete offence categories (15/15) as did the Specialist subgroup (6/7). Not surprisingly, the groups did not differ in this respect (Fisher's Exact Probability test $p>0.05$).

2.5.4.6. Overview of the results from the initial overall groups and the subgroups derived from the overall groups.

Table 17: Percentage chances of providing a complete offence category for each group and subgroup across all 4 vignettes.

	Non - offenders	Offenders	Subgroups with 3 or more offence related responses			
			Non-offenders	Offenders	Specialists	Versatiles
Vignettes	N = 40	N = 40	N = 10	N = 26	N = 10	N = 16
V 1	8 (20%)	9 (22.5%)	4 (40%)	6 (23.1%)	0 (0%)	6 (37.5%)
V 2	0 (0%)	1 (2.5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
V 3	4 (10%)	15 (37.5%)	3 (30%)	15 (57%)	7 (70%)	8 (50%)
V 4	4 (20%)	24 (60%)	0 (0%)	21(80.7%)	6 (60%)	15 (93.7%)

Note: Percentage figures are based on the total number of group members rather than those who gave offence-related responses.

Inspection of Table 17 shows that Vignette 1 (The Potential Physical Assault) and Vignette 4 (Potential Burglary) revealed evidence that the 'Versatile' subgroup were highly likely to provide responses for the complete offence category. There was somewhat less evidence for such responses in the 'Specialist' subgroup in Vignettes 1 and 2, but interpretation of this difference should be qualified by the relatively small sample of Specialists. Table 17 also shows that Vignette 2 yielded anomalous results across the groups and subgroups, in that there was consistently so few complete offence responses. Vignette 3 produced no clear difference between the 'Specialist' and 'Versatile' subgroups. Overall, however, the results suggest that it is the Versatile subgroup which is more likely to provide complete offence responses.

2.5.5.1. Discussion of Overall Analyses.

Scripts are assumed to be built up as the result of experience (Schank & Abelson, 1977): a person with limited restaurant experience, but with knowledge of their purpose (i.e., to eat), might not be expected to have a coherent script for what takes place in restaurants. Study 1 examined whether this type of analysis of knowledge for well-known events is applicable to various offence-related activities in a heterogeneous group of self-declared offenders, and subgroups of offenders within this group.

Study 1 showed that self-declared offenders produce a greater number of offence-related responses to the vignettes than self-declared non-offenders. This difference in the frequency of offence versus non-offence responses between the two groups is not surprising given the two groups were divided by those with and those without a self-declared offence history, and they were asked to provide responses to potential offence related situations. What is of interest, theoretically, is the content of those offence responses and any differences between them. It is the content of the responses that provide evidence related to the applicability of script theory to offence-related activities. I will now take each vignette in turn and consider whether the results from the vignettes are consistent with the suggestion that offenders are more likely to hold script type knowledge than non-offenders.

The results for Vignette 1 (Potential Physical Assault) revealed that both the Non-offender and Offender groups provided a structured response, pertaining to a general description of how an offence might occur: Log-linear modelling revealed a similar structure in the responses of both groups, and there was no difference in the proportions of participants in the two groups that produced the complete response (i.e., Physical*Verbal*Depends). This pattern of responses is consistent with previous research that has used a similar methodology to that used in Study 1 (i.e., Freedman, Rosenthal, Donahoe & Schlundt, 1978; Crick &

Dodge, 1996, 1994; Palmer & Hollin, 1996; Huesmann & Eron, 1989; Huesmann, 1994). In this previous research, as in the vignette in this thesis, offenders typically, but not exclusively, interpreted the cues within Vignette 1 as hostile and responded aggressively to those cues. The fact that the responses in the two principal groups in Study 1 did not differ suggests that both groups had similar knowledge structures relating to this type of incident. This is not particularly surprising given the fact that even self-declared non-offenders are likely to have witnessed, or been directly involved in, altercations of one sort or another.

The results in Vignette 2 (Potential Car Vandalism), like those of Vignette 1, did not reveal a marked difference between the Offender and Non-offender groups in the content of their responses. However, the log-linear analysis revealed a model for the responses of the Offender group, but not for the Non-offender group. This provides some evidence that the knowledge of the two groups differed, although it is clear from inspection of Tables 4a and 4b that any structure in the Offender group was still relatively impoverished in that there were very few complete offence responses (Approach*Observe*Vandalise), and the differences between the two groups were not marked. It is plausible to suppose that either the participants in both groups had minimal knowledge about the process of car vandalism, or that this vignette does not provide a window on this knowledge.

Unlike the previous two vignettes, Vignette 3 (Potential Car theft) provided evidence that the two groups differed markedly in their structural knowledge about the process of car theft. This was evident in the log-linear analysis, where there was a model for the Offender group, but not for the Non-offender group. Moreover, the Offender group provided a high frequency of the complete offence response (i.e., 'Approach*Break-in*Drive-away') and the proportion of these was significantly greater than in the Non-offender group. The complete offence response indicates that for these participants there is a series of stages to the event. Each stage

forms part of the overall sequence to criminal activity. The lower incidence of complete offence responses found in the Non-offender group, suggests that participants in that group possess less knowledge about the whole procedure. In addition, where there was an offence response it was incomplete (i.e., not the complete offence response), with participants producing categorical responses equating to parts of the process (e.g., 'Break-in') presumably as a consequence of a lack of experience or detailed knowledge about all the stages of the event as a whole.

The pattern of results observed from Vignette 3 for the Offender group in particular is consistent with earlier research by Cherbonneau and Copes (2006) Michael and Hull (1994) and Michael, Hull and Zahm (2001). Michael et al. (2001) observed that car thieves go through a series of routine stages when carrying out car theft. This routine typically involved techniques for avoiding immediate detection, followed by techniques for breaking into the vehicle, driving it away and eventually dumping it. The Offender group in this thesis demonstrated knowledge of a similar series of stages to those described above, in the sense that the categories of actions provided in response to the vignette were related to these stages.

The results from Vignette 4 (Potential Burglary) revealed that the Offender group produced a particularly high percentage for a complete offence response, which included each of the devised categories (i.e., 'Approach*Search*Steal'). As in Vignette 3, this indicates experience and detailed knowledge about the different stages that might be involved in the commissioning of a burglary, particularly when compared to those participants who provided responses which involved fewer categories and therefore, fewer stages. The results from the Offender group are consistent with other research in the area (e.g., Tunnell, 1992; Wright & Decker, 1994; Nee & Meenaghan, 2006), where it has been observed that offenders tend to follow a series of stages from start to finish. The ordering of these stages, as well as the stages

themselves is consistent with the results from Vignette 4. For example, Wright and Decker (1994) found that the process typically followed a logical progression of observing the property, checking out the risks of being observed, assessing points of entry, a search pattern once inside, and an exit plan. For the purpose of analyses of Vignette 4, the broad range of possible response items was condensed into three categories. In spite of this operation, the findings from Vignette 4 paralleled those earlier findings (e.g., Tunnell, 1992; Wright & Decker, 1994; Nee & Meenaghan, 2006). In another example, Hammond and Brown (2005) noted that burglars build up experience over time and tend to establish a routine that they repeat. They observed that these routines are so specific that it is often possible to distinguish between different burglars committing offences on the basis of the differences in the MOs that they use. Although an MO derived from the categories used in this thesis would almost certainly have been too crude to identify a specific offender, there was clearly still sufficient sensitivity in the categories to establish some similarity between the Offender group in Study 1 and the results of Hammond and Brown (2005).

Finally, Nee and Meenaghan (2006) observed that while their 'Expert' burglar group used deliberate and organised search patterns, the Non-expert comparison group appeared more random in their search methods. The Non-offender group in Study 1 of this thesis was similar in that they were less likely to produce the complete offence response than the *heterogeneous* Offender group. Instead, participants from the Non-offender group tended to focus on what might be perceived as the 'goal' (i.e., the theft of property from with inside the premises), as opposed to other details, such as the steps involved in arriving at the point where property can be taken.

In summary, the Offender group in Study 1 produced more detailed and voluminous offence related responses than the Non-offender group. This difference became more evident as the

scenarios progressed from potential experiences that might be visible to the public (i.e., Potential Physical Assault and Potential Car Vandalism) to those which are less visible generally (i.e., Potential Car Theft and Potential Burglary). There were clear parallels between the results of the heterogeneous Offender group and the results of other studies that have focussed on particular classes of offenders and offence types. I will now consider whether the results from the Non-offender subgroup and the subsets of offenders identified as being of theoretical interest in Chapter 1, also showed evidence of script-like knowledge when the results are re-analysed using the subsets only (i.e., excluding the participants from the overall analyses who did not meet the three conviction and/or three offence response criteria).

2.5.5.2. Discussion of the Non-offender, Specialist and Versatile subgroups

The Non-offender subgroup produced a similar ratio of complete offence responses in Vignette 1 to the Offender subgroup as a whole (i.e., the Specialist plus the Versatile subgroups). In terms of the Non-offenders, the results from Vignette 1 suggest that it is possible to observe an offence of assault and gain knowledge of how the event can be structured. This provides a plausible account for the capacity of the Non-offender subgroup to provide a similar proportion of complete offence responses in this vignette. The results are also consistent with the possibility of being involved in a street fight without it coming to the attention of the authorities (i.e., Non-offenders with offence knowledge). However, directly observing a car theft (i.e., Vignette 3) or burglary (i.e., Vignette 4) is much less likely than observing an assault. It was these two vignettes that produced some of the clearest differences between the Offender and Non-offender subgroups. The Non-offender subgroup did not produce as much detail in the offence related responses (i.e., in terms of the volume of actions), and nor did they provide as many completed offence related responses as the Offender subgroup.

The results from Study 1 are then consistent with the principles of script theory, in the sense that they provide direct and indirect evidence that script-like knowledge becomes greater as experience with a class of events builds up either through direct experience (Schank & Abelson, 1977) or by vicarious means (Bandura, 1989). The results of the two offender subgroups show that the Versatile subgroup provided more complete offence responses than the Specialist subgroup in two out of the four vignettes. The only meaningful exception to that was in Vignette 3 (i.e., the potential car theft). This exception is consistent with the observation that seven out of the eight specialists were involved in car theft. However, the results from Vignettes 1 and 4 are consistent with the suggestion that the offenders in the Versatile group have experience in more than one type of criminal activity (Farrington, 1997; Farrington, Synder & Finnegan, 1988; Klein, 1984; West & Farrington, 1977). The results of Study 1 provide evidence that script theory is as applicable to versatile offenders as it is to specialist offenders.

Chapter 3

Assessment of offence scripts in older offenders

3.1. Rationale

The results in Study 1 provide evidence that script theory is applicable even to a young population of self-declared offenders. There was also some evidence that the Versatile and Specialist offenders differed in the nature of the responses that they gave to the Vignettes used. The aim of Study 2 was to examine the generality of these observations, using the same methodology as in Study 1, but with an older group of participants.

3.2. Introduction.

Both Halliday (2001) and Soothill, Francis, and Fligelstone (2002) have noted that the categories of offending can differ between age bands. For example, some offenders move from versatile offending to specialist offending with age, and others commit a range of offences in one age band and then another range of offence types during a subsequent age band. This movement is thought to be due, in part, to the different opportunities presenting themselves as a function of age or offenders becoming risk averse; and some offenders switching to less riskier forms of crime (Soothill, Francis, & Fligelstone, 2002). The results of Study 1 revealed some evidence of structured knowledge in a group of very young self-declared offenders (≈16-year olds). In the context of the observations made above (Halliday, 2001; Soothill, Francis & Fligelstone, 2002) it is clearly of interest to examine whether the results of Study 1 are evident in an older group of offenders (mean: 33.83 years; range: 23-51) who are likely to have had greater and more varied experience than the participants in Study 1.

3.3. Methodology

The methodology was identical to that described in Study 1. None of the participants from Study 1 participated in Study 2. In the first instance, the categories into which items were placed for the four vignettes were identical to Study 1. An analysis based on the coding system used in Study 1 of the participants' responses for vignettes 2, 3 and 4 can be found in Appendix 4. However, in coding the responses for Vignettes 2, 3 and 4, it became apparent that the categories that best captured the actions produced were not identical to those in Study 1, as the participants in Study 2 tended to provide items that reflected some differences. For example, for Vignette 3 (Potential Car Theft) of Study 1, the category 'Approach' was a summary of three potential types of action; one of which was clearly prompted by the vignette instructions (e.g., "spot the car"), and the others reflected the participants' sequential knowledge of approaching the vehicle (hence the label 'Approach'). In Study 2, however, participants were far less likely to begin their response in this way. Instead, they were more likely to begin with an action from the category labelled 'Observe' (e.g., "gaining entry (bending door)"). More importantly, in Vignette 2 and 3 participants listed actions that could be subsumed under a different category, namely, 'Rationale'. Specific examples of the actions placed in this category can be found in the relevant sections below (Sections 3.5.1.2. and 3.5.1.3). In general terms, actions in this category referred to thought processes underlying the offence and actions that are not absolutely necessary for the offence, but that aid it, for example, not being detected. Vignette 4 yielded a sufficient number of actions to justify the use of the original category 'Approach', but there were additional actions that fell within the new category of 'Rationale'. In this case, to maintain consistency with Vignettes 2 and 3 the new category 'Rationale' was used in place of 'Approach'. Of course, the fact that it proved necessary to change the categories between Study 1 and Study 2, in order to code the participants' responses in an effective manner, is informative in its own right. It suggests that

the content of the responses of the participants had changed as a function of age and/or experience.

3.4 Participants, recruitment and ethics

Table 18a: Age means and standard deviations for both the Offender and Non-offender groups.

Groups	N	Mean	Standard Deviations
Non-offenders	35	31.83	1.810
Offenders	30	33.83	1.353

Thirty offenders between the ages of 23 to 51 years old were drawn mainly from a local probation service, with others from a local rehabilitation centre. Each offender self declared previous convictions for various offences, (e.g., burglary, criminal damage, shoplifting, assault, car theft and theft from cars). Conviction rates numbered from one to seven per offender (Mean = 3.17; SD = 1.744).

A second (comparison) group of thirty-five 19 to 58 year old participants with no self-declared convictions were drawn from two local rehabilitation centres. The participants within both groups were similar in terms of employment history (i.e., irregular or nonexistent), and drug dependency or abuse problems. Although educational attainment did vary widely, the factor that determined group allocation was whether or not the participants self-declared convictions. An ANOVA confirmed that the two groups did not differ significantly in age, ($F_{(1,63)} = 2.491$; $p>0.05$), although the Non-offender group did have a higher number of formal qualifications than the offender group (e.g., GCSEs and above; $F_{(1,63)} = 6.777$; $p<0.05$).

Recruitment took place over a two and a half year period. Participant recruitment tended to come in small batches in the same way as Study 1 (i.e., small groups of participants attending the same establishments at the same time whilst other service users were recruited on an

individual basis during baron periods). The rehabilitation centre, from which most of the Non-offender comparison group and some of the Offender group were drawn, was chosen because of its capacity to attract attendees both with and without convictions, who were in need of lifestyle support. That is, the attendee exhibited the usual risk style behaviours that are typically associated with offending, such as drug abuse and/or dependency, erratic or long-term unemployment.

However, as previously mentioned in Section 2.4.1, it should be noted that a conviction may actually incorporate any number of separate offences over a period of time. These separate offences could include the same or different types of crimes. Some offenders had convictions for a single offence type (e.g., driving offences or burglary), others had convictions for a mixture of different offence types. Some single offence type offenders were also repeat offenders, while those with a mixture of offence types typically had three or more convictions, and were therefore versatile in addition to being repeat offenders.

Table 18b: Offence History Classifications for the Offender groups.

Offence History Groupings
11 = Versatile offenders
6 = Specialists offenders
13 = Unclassified offenders

Note: Unclassified = not enough convictions to determine group.

3.5. Results

3.5.1. Overall comparison between the Non-offender and the Offender groups.

Table 19a: Frequency totals and associated percentage values for the number of Non-offence versus Offence responses, in addition to the number of participants who provided 3 or 4 responses of either kind provided by the Non-offender and the Offender groups.

Categories	Non-offence response totals	Offence response totals
Non-offenders N =35	58 (41.43%) 10 Ps. = 3/4 responses Ties = 4 participants	82 (58.57%) 21 Ps. = 3/4 responses
Offenders N = 30	20 (16.662%) 2 Ps. = 3/4 responses Ties = 3 participants	100 (83.44%) 25 Ps. = 3/4 responses

Note: the figures in Table 19a are based on the total number of responses (i.e., from all participants in each of the given groups) designated as 'Non-offence' and 'Offence' responses. The table reads from left to right: Number of actual responses in a given category (i.e., non-offence or offence); associated percentage values in brackets; and the number of participants (Ps.) who provided three or four responses for that category. Included in the rows is the number of participants who provided ties (i.e., two non-offence and two offence related responses).

Inspection of the upper row of Table 19a shows that the Non-offender group were more likely to produce offence related responses (i.e., 82) compared to non-offence responses (i.e., 58). This pattern was also observed in the lower row for the Offender group (i.e., 100 offence responses compared to 20 non-offence responses). A Mann-Whitney U test confirmed that there was a significant difference between the number of offence related responses provided by the Offender and the Non-offender groups ($Z = -2.719$; $p<0.05$). The lower rows of Table 19a show that the Non-offender group was more likely to include participants that produced 3 or 4 offence related responses. However, a Binomial test revealed that this difference was not significant, $p>0.05$. In contrast, there was a significant number of participants in the Offender group who produced 3 or 4 offence related response, $p<0.01$. Finally, a Fisher's Exact Probability test confirmed that there was a difference in the proportions of participants producing offence related responses in the two groups, $p<0.01$.

Table 19b: Means and SEMs for the number of actions items (i.e., Non-offence versus Offence), provided by the Non-offender and the Offender groups.

Non-offenders N = 35		Offenders N = 30	
Non-offence actions	5.80 (1.201)	Non-offence actions	2.30 (.611)
Offence actions	14.51 (2.073)	Offence actions	25.20 (2.291)

Note: Means are based on the total number of items provided by all participants in each group.

Inspection of Table 19b reveals that the mean number of action items for offence-related responses was greater than the actions for the non-offence-related responses. It is also apparent that while the Offender group produced more action items for offence-related responses than the Non-offender group, the Non-offender group produced more non-offence action items than the Offender group. This pattern of results simply parallels the number of offence and non-offence responses that the two groups produced. An ANOVA with group and actions (i.e., offence vs. non-offence related) as factors revealed a significant effect of group, ($F_{(1,63)}$ =5.535, p<0.05), an effect of offence related actions ($F_{(1,63)}$ =72.935, p<0.01), and an interaction between the offence related actions and participants, ($F_{(1,63)}$ =14.685, p<0.01). Analysis of simple main effects revealed that there was an effect of action in both groups, minimum ($F_{(1,63)}$=12.00, p<0.01), and that there was an effect of group for the offence items, ($F_{(1,122)}$=19.83, p<0.01), but not the non-offence items, ($F_{(1,122)}$=2.12, p>0.14).

In summary, as in Study 1, both groups produced more offence-related items than non-offence-related items. As in Study 1, this is surprising in the case of the Non-offender group (who produced a relatively equal number of offence and non-offence responses); participants again tend to produce more actions (per response) for offence related than non-offence related response.

Table 19c: Frequency totals and associated percentage values for mode of choice (A = offender and B = self) for the Non-offender and Offender groups, plus, the number of participants in each group who provided three or four of the same choices across the four vignettes.

Choice	Non-offenders, N = 35	Offenders, N = 30
Overall 'A'	77 (55%); 16 Ps. = 3/4	54 (45%); Ps. 15 = 3/4
Overall 'B'	63 (45%); 19 Ps. = 3/4	66 (55%); Ps. 14 = 3/4
Offence only 'A'	73 (90.2)	59 (59%)
Offence only 'B'	8 (9.8%)	41 (41%)

Table 19c shows the number of occasions on which participants in the two groups chose to response in mode A (e.g., as an offender) or B (as themselves). Inspection of the upper rows reveals that the overall proportions of occasions on which the two groups chose the two options was similar and did not differ between the groups, $p>0.05$ (Fisher's Exact Probability test). Similarly, the proportions of participants that produced three or four mode A choices did not differ from the total number of participants producing three or four choices of a given type (A or B) in the two groups, $p>0.05$ (Fisher's Exact Probability test). In no group was there a significant bias towards using option A, $ps>.05$ (Binomial tests).

Inspection of the lower rows show that when only offence choices were examined, the responses from the Non-offender group were more likely to be made using choice A, $p<0.05$; this pattern was not evident in the offender group, who tended to use option A and B with similar frequency, $p>0.05$ (Binomial tests). Fisher's Exact Probability test confirmed that the proportions of A or B choices for offence responses was significantly different between the groups, $p<0.05$.

3.5.1. Log-linear modelling to determine the most economical models using categories for each vignette in both the Non-offender and Offender groups, including frequency totals, with associated percentage values of categorical occurrence.

3.5.1.1. Vignette 1: Potential Physical Assault

Vignette 1 is about the potential for a physical assault, which typically occurs on a street and the devised categories are labelled as: 'Physical', (e.g., "beat them up pretty bad", "start fighting"), 'Verbal', (e.g., "start an argument", "start shouting abuse at them") and 'Depends', (e.g., "confront them", "make eye contact on purpose").

Table 20a: Vignette 1 (Potential Physical Assault) frequency counts and associated percentage probabilities of occurrence for the categories 'Physical', 'Verbal' and 'Depends' for both the Non-offender and the Offender groups.

	Non-offenders N = 35	Offenders N = 30
Categories	Cases	Cases
Non-offence responses	17 (48.5%)	6 (20%)
Physical	3 (8.5%)	6 (20%)
Verbal	0 (0%)	2 (6.6%)
Depends	0 (0%)	0 (0%)
Physical*Verbal	13 (37.1%)	12 (40%)
Physical*Depends	0 (0%)	0 (0%)
Verbal*Depends	0 (0%)	1 (3.3%)
Physical*Verbal*Depends	2 (5.7%)	3 (10%)

Inspection of Table 20a reveals that the cell with the highest percentage was for the interaction of categories 'Physical*Verbal' in the Non-offender group; the corresponding cell in the Offender group was for the same category. Binomial tests revealed that there was a bias towards the 'other' category in the Non-offender and the Offender groups, $ps<0.05$.

Independent log-linear analysis was conducted on the two groups using only the participants who provided an offence related response.

Table 20b: Summary of Log-linear modelling from Vignette 1 (Potential Physical Assault) for both the Non-offender and the Offender groups.

Non-offender group N = 18	Estimate	Std. Error	Z	Sig.
Constant	.981	.583	1.682	.093
Depends	-2.079	.750	-2.774	.006
Verbal	1.609	.632	2.545	.003
Offender group N = 24				
Constant	-.470	.683	-.688	.491
Depends	-1.609	.548	-2.938	.003
Physical	1.946	.617	3.153	.002
Verbal	1.099	.471	2.331	.020

The upper half of Table 20b reveals that the final parsimonious model for the Non-offender group included the categories 'Depends' and 'Verbal'. The model was not significantly different from the saturated model (LR (1, N=18) χ^2 = .778; p>0.05), indicating a good fit to the data. Similarly, as is apparent from in the lower half of Table 18b, the Offender group's parsimonious model included the same two categories, but with the addition of 'Physical'. This model was also not significantly different from the saturated model (LR (4, N=24) χ^2 = 4.661; p>0.05) and therefore represents a good fit to the data.

In summary, there was a similar distribution of the data and use of the categories in the two groups. A Fisher's Exact Probability test confirmed that there was no difference in the proportions of complete offence responses between the two groups (2/18 in the Non-offender group and 3/24 in the Offender group p>0.05).

The pattern of results in Vignette 1 of Study 2 are similar to those from Study 1, with the exception that there appeared to be somewhat fewer complete offence responses in Study 2 (5 out of a total of 42 pooled across the Offender and Non-offender groups) than in Study 1 (17 out of 47).

3.5.1.2. Vignette 2: Potential Car Vandalism

Vignette 2 concerns the potential for vandalism to a motor vehicle parked on a street. The category "Approach", used in Study 1, has been replaced with 'Rationale', in Study 2. 'Rationale' includes items that relate to thought processes that, while not necessary for carrying out an offence, aid the commissioning of an offence in such a way as to be intended to avoid immediate detection (e.g., "wait till nite time"), and in some cases future detection (e.g., "wipe paint debris from the tool"). The other two categories were the same as in Study 1: 'Observe' (e.g., "standing up looking around", "keep a sharp eye out for neighbours") and 'Vandalise', (e.g., "kick wing mirrors off", "scratch car with pressure").

Table 21a: Vignette 2 (Potential Car Vandalism) frequency counts and associated percentage values for the categories 'Rationale', 'Observe' and 'Vandalise' for both the Non-offender and Offender groups.

	Non-offenders N = 35	Offenders N = 30
Categories	Cases	Cases
Non-offence responses	13 (37.1%)	5 (16.7%)
Rationale	1 (2.9%)	0 (0%)
Observe	0 (0%)	1 (3.3%)
Vandalise	6 (17.1%)	4 (13.3%)
Rationale*Observe	0 (0%)	1 (3.3%)
Rationale*Vandalise	5 (14.3%)	6 (20%)
Observe*Vandalise	8 (22.9%)	5 (16.7%)
Rationale*Observe*Vandalise	2 (5.7%)	8 (26.7%)

Inspection of Table 21a shows that the cell with the highest percentage for an offence related response in the Non-offender group was for the interaction of categories 'Observe*Vandalise'; the corresponding cell with the highest percentage in the Offender group was for the category representing the complete offence response. The Non-offender group showed a bias towards the 'other' category, $p<0.05$, though there was no corresponding bias shown in the Offender group, $p>0.05$ (Binomial tests). Independent log-linear analyses were conducted on the two groups using only the participants who provided an offence related response.

Table 21b: Summary of log-linear modelling from Vignette 2 (Potential Car Vandalism) for both the Non-offender and the Offender groups.

Non-offender group N = 21	Estimate	Std. Error	Z	Sig.
Constant	1.992	.339	5.883	.001
Observe*Vandalise	-.095	.437	-.218	.827
Offender group N = 25				
Constant	-16.861	.409	-41.181	.001
Observe*Vandalise	18.487	.421	43.952	.001

The upper half of Table 21b reveals that the final parsimonious model for the Non-offender group included the interaction of categories 'Observe*Vandalise' and was not significantly different from the saturated model (LR (1, N=21) χ^2 = .211; p>0.05). The model does not contain any significantly contributing categories and so is not a particularly good fit to the data. However, the Offender group's parsimonious model also contained the same interaction of categories but did contribute significantly to the model, which was also not significantly different from the saturated model (LR (2, N=25) χ^2 = .997; p>0.05), indicating an overall good fit to the data.

In summary, the log-linear analysis reveals greater evidence of structure for the Offender group compared to the Non-offender group. However, there was no difference in the proportion of complete offence responses between the two groups (2/22 for the Non-offender group and 8/25 for the Offender group, p>0.05; Fisher's Exact Probability test).

The structure of the responses in Studies 1 and 2 for Vignette 2 are not directly comparable with one another, because one of the categories changed from 'Approach' to 'Rationale'. Indeed even in Appendix 4, where the category 'Approach' was included in the analysis, it was used less frequently by the participants in Study 2 than in Study 1; and the results of the parallel analysis are again not comparable.

3.5.1.3. Vignette 3: Potential Car Theft

Vignette 3 was about the potential for cars being stolen from the street. The categories are labelled as: 'Rationale', (e.g., "rollaway from houses", "destroy clothing worn at the time"; see Section 3.5.1.2, for a description of this category); 'Break-in', (e.g., "smash any locks", "gaining entry bending door"), and 'Drive-away', (e.g., "hotwire to start", "rant around or sell").

Table 22a; Vignette 3 (Potential Car Theft) frequency totals and associated percentage values for the categories 'Rationale', 'Break-in' and 'Drive-away' for both the Non-offender and Offender groups.

	Non-offenders N = 35	Offenders N = 30
Categories	Cases	Cases
Non-offence responses	14 (46.7%)	4 (13%)
Rationale	2 (5.7%)	0 (0%)
Break-in	3 (8.6%)	3 (10%)
Drive-away	2 (5.7%)	0 (0%)
Rationale*Break-in	2 (5.7%)	3 (10%)
Rationale*Drive-away	0 (0%)	1 (3.3%)
Break-in*Drive-away	5 (14.3%)	5 (16.7%)
Rationale*Break-in*Drive-away	7 (20%)	14 (46.7%)

Table 22a shows that the cell with the highest percentage in an offence related response was for the complete offence response in the Offender group (i.e., Rationale*Break-in*Drive-away); the corresponding cell with the highest percentage in the Non-offender group was also for the complete offence response. However, there was no bias shown in either the Non-offender or the Offender group towards the complete offence response, $ps>0.05$ (Binomial tests). Independent log-linear analysis was conducted using only the participants who

provided an offence response.

Table 22b: Summary of log-linear modelling for Vignette 3 (Potential Car theft) for both the Non-offender and Offender groups.

Non-offender group N = 21	Estimate	Std. Error	Z	Sig.
Constant	-.511	.645	-.791	.429
Break-in	1.386	.559	2.480	.013
Offender group N = 26				
Constant	-1.755	.825	-2.129	.033
Break-in	2.526	.735	3.437	.001
Drive-away	1.050	.439	2.391	.017

The upper half of Table 22b reveals that the final parsimonious model for the Non-offender group included the category 'Break-in'. The model was not significantly different from the saturated model (LR (4, N=21) χ^2 = 7.821; p>0.05), and this indicates a good fit to the data. Similarly, the lower rows of Table 22b show that the Offender group's parsimonious model included the categories 'Break-in' and 'Drive-away'. This model was also not significantly different from the saturated model (LR (4, N=26) χ^2 = .316; p>0.05) and is a good fit to the data. In both cases, the included categories contributed significantly to the models.

The final parsimonious model for the Offender group was also more expansive (i.e., it included more main effects) than that of the Non-offender group. However, there was no difference in the proportions of complete offence responses between the two groups: 7/21 for the Non-offender group, and 14/26 in the Offender group, p>0.05 (Fisher's Exact Probability test).

3.5.1.4. Vignette 4: Potential Burglary

Vignette 4 concerns a potential house burglary. The categories are labelled as: 'Rationale', (e.g., "make sure you have gloves on", "decide its to risky and leave if for another day"; see Section 3.5.1.2.); 'Search', (e.g., "ransacks the house", "look for items inside"); and 'Steal', (e.g., "look for money", "take items easily sold/disposed of").

Table 23a: Vignette 4 (Potential Burglary) frequency totals and associated percentage values for the categories 'Rationale', 'Search' and 'Steal' for both the Non-offender and the Offender groups.

	Non-offenders N = 35	Offenders N = 30
Categories	Cases	Cases
Non-offence responses	15 (42.9%)	6 (20%)
Rationale	3 (8.6%)	2 (6.7%)
Search	2 (5.7%)	0 (0%)
Steal	4 (11.4%)	1 (3.3%)
Rationale*Search	2 (5.7%)	4 (13.3%)
Rationale*Steal	6 (17.1%)	7 (23.3%)
Search*Steal	0 (0%)	2 (6.7%)
Rationale*Search*Steal	3 (8.6%)	8 (26.7%)

Table 23a shows that the cell with the highest percentage is for the complete offence response in the Offender group; the corresponding cell with the highest percentage for the Non-offender group was for the interaction of categories 'Rationale*Steal'. Binomial tests revealed that there was a bias towards the 'other' category in the Non-offender group $p<0.05$, but not in the Offender group $p>0.05$. Independent log-linear analysis was conducted on the two groups using only the participants who provided an offence related response.

Table 23b: Summary of Log-linear modelling for Vignette 4 (Potential Burglary) for both the Non-offender and Offender groups.

Non-offender group N = 20	Estimate	Std. Error	Z	Sig.
Constant	.311	.535	.581	.561
Steal	-.619	.469	-1.321	.187
Offender group N = 24				
Constant	-1.163	.719	-1.618	.106
Rationale	1.946	.617	3.153	.002
Steal	1.099	.471	2.331	.020

The upper half of Table 23b reveals that the final parsimonious model for the Non-offender group included the category 'Steal', and was not significantly different from the saturated model (LR (4, N=20) χ^2 = 7.721; p>0.05). As there were no categories that contributed significantly to the model it was not overall a good fit to the data. The lower rows of Table 23b show that the Offender group's parsimonious model included the categories 'Rationale' and 'Steal'. This model was also not significantly different from the saturated model (LR (4, N=24) χ^2 = 2.281; p>0.05). While the category 'Steal' did not significantly contribute to the model for the Non-offender group, both of the categories identified in the Offender group contributed significantly, indicative of a good fit to the data overall.

The proportions of complete offence responses did not differ between the two groups (3/20 in the Non-offender group and 8/24 in the Offender group, p>0.05; Fisher's Exact Probability).

3.5.1.5. Overview of the results and supplementary analysis

Overall, the results show that the Offender group not only provide a higher number of offence related responses and offence related items than the Non-offender group, but the content of their responses was more structured. This was revealed in the log linear analyses which showed that the parsimonious models tended to include more categories for the Offender group than the Non-offender group. In addition, these categories nearly always contributed significantly to the models for the Offender group, whereas this was not typically the case for the models for the Non-offender group. Also, when the Non-offender group did provide offence related responses, they tended to use choice 'A' significantly more often than choice 'B'. Furthermore, unlike in Study 1, there were no individual Vignettes in which participants in the Offender group were more likely to produce the complete offence response than all other types of response; and there were no differences between the groups in the proportions of complete offence responses. However, if one takes each of the Vignettes that include the 'Rationale' category (i.e., Vignettes 2-4) there was such a difference: 30/45 in the Offender group versus 12/51 in the Non-offender group (Fisher's Exact Probability test, $p<0.01$). I will now proceed, in the same way as Study 1, by drawing out some more specific comparisons from the overall sample.

3.5.2.1. Comparison between the Non-offender and Offender subgroups who provide three or more offence related responses.

The criteria used to determine inclusion in the comparison between the subgroups that produced three or four offence related responses in the two principal groups was the same as for Study 1.

Table 24: Overall summary of all four vignettes incorporating: the frequency totals and associated percentages for the number of offence related responses (upper row); Sum totals, means and SEMs for the number of offence related items within the responses (middle row); Frequency totals and associated percentage values for the number of offence choices for both the Non-offender and Offender subgroups (lower row).

	Non-offenders N = 21	Offenders N = 25
Offence		
Responses	73 of a possible 84 (84.52%)	92 of a possible 100 (87%)
Actions	446; mean=21.24 (SEM=2.168)	689; mean=27.56 (SEM=2.447)
Choices	A = 66 (89.18%) B = 7 (10.8%)	A = 53 (57.60%) B = 39 (42.39%)

Inspection of Table 24 shows that there were a similar number of participants in the two subgroups and that they produced a similar number of offence responses (see upper row; Mann-Whitney U, Z = -1.383; $p>0.05$). The Non-offender subgroup tended to produce fewer offence actions (i.e., actions = the number of items mentioned within a response) than did the Offender subgroup (see middle row). However, an ANOVA confirmed that there was no difference between the two subgroups on the mean number of actions ($F_{(1,44)} = 3.606$; $p>0.05$). The Non-offender subgroup was more likely to use mode A than B in responding (see lower row). Although both subgroups showed a preference for choice 'A' over choice 'B' a Mann-Whitney U tests revealed that the subgroups differed in the number of responses made using option A (Z = -2.457; $p<0.05$) and option B (Z = -3.256; $p<0.05$). Furthermore, a Fisher's Exact Probability test confirmed that the proportions of choice A/B differed between the subgroups, $p<0.01$.

3.5.2.2. Vignette 1: Potential Physical Assault

Table 25a: Vignette 1 (Potential Physical Assault) frequency totals and associated percentage values for categories 'Physical', 'Verbal' and 'Depends' for both the Non-offender and the Offender subgroups who provided three or more offence related vignettes.

	Non-offenders N = 21	Offenders N = 25
Categories	Cases	Cases
Non-offence responses	4 (19%)	4 (16%)
Physical	3 (14.3%)	6 (24%)
Verbal	0 (0%)	2 (8%)
Depends	0 (0%)	0 (0%)
Physical*Verbal	12 (57.1%)	10 (40%)
Physical*Depends	0 (0%)	0 (0%)
Verbal*Depends	0 (0%)	0 (0%)
Physical*Verbal*Depends	2 (9.5%)	3 (12%)

Inspection of Table 25a shows that the cell with the highest percentage is in the Non-offender subgroup for the interaction of categories 'Physical*Verbal'. The corresponding cell with the highest percentage for the Offender subgroup is for the same interaction of categories. Binomial tests revealed a significant bias towards the 'other' category in both subgroups, $ps<0.05$. Independent log-linear analysis was conducted on the two subgroups using only the participants in each subgroup who provided an offence related response.

Table 25b: Summary of Vignette 1 (Potential Physical Assault) log-linear modelling for both the Non-offender and Offender subgroups who provided three or more offence related vignettes.

Non-offender subgroup N = 17	Estimate	Std. Error	Z	Sig.
Constant	.973	.584	1.667	.096
Depends	-2.079	.753	-2.678	.007
Verbal	1.540	.636	2.422	.015
Offender subgroup N = 21				
Constant	-.470	.683	-.688	.491
Depends	-1.792	.624	-2.873	.004
Physical	2.251	.743	3.028	.002
Verbal	.916	.483	1.897	.058

The upper half of Table 25b reveals that the final parsimonious model for the Non-offender subgroup included the categories 'Depends' and 'Verbal'. The model was not significantly different from the saturated model (LR (1, N=17) χ^2 = .832; p>0.05), and was a good fit to the data overall. Similarly, as shown in the lower half of Table 25b, the Offender subgroup's parsimonious model included the same two categories and the additional category of 'Physical'. This model was not significantly different from the saturated model (LR (4, N=21) χ^2 = 4.608; p>0.05), also indicative of a good fit to the data. While the Offender subgroup's model included the additional category of 'Physical' and this category together with 'Depends' were contributing significantly to the final model, the category 'Verbal' was not significantly contributing.

In summary, there is minimal difference between the two subgroups; though the log linear analysis produced a better fit to the data in the final parsimonious model for the Offender subgroup. However, Fisher's Exact Probability test showed that there was no difference in the proportions of complete offence response between the subgroups: 2/17 in the Non-offender

subgroup and 3/21 in the Offender subgroup, $p>0.05$.

3.5.2.3. Vignette 2: Potential Car Vandalism

Table 26a: Vignette 2 (Potential Car Vandalism) frequency totals and associated percentage values for the categories 'Rationale', 'Observe' and 'Vandalise' for both the Non-offender and the Offender subgroups who provided three or more offence related responses.

	Non-offenders N = 21	Offenders N = 25
Categories	Cases	Cases
Non-offence related responses	2 (9.5%)	3 (12%)
Rationale	0 (0%)	0 (0%)
Observe	0 (0%)	1 (4%)
Vandalise	6 (28.6%)	4 (16%)
Rationale*Observe	0 (0%)	1 (4%)
Rationale*Vandalise	5 (23.8%)	6 (24%)
Observe*Vandalise	6 (28.6%)	3 (12%)
Rationale*Observe*Vandalise	2 (9.5%)	7 (28%)

Table 26a shows that the cell with the highest percentage is for the category 'Vandalise' and the interaction of categories 'Observe*Vandalise in the Non-offender subgroup; the corresponding cell with the highest percentage in the Offender subgroup is for the complete offence response (i.e., 'Rationale*Observe*Vandalise'). Binomial tests showed that there was a bias in the Non-offender subgroup towards the 'other' category, $p<0.05$, and that there was no such bias in the Offender subgroup, $p>0.05$. Independent log-linear analysis was conducted on the two subgroups using only the participants in both subgroups who provided an offence related response.

Table 26b: Summary of Vignette 2 (Potential Car Vandalism), Log-linear modelling for both the Non-offender and the Offender subgroups that provided three or more offence related responses.

Non-offender subgroup N = 19	Estimate	Std. Error	Z	Sig.
Constant	1.938	.349	5.561	.001
Rationale	-.539	.475	-1.134	.257
Offender subgroup N = 22				
Constant	-1.107	.796	-1.391	.164
Vandalise	2.303	.741	3.106	.002

The upper half of Table 26b reveals that the final parsimonious model for the Non-offender subgroup included the category 'Rationale'. The model was not significantly different from the saturated model (LR (1, N=19) χ^2 = .356; p>0.05), though the category 'Rationale' was not significantly contributing to the model; therefore overall the model does not represent a good fit to the data. The lower half of Table 26b shows that the Offender subgroup's parsimonious model included the category 'Vandalise'. This model was also not significantly different from the saturated model (LR (4, N=22) χ^2 = 7.982; p>0.05), but in this case the category 'Vandalise' was contributing significantly to the model; which collectively indicates a good fit to the data. However, there was no difference in the proportions of the two subgroups that produced the complete offence response: 2/19 in the Non-offender subgroup and 7/22 in the Offender subgroup, p>0.05 (Fisher's Exact Probability test). These results are similar to the results in the overall groups.

3.5.2.4. Vignette 3: Potential Car Theft

Table 27a: Vignette 3 (Potential Car theft) frequency totals and associated percentage values for both the Non-offender and Offender subgroups that provided three or more offence related responses.

	Non-offenders N = 21	Offenders N = 25
Categories	Cases	Cases
Non-offence responses	1 (4.8%)	0 (0%)
Rationale	2 (9.5%)	0 (0%)
Break-in	3 (14.3%)	3 (12%)
Drive-away	2 (9.5%)	0 (0%)
Rationale*Break-in	2 (9.5%)	3 (12%)
Rationale*Drive-away	0 (0%)	1 (4%)
Break-in*Drive-away	5 (23.8%)	4 (16%)
Rationale*Break-in*Drive-away	6 (28.6%)	14 (56%)

Table 27a shows that the cell with the highest percentage is for the complete offence response (i.e., 'Rational*Break-in*Drive-away') in the Offender subgroup. The corresponding cell with the highest percentage for the Non-offender subgroup was also for the complete offence response. Binomial tests confirmed that neither the Non-offender subgroup nor the Offender subgroup showed a bias towards the complete offence response, $ps>0.05$. Independent log-linear analysis was conducted on the two subgroups using only the participants in both subgroups who provided offence related responses.

Table 27b: Summary of log-linear modelling from Vignette 3 (Potential Car theft) for both the Non-offender and Offender subgroups who provide three or more offence related responses.

Non-offender subgroup N = 20	Estimate	Std. Error	Z	Sig.
Constant	-.357	.627	-.569	.569
Break-in	1.386	.559	2.480	.013
Offender subgroup N = 25				
Constant	-2.700	1.108	-2.437	.015
Rationale	.944	.445	2.120	.034
Break-in	3.178	1.020	3.116	.002
Drive-away	1.153	.468	2.462	.014

The upper half of Table 27b reveals that the final parsimonious model for the Non-offender subgroup contained the category 'Break-in' as the only significant contributor. The model was not significantly different from the saturated model (LR (4, N=20) $\chi^2 = 6.315$; $p>0.05$), and is a good fit to the data. The Offender subgroup's parsimonious model was similarly not significantly different from the saturated model (LR (4, N=25) $\chi^2 = 2.822$; $p>0.05$; see lower half of Table 27b). The model included the categories 'Rationale', 'Break-in' and 'Drive-away' as significant contributors, indicating a good fit to the data. A Fisher's Exact Probability test showed that there was no difference in the proportions of complete offence responses between the two subgroups: 6/20 in the Non-offender subgroup and 14/25 in the Offender subgroup, $p>0.05$.

3.5.2.5. Vignette 4: Potential Burglary

Table 28a: Vignette 4 (Potential Burglary) frequency totals and associated percentage values for the categories 'Rationale', 'Search' and 'Steal' for both the Non-offender and Offender subgroups who provided three or more offence related responses.

	Non-offenders N = 21	Offenders N = 25
Categories	Cases	Cases
Non-offence related responses	5 (25%)	3 (12%)
Rationale	3 (14.3%)	1 (4%)
Search	2 (9.5%)	0 (0%)
Steal	3 (14.3%)	1 (4%)
Rationale*Search	2 (9.5%)	3 (12%)
Rationale*Steal	4 (19%)	7 (28%)
Search*Steal	0 (0%)	2 (8%)
Rationale*Search*Steal	2 (9.5%)	8 (32%)

Inspection of Table 28a shows that the cell with the highest percentage was in the Offender subgroup for the complete offence response; while the corresponding cell with the highest percentage for the Non-offender subgroup was for the interaction of categories 'Rationale*Steal'. The Non-offender subgroup showed a bias towards the 'other' category, $p<0.05$, although the Offender subgroup did not, $p>0.05$ (Binomial tests). Independent log-linear analysis was conducted on the two subgroups using only the participants from both subgroups who provided an offence related response.

Table 28b: Summary of Vignette 4 (Potential Burglary), Log-linear modelling for both the Non-offender and Offender subgroups that provided three or more offence related responses.

Non-offender subgroup N = 16	Estimate	Std. Error	Z	Sig.
Constant	.313	.564	.555	.579
Rationale	.788	.539	1.462	.141
Offender subgroup N = 22				
Constant	-1.500	.777	- 1.931	.053
Rationale	1.846	.621	2.972	.003
Steal	1.504	.553	2.721	.007

The upper half of Table 28b reveals that the final parsimonious model for the Non-offender subgroup included the category 'Rationale'. The model was not significantly different from the saturated model (LR (4, N=16) χ^2 = 6.843; p>0.05); but this model is not overall a good fit to the data because 'Rationale' did not contribute significantly to the model. The lower rows of Table 28b show that the Offender subgroup's parsimonious model was also not significantly different from the saturated model (LR (4, N=22) χ^2 = 2.027; p>0.05) and includes the significant contributors of 'Rationale' and 'Steal'; indicating a good fit to the data.

Although there was some tendency for the Offender subgroup to produce more complete offence responses (8/22) than the Non-offender subgroup and (2/16), there was no difference between these proportions, p>0.05 (Fisher's Exact Probability test).

3.5.2.6. Overview of the results for the Non-offender and the Offender subgroups

The frequency tables tended to show that, as in Study 1, the Offender subgroup was more likely to produce the complete offence response than the Non-offender subgroup, though Binomial tests and Fisher's Exact Probability tests within each vignette did not provide strong support for this observation. However, if one takes each of the Vignettes that include the 'Rationale' category (i.e., Vignettes 2-4), then, as was the case in the overall analysis, there was such difference between the proportions of complete offence response in the two groups: 29/41 in the Offender group versus 10/45 in the Non-offender group (Fisher's exact, $p<0.01$). Furthermore, what was apparent from the log linear analyses, was the higher number of categories included in the Offender subgroup's parsimonious models. These categories invariably contributed significantly to the models in the Offender subgroups, whereas in the parsimonious models for the Non-offender subgroups there were far fewer significant contributions from the various categories. This observation is indicative of the fact that there was more structuring within the distribution of the data for the Offender subgroup than the Non-offender subgroup. Further discussion of these results is postponed until after the analysis from the next section of results is presented.

3.5.3.1. Comparison between Specialist and Versatile offenders from within the Offender group, who provided three or more offence-related responses.

There were very few participants who met the criteria used in Study 1 for the Specialist subgroup (N=6; two car thieves and four participants for theft and dishonesty) and Versatile subgroup (N=9). It was therefore deemed inappropriate to conduct log linear analysis. However, it seemed worthwhile to examine the responses in these groups in a more straightforward manner that maintains some level of comparability to the analyses presented for Study 1.

Table 29: Overall summary of all four vignettes incorporating: the frequency totals and associated percentages for the number of offence related responses (upper row); Sum totals, means and SEMs for the number of offence related items within the responses (middle row); Frequency totals and associated percentage values for the number of offence choices for both the Specialist and Versatile subgroups (lower row).

	Specialist subgroup N = 6	Versatile subgroup N = 9
Offence		
Responses	23 out of a possible 24 (95.8%)	33 out of a possible 36 (91.6%)
Actions	188; means = 31.33 (SEM = 3.278)	224; means = 24.89 (SEM = 8.349)
Choices	A = 16 (69.6%) B = 7 (30.40%)	A = 13 (39.40%) B = 20 (60.60%)

Note: Percentage values for 'Choices' were calculated from the total number of offence related choices and not from the total number of choices overall.

Inspection of the upper row in Table 29 shows that there were similar levels of offence responses in the two subgroups. A Fisher's Exact Probability test revealed that there was no difference in the proportions of offence responses between the two subgroups, *ps*>0.05. The middle row of Table 29 shows that the Specialist subgroup produced a higher mean number of offence actions than the Versatile subgroup. However, an ANOVA revealed that there was no marked difference between the two subgroups ($F_{(1,13)}$ =1.449.511; p>0.05). The lower row of Table 29 also reveals that the while the Specialist subgroup were more likely to use option A than B, the reverse tended to be the case in the Versatile subgroup. A Fisher's Exact Probability test confirmed that there was a significant difference between the proportions of A/B choices in the two subgroups p<0.05.

3.5.3.2. Vignette 1: Potential Physical Assault

Table 30: Vignette 1 (Potential Physical assault) frequency totals and associated percentage values for the categories 'Physical', 'Verbal' and 'Depends' for the Specialist and Versatile subgroups.

	Specialists N = 6	Versatiles N = 9
Categories	Cases	Cases
Non-offence related responses	1 (16.6%)	1 (11.1%)
Physical	4 (66.6%)	1 (11.1%)
Verbal	0 (0%)	0 (0%)
Depends	0 (0%)	0 (0%)
Physical*Verbal	1 (16.6%)	5 (55.5%)
Physical*Depends	0 (0%)	0 (0%)
Verbal*Depends	0 (0%)	0 (0%)
Physical*Verbal*Depends	0 (0%)	2 (22.2%)

Table 30 shows that the cell with the highest percentage was in the Specialist subgroup for the category 'Physical'; the corresponding cell with the highest percentage for the Versatile subgroup was for the interaction of categories 'Physical*Verbal'. Parallel Binomial tests showed that there was no bias in either the Specialist or the Versatile subgroups towards the complete offence response, $ps>0.05$.

Although the Versatile subgroup produced somewhat more complete offence related responses to Vignette 1 than the Specialist subgroup, a Fisher's Exact Probability test revealed that, unsurprisingly, this difference was not significant: 0/5 in the Specialist subgroup and 2/6 in the Versatile subgroup, $p>0.05$.

3.5.3.3. Vignette 2: Potential Car Vandalism

Table 31: Vignette 2 (Potential Car Vandalism) frequency totals and associated percentage values for the categories 'Rationale', 'Observe' and 'Vandalise' for both the Specialist and the Versatile offender subgroups.

	Specialists N = 6	Versatile N = 9
Categories	Cases	Cases
Non-offence responses	0 (0%)	2 (22.2%)
Rationale	0 (0%)	0 (0%)
Observe	0 (0%)	0 (0%)
Vandalise	1 (16.7%)	1 (11.1%)
Rationale*Observe	1 (16.7%)	0 (0%)
Rationale*Vandalise	1 (16.7%)	3 (33.3%)
Observe*Vandalise	1 (16.7%)	1 (11.1%)
Rationale*Observe*Vandalise	2 (33.3%)	2 (22.2%)

Table 31 reveals that the cell with the highest percentage was for the complete offence response in the Specialist subgroup; the corresponding cell with the highest percentage in the Versatile subgroup was for categories 'Rationale*Vandalise'. There was no bias shown towards the complete offence response in either the Specialist subgroup or in the Versatile subgroup $ps>0.05$ (Binomial tests). A Fisher's Exact Probability test revealed that there was no difference in the proportions of complete offence responses in the two subgroups: 2/6 in the Specialist subgroup and 2/7 in the Versatile subgroup, $p>0.05$.

3.5.3.4. Vignette 3: Potential Car Theft

Table 32: Vignette 3 (Potential Car theft) frequency totals and associated percentage values for the categories 'Rationale', 'Break-in' and 'Drive-away' for both the Specialist and Versatile subgroups.

	Specialists N = 6	Versatiles N = 9
Categories	Cases	Cases
Non-offence response	0 (0%)	0 (0%)
Rationale	0 (0%)	0 (0%)
Break-in	1 (16.7%)	2 (22.2%)
Drive-away	0 (0%)	0 (0%)
Rationale*Break-in	2 (33.3%)	0 (0%)
Rationale*Drive-away	1 (16.7%)	0 (0%)
Break-in*Drive-away	0 (0%)	3 (33.3%)
Rationale*Break-in*Drive-away	2 (33.3%)	4 (44.4%)

Table 32 shows that the cell with the highest percentage is for the complete offence response in the Versatile subgroup. Similarly, the corresponding cell for the Specialist subgroup was also for the complete offence response but with the addition of the interaction of the categories 'Rationale*Break-in'. Binomial tests confirmed that there was no significant preference within the Specialist subgroup $p>0.05$, or in the Versatile subgroup $p>0.05$. Fisher's Exact Probability test confirmed the impression that there was no difference between the proportions of complete offence responses in the two subgroups: 2/6 in the Specialist subgroup and 4/9 in the Versatile subgroup, $p>0.05$.

3.5.3.5. Vignette 4: Potential Burglary

Table 33: Vignette 4 (Potential Burglary) frequency totals and associated percentage values for the categories 'Rationale', 'Search' and 'Steal' for both the Specialist and Versatile subgroups.

	Specialists N = 6	Versatiles N = 9
Categories	Cases	Cases
Non-offence responses	1 (16.7%)	1 (11.1%)
Rationale	0 (0%)	1 (11.1%)
Search	0 (0%)	0 (0%)
Steal	0 (0%)	1 (11.1%)
Rationale*Search	2 (33.3%)	0 (0%)
Rationale*Steal	2 (33.3%)	2 (22.2%)
Search*Steal	0 (0%)	1 (11.1%)
Rationale*Search*Steal	1 (16.7%)	3 (33.3%)

Table 33 shows that the cell with the highest percentage in the Specialist subgroup was jointly for the interaction of the categories 'Rationale*Search' and 'Rationale*Steal'; the corresponding cell with the highest percentage in the Versatile subgroup was for the complete offence response. Binomial tests revealed no bias towards the complete offence response in either the Specialist subgroup or the Versatile subgroup *p*s>0.05. Although the Versatile subgroup provided more complete offence related responses than the Specialist subgroup, there was no significant difference in the proportions of complete offence responses between the two subgroups: 1/5 in the Specialist subgroup and 3/8 in the Versatile subgroup, $p>0.05$ (Fisher's Exact Probability test).

3.5.3.6. Overview of the results from the initial overall groups and the subgroups derived from the overall groups.

Table 34: Percentage chances of providing a complete offence response for each group and subgroup across all four vignettes.

			Subgroups with 3 or more offence related responses			
	Non-offenders	Offenders	Non-offenders	Offenders	Specialists	Versatiles
	N = 35	N = 30	N = 21	N = 25	N = 6	N = 9
V 1	2 (5.7%)	3 (10%)	2 (9.5%)	3 (12%)	0 (0%)	2 (22.2%)
V 2	2 (5.7%)	8 (26.7%)	2 (9.5%)	7 (28%)	2 (33.3%)	2 (22.2%)
V 3	7 (20%)	14 (46.7%)	6 (28.6%)	14 (56%)	2 (33.3%)	4 (44.4%)
V 4	3 (8.6%)	8 (26.7%)	2 (9.5%)	8 (32%)	1 (16.7%)	3 (33.3%)

Table 34 shows the numbers of participants in Study 2, together with the subgroups, who produced the complete offence response to the four vignettes. Inspection of this table confirms that there was little to distinguish between the Specialist and Versatile subgroups across the four vignettes. However, as previously stated the number of participants in each subgroup was low and the results should be taken with an appropriate level of caution.

3.5.4.. Broad comparison between Study 1 and Study 2

Table 35a: Sum totals, Means and SEMs for the number of offence actions for the Non-offender groups and the Offender groups in relation to Study 1 and Study 2.

Sum totals; Means; SEMs			
Study 1	Non-offenders N=40	381	9.53 (1.098)
	Offenders N=40	599	14.98 (0.886)
Study 2	Non-offenders N=35	508	14.51 (2.073)
	Offenders N=30	756	25.20 (2.291)

Table 35a shows that the Offender group in Study 2 produced more offence actions than did the Offender group in Study 1, whereas the difference between the numbers of actions produced by the corresponding Non-offender groups in Studies 1 and 2 was much less marked.

Table 35b: Offence choice 'A' or 'B' comparison for the overall Non-offender and Offender groups from Study 1 and Study 2.

		Offence 'A'	Offence 'B'
Study 1	Non-offenders N=40	26 (33.76%)	51 (66.23%)
	Offenders N=40	5 (4.31%)	111 (95.68%)
Study 2	Non-offenders N=35	73 (52.14%)	9 (6.42%)
	Offenders N=30	59 (49.16%)	41 (34.66%)

Inspection of Table 35b shows that the use of the A or B options in presenting an offence response changed markedly between the two studies. In Study 1, both groups were more likely to use option B than option A, with this tendency being more evident in the Offender than the Non-offender group. In Study 2, however, both groups were more likely to use option A than option B, and this tendency was more marked in the Non-offender group. The change in the use of option B (i.e., respond as self) and A (i.e., other) across Studies 1 and 2 is interesting, and might simply reflect that older individuals are more "cagey" than younger individuals about the basis of their knowledge. However, there is no internal evidence from Studies 1 and 2 that is particularly helpful with respect to understanding the pattern of results summarized in Table 35b.

3.5.5.1. Discussion of overall analyses

As with the results in the Study 1, the differences between the two groups in the frequency of offence versus non-offence responses in the Offender and Non-offender groups are not unexpected. However, while the Non-offender group in Study 2 provided more structured response to the vignettes than the Non-offender group in Study 1, they still lacked the overall completeness and structuring observed in the Offender groups from Studies 1 and 2. I shall now summarize the results from Study 2 in turn for each vignette for the overall groups, and then consider the results from the various subgroups.

Results from the log linear analysis for Vignette 1 (Potential Physical Assault) and the associated frequency table, revealed some structuring to the responses for both the Non-offender and the Offender groups. The use of the categories 'Physical*Verbal' in particular, with the addition of 'Depends' in the case of the Offender group, are similar to the pattern of results in Study 1. As with Study 1, the findings are consistent with previous research where an initial interpretation of hostile cues is followed by a physical assault (Freedman, Rosenthal, Donahoe & Schlundt, 1978; Crick & Dodge, 1996, 1994; Palmer & Hollin, 1996; Huesmann & Eron, 1989; Huesmann, 1994); (see section 2.6.1).

The results from Vignette 2 (Potential Car Vandalism) were clearer in Study 2 than in Study 1, and the log linear analysis produced more structured responses in the Offender group than in than the Non-offender group. Although there is minimal empirical research in this area, the results from Study 2 are indicative of a structured pattern, particularly in the Offender group. That is, there was a higher percentage of occasions on which the complete offence response was produced, and a non-significant parsimonious model which included a significant contribution from an interaction of categories 'Observe*Vandalise'.

The results from Vignette 3 (Potential Car Theft) showed that the highest number of occasions for the complete offence response was in the Offender group; but this number did not constitute a significant preference for the complete offence response. However, the parsimonious model from the log linear analysis revealed the presence of the two categories 'Break-in' and 'Drive-away' which was in contrast to the Non-offender group's model of 'Break-in'. This pattern is indicative of more structuring in the Offender group generally, as more categories are included in the response to the vignette. The Non-offender group's responses were dominated by one category and were thus less detailed and less structured. The high number of complete offence responses and the high association of the two categories found in the results for the Offender group provide further support for the applicability of script theory to offenders' knowledge structures (see Section 2.6.1.).

The analysis of Vignette 4 (Potential Burglary) revealed differences between the two groups, with the Offender group providing a greater percentage of complete offence related responses, which included more items or actions. Consistent with previous research (i.e., Tunnell, 1992; Wright & Decker, 1994; Nee & Taylor, 2000), the results from Vignette 4 in Study 2 show that, compared to the Non-offender group, a high proportion of the offender group provided detailed structural knowledge of actions which if enacted would lead to a burglary. In previous research by Wright and Decker (1994), it was noted that the decision to commit a burglary took place away from the property. However, this feature was not assessed in Vignette 4, as the scenario started at a point where the respondent begins by 'walking down the road in which a potential burglary target was situated'. As a consequence, what followed was a list of actions approximating to the type of stages that have been apparent in previous research (see Section 2.6.1.) which occur in the absence of a planned decision making component. This observation implies that whether the decision to burgle is taken at a point

away from potential targets, or whether it is an *ad hoc* or impulsive decision, the structure of actions appears similar. As previously noted, Nee and Taylor (2000), compared the search methods used by burglars and Non-offenders to break in to a property and the search patterns once inside. In doing so, they found that the burglars conducted their searches more systematically than the Non-offenders. The key difference between the study reported by Nee and Taylor (2000) and Vignette 4 in Studies 1 and 2 was as follows: The former separately examined two specific stages of a burglary (i.e., target selection and search strategy), whereas one of the principal aims of this thesis was to compare the general structural knowledge of non-offenders and offenders across a potential burglary situation as a whole. However, in spite of the differing aims and methodology that was used, Studies 1 and 2 provided evidence that was consistent with that reported by Nee and Taylor (2000). For example, many of the offenders in Studies 1 and 2 made specific references to the 'Search' category and this parallels findings in the Nee and Taylor (2000) study.

What was of additional interest in Vignettes, 2, 3 and 4 was the high frequency for which items relating to the category 'Rationale' occurred; this new category was evident in some of the responses in Vignette 1, but was insufficiently frequent to warrant a new category in the analysis of that vignette. Although the new category included rationalisation of why the offender is committing the crime, it also involved the processing of anti-detection techniques both pre- and post-criminal act. Some of these techniques seemed to form part of the procedural knowledge provided by some of the participants from within the Offender group; but there was some evidence of this form of knowledge in the Non-offender group. It should be acknowledged that distinguishing between an 'action' required for carrying out a criminal act (e.g., "look for an easy method of entry") and an associated act which is perhaps to facilitate the criminal act or to avoid detection (e.g., "be as quick and as quiet as possible") can be difficult. This is because in these examples it is unclear as to whether the rationale for

being 'quick and quiet' is related to anti-detection *per se* or specifically to facilitate the immediate success of the criminal act. That is, an offender might not be concerned with being caught later on, just as long as he can get some money now. That said, there are techniques which are clearly concerned with post detection avoidance and are not absolutely necessary for the execution of the criminal act (e.g., "get home get rid of clothing and shoes") and other techniques which may also be considered subsidiary or indirect to the commissioning of the criminal act (e.g., "make sure you have gloves on"). In the context of the literature reviewed above (e.g., concerning concrete thinking; see Section: 1.4.3.) and the fact that many repeat offenders are, by definition, unsuccessful at avoiding detection, anti detection methods (particularly post event) maybe relatively rare amongst this population and are a worthwhile topic of further exploration in their own right.

3.5.5.2. Discussion of analyses of subgroups

Consistent with the observations in Study 1, as the scenarios in the vignettes progressed from a physical encounter on the street (i.e., Vignette 1) through to a burglary (i.e., Vignette 4) the difference between the various groups began to emerge. As has already been noted, to have knowledge of how a street fight might develop may not require any specific experience or knowledge. However, having procedural knowledge concerning how to go about vandalising a car, how to break into and take a car, through to committing a burglary, would most likely require progressively more detailed knowledge and experience. If script theory is a plausible way of understanding the key elements of habitual, repeated and concrete goal-directed behaviours of some specialist offenders, it appears from the results of this thesis that these concepts apply at least equally to the Versatile offending population.

3.6. Rationale for Study 3

The results from Studies 1 and 2 suggest that both young and older repeat offenders generally possess greater procedural knowledge of offence related situations than do non-offenders. However, having shown that offenders of various types have a repertoire of script-like knowledge does not require that these kinds of knowledge structures are the principal determinant of offending behaviour. For example, although as Schank and Abelson (1977) suggest, scripts might be a useful means of representing often experienced events they might come with an associated cost; namely, an inability to modify behaviour in the face of changing conditions. This form of inability might be one reason that offenders get caught. A number of authors (Cherbonneau & Copes, 2006; Soothill, Francis & Fligelstone, 2002; Maguire, 2002) have commented speculatively on an offender population that evades law enforcement efforts and consequently subsequent adjudication. One implication of this fact is that this offender population is rarely the subject of empirical research and very little is known about what characterises them. One possibility is that such criminals are quite different from those who exhibit evidence of script-like knowledge. Some of the contents of the category 'Rationale' in Study 2 allude to the notion that there is an additional layer of processing in at least some offenders, though in the Offender group of Study 2 it may not necessarily be highly developed. The aim of Chapter 4 was to investigate this possibility in the context of a detailed, more qualitative analysis of the responses to a single vignette given by three participants who maintain that they have never been convicted for crimes that they have committed as adult offenders and four who are repeat offenders from Study 2.

Chapter 4

Application of script theory to a group of Elite offenders

4.1. Introduction

Various sources of criminal statistics (e.g., the BCS and *the Criminal Statistics for England and Wales, 2002*) indicate that, over an extended period, there is far more crime committed than there are convictions or adjudicated offenders. Maguire (2002; 2007) has commented extensively about the so called 'justice gap' between solved and unsolved crimes and its many implications. One of those implications is the 'unknown' characteristics of the perpetrators of some of these crimes. Maguire (2007) considers that the characteristics of offenders as a whole cannot be inferred from the skewed characteristics of those who have been adjudicated, given the volume of what is not known. The aim of the new research reported in Chapter 4 was to contrast the vignette responses of repeat offenders with a small group of what will be referred to as 'Elite' offenders, who have avoided detection for a long period of time (during their adult lives). The vignette was similar in form to that used in Studies 1 and 2, but had a more interactive nature that was brought about by the introduction of new information (by the Researcher) as the responses to a series of questions regarding the burglary were being given (by the participant). The issues of interest were whether the responses of the two groups would differ, and whether the responses of the repeat offenders would follow a specific sequence. The results of this study should provide evidence concerning whether the script-like processes examined in Studies 1 and 2 differ between repeat offenders and Elite offenders. Before describing the study in detail, it is worthwhile briefly considering previous research that has examined how offenders attempt to evade detection.

To date, there is in fact very little research directed toward the question of how some offenders evade apprehension for the crimes they commit. Nee and Taylor (2000) interviewed imprisoned offenders about burglary. These offenders were incarcerated for other crimes and

not burglary, though this sample was identified through interviewing imprisoned offenders who were convicted for burglary. On the basis of self-report and official records, Nee and Meenaghan (2006) concluded that these were offenders spending time in custody for committing crimes that were not the offences in which they had 'expertise' or committed on a regular basis. The decision making 'expert' burglars were considered to be similar to that of some experts in non-offence related legitimate enterprises, in terms of efficiency (i.e., how quickly they identified and processed relevant cues).

Some research has focused on decision making at the scene of the crime, looking at the cues used by offenders to determine which property to burgle for maximum gain with the least likelihood of being caught. For example, offenders consider the vegetation around the properties for cover, the level of security and the potential material of worth which can be taken from the property (Cornish & Clarke, 1987; Nee & Taylor, 2000). This research concentrates on how offenders use environmental and physical cues to make decisions. These identifiable and observable factors contribute to an offender's decision making: they focus on what is readily observable. The emphasis on observable factors is consistent with offenders showing concrete thinking (Ross & Ross, 1995), where focus is on the goals of the here and now (Farrington, 1996). Some offenders may be expert in identifying a safe target to burgle and they may be regarded as experts because of their efficiency in deciding upon what to burgle, when to burgle, and how to burgle. However, research that focuses on how to choose a target and how to commit a burglary does not reveal whether offenders have more general or overall strategies for evading detection during and after committing the crime.

Cherbonneau and Copes (2006) have described and commented on research concerning an offender's strategic decision making for reducing the risk of being caught when offending. Most of the research they consider is related to the more accessible and highly visible

activities (i.e., car theft, or drug dealing). However, due to the nature of some forms of property offending (i.e., its low visibility and the consequent difficulty in conducting observational research when the criminal activity is taking place) much less is known about the cognitive processes that underlie anti-detection for these types of offences. Indeed Shover (1973) suggests that there is little evidence for any qualitative differences in cognitive processes between offenders who get caught and those that do not.

4.2. Rationale

In order to explore differences between offenders who have and have not been apprehended, a more complex burglary vignette was utilised (see section 4.3.2 for details of the vignette). Briefly, this vignette involved a series of questions and subsidiary questions, that were interleaved with various 'obstacles' or new pieces of information (e.g., "you are ready to go when you hear the police in the distance driving hurriedly toward the building. It sounds like they could be approaching from different directions at the same time."). The question of primary interest is whether or not the repeat failed offenders respond differently to this vignette than the Elite offenders.

4.3.1. Method

4.3.2. Vignette generation

This vignette was generated by compiling information gained from some of the participants in Study 2, and through general discussions about some of their experiences (i.e., things that can occur unexpectedly or be unwelcome, such as the police arriving) in the course of offending. Further sources of information came from law enforcement agents and other researchers in the field. For example, a copy of the vignette was sent on 30th January 2006 to Richard Wright (Department of Criminology and Criminal Justice, University of Missouri-St. Louis), who provided some advice and suggested several minor modifications to the vignette. Once

sufficient information had been gathered, the vignette questions were developed. For example, the BCS data informed question 3 (see Section 4.3.4 for a list of questions). From the data gathered in Studies 1 and 2, it was clear that some offenders walk to the place of the offence whilst others drive a vehicle, of which some are stolen and others are owned by the offender. This aspect of the data informed questions: 4 and the associated subsidiary questions; question 5; questions 12d and 14. Other data from Studies 1 and 2 revealed that offenders sometimes improvise in that they use items they come across at the scene of the burglary for gaining an entry (e.g., a ladder) and for use in taking away the stolen property (e.g., pillow case). This type of data informed question 6 and the associated subsidiary questions. Questions 9, 10 and 11, together with the associated subsidiary questions, were informed by the search patterns identified in the data from the Nee and Taylor (2000) research, in addition to the data collected in Studies 1 and 2. From the research by Wright and Dekker (1994), it was established that some offenders make a decision to commit an offence away from the property. This data informed the initial descriptive context at the start of the vignette and questions 7 and 8, together with the associated subsidiary questions. Questions 12, 13 and 14, and the associated subsidiary questions, were again informed by the data collected in Studies 1 and 2. Wright and Dekker (1994) also described the process of property disposal after the completion of the offence. This data informed question 15 and the associated subsidiary questions, plus question 16.

4.3.3. Participants, recruitment and ethics

A small group of four participants who had previously provided responses for Study 2 also provided responses to the vignette in this study. The four participants were in the Versatile subgroup of the original offender group. Each had provided a high number of offence related items to all four of the vignettes in Study 2. These participants were invited to attend for a second time and participate in Study 3. In addition, a second group of three participants who

were self declared offenders and former burglars also provided responses. These participants were recruited over a two-year period and involved referrals from other offenders with convictions (Nee, 2004) who in this case, were involved with Study 2. All three participants were between 30 and 50 years of age, one participant had spent some time in a youth custody centre as a teenager, another had received a few minor convictions during their teenage years, and the other claimed to have no convictions at all. Each participant claimed to have spent (subsequent to convictions as teenagers) many years of offending in high-risk activities (e.g., burglary, car theft) without detection before moving on to other lower risk criminal activities. This movement was attributed to having made enough money and, in part, through age making available a wider range of alternatives. Due to the nature of this research, the Ethics Committee in the School of Psychology referred the project to the University's Ethics Committee, which in turn granted permission to proceed, though subject to minor modifications to the proposal.

4.3.4. Materials

A complete listing of Vignette 5 (a burglary scenario) is presented below.

Vignette 5

Please list your answers whenever possible, otherwise answer in your own way.

A property located in a secluded area, which you decide to burgle as it is understood to contain some high value goods.

1) What is the most important goal of the burglary?

2) What other goals if any might there be?

3) When would you prefer to commit the burglary?

Day / Night

3a) Why that choice?

4) How would you get there?

(Walk, public transport, Drive?)

4a) How far would you walk?

4b) What type of transport?

4c) Is it stolen, borrowed or your own?

4d) How far away would you park it?

5) What if you got stopped or chased on the way to the burglary?

5a) Why that choice?

6) List the equipment you would take on a burglary?

6a) Why?

6b) Where did you get it from?

7) How will you approach the building once you get there?

8) What is the first thing you would do when you get outside?

8a) Then what would you do?

8b) Anything else?

You have entered the building for the first time.

9) What is the first thing you would do once inside?

9a) Why?

9b) Then what?

9c) Anything else?

10) Where is the equipment that you would bring with you?

10a) Why?

You are in the building and have located the items you want to take. You do not know how much time you have before anyone arrives.

There are a couple of items which are bulky, though you can carry them. They are worth a lot of money and you could sell them quickly. There is also a larger number of smaller items which you could sell as a job lot but would not fetch as much money.

11) Which would you take?

11a) Where would you do with the goods you are going to take whilst still inside the building?

11b) What about the equipment?

11c) Where would you put the goods once you have taken them outside?

You are ready to go when you hear the police in the distance driving hurriedly towards the building. It sounds like they could be approaching from different directions at the same time.

12) What would you do?

12a) Why?

12b) What do you take....the goods or your equipment?

12c) Why?

12d) What about the vehicle you used to get there?

The police are now searching the area. Some are patrolling in cars whilst others are on foot searching places where someone might be hiding.

13) What would you do?

14) When do you make your getaway from the area?

You have decided to;

Hide

Walk down the road as an innocent passer by

Run to the vehicle and drive away

Etc.

14a) Tell me about why you have made that choice?

You have got away from the building.

15) What would you do next?

15a) What would you do with the goods if you have any?

15b) What would you do with your clothing?

16) At what point would you decide you have safely got away with the crime?

4.3.5. Procedure

Participants were met individually, where they were reminded of the general procedure and their ethical rights together with a summary of the purpose of the study. The questions were read out aloud, slowly and purposefully. Participants took as much time as they wanted to think about their response and write it down in their own words. The next question was only revealed once a participant had indicated that they were ready to move on. On occasions, some questions became redundant, due either to the participant having already answered them in the course of their answer too a previous question, or because of the option chosen by the participant in the previous question(s) rendered it redundant.

4.3.6. Analysis

Vignette 5 posed a series of set questions and subsidiary questions that related to stages within a burglary. The responses to each question was recorded and then placed into one of the following five categories, which were coded using the same scheme followed in Studies 1 and 2 (see section 2.4.4). These categories do not, of necessity, refer to a sequence of stages although often they are related to such a sequence:

Rationale: mainly pre- and post-offence decisions (e.g., "carry on, its only the car that have been seen"; "pull over, stop job"; "probably leave it alone that night").

Remote: actions which take place at a location that is distant from the actual event and which make them non-specific to that event (e.g., "minimum 15 mins", "far enough away from the building so as not to be linked to burglary"), although they may still be a necessary early stage

to the event.

Nearby: actions which are specific to the hypothetical crime, but at a distance which is distinguishable from the actual premises (e.g., "escape route, scan local area", "find a nearby spot where you can see the building but isn't part of the grounds").

Outside: actions related to being immediately outside of the building (i.e., on the premises) which is the subject of the burglary (e.g., "find the easiest route to getting in", "look around the burglary check out all the places outside where someone else could be and other possible routes away, then go and sit it out for a while in the look out").

Inside: activities inside the building being burgled (e.g., "proceed to inner area of property", "go to the building, go around it and go back to the hiding place").

Almost all of the participants' responses fell into these categories; where there was ambiguity the context of the question was used to aid placement in one of the categories. However, consistent with lag sequencing methods (see below), those responses that could not be categorized were placed into the 'Rationale' category along with responses that clearly belong in the 'Rationale' category.

4.4.1. Results

The aim of the study was to assess the patterns of responses that repeat offenders and Elite offenders make in the course of their answers to the questions in a burglary vignette. To conduct a meaningful analysis of the sequence in which the five categories occurred, a criterion position needs to be designated. In the present case, this position was the category B (remote; which is first prompted by question 4) and represents the first point at which a behaviour directly related to the specific criminal act is mentioned. Once this position has

been established for each participant, the lag analysis (see below for further details) proceeds by simply listing (in sequence) the subsequent categories that the participants' responses fall into. Before presenting the lag sequence analysis, I will present some more general information concerning the participants' responses.

Table 36a: Overall frequencies of items and associated probability values for the five categories provided by the Offender group and the Elite group for Vignette 5.

	Offenders (N = 4)		Elites (N = 3)	
Behaviour	Freq	Prob.	Freq	Prob.
A Rationale	31	0.24	29	0.25
B Remote	38	0.29	31	0.26
C Nearby	17	0.13	32	0.27
D Outside	15	0.11	3	0.02
E Inside	28	0.19	21	0.18
Total	129		116	

Table 36a shows the total number of responses that fell into the five categories in the two groups of participants. The numbers include the various subsidiary questions, which do not form part of the lag analysis that follows. Inspection of this table reveals that the highest frequency shown was for the 'Offender' group in the category 'Remote', whereas the highest frequency for the 'Elite' group was for the category 'Nearby '. The category with the lowest frequency was found in the 'Elite' group and was for 'Outside'. The mean number of items produced was somewhat greater in the Elite group than the Offender group. A Mann-Whitney U confirmed that this difference was statistically significant ($Z = -2.141$; $p<0.05$).

Lag sequencing is the name given to the study of a series, string or sequence of events (Sackett, 1979). The following description provides details on how to read a lag sequence table (see Tables 36b and 36c). The column headed 'Lag', and corresponding figures in the column below, refer to the number of positions after the criterion behaviour (i.e., a criterion behaviour is the chosen target behaviour from which to lag all other behaviours) that has

occurred (e.g., lag 1 would mean the first behaviour *after* the criterion behaviour). Similarly, lag 5 would mean the fifth behaviour after the criterion behaviour. When the same behaviour immediately follows itself (i.e., without being separated by any other behaviour) it can not be counted again and so is ignored; hence overall frequencies of responses differ greatly from the number of times movements between behaviours are observed in a lag-sequencing table. As mentioned above, the chosen criterion behaviour in this instance is 'Remote' (i.e., column B). Given this, the tables (i.e., 36b and 36c) can appear misleading in that they are actually skewed to begin the lag sequence counting from after the first occurrence of the criterion behaviour (i.e., the category 'Remote'). The first behaviour is not visible in the tables (i.e., although column A 'Rationale' appears before column B 'Remote' in the tables, lag 1 means the first behaviour of any other kind which has occurred *after* the first occurrence of the behaviour 'Remote'). Therefore, the tables are read by looking down the 'Lag' column to a given lag position, and then across the table to determine which category was matched to the lag. The figures show how many times the category was matched (by each participant) at that particular lag and not how many times the behaviour in that category occurred *per se*. The figure representing the total number of times the behaviour matched the criterion behaviour at a given lag is the group's total number of matches. Before proceeding with the overall results from the groups, a worked example using the results from an individual participant in the Offender group is presented.

4.4.2. Worked example of the Lag-sequencing method of analysis, using a single participant's data from Study 3.

Reading across the upper row of Table 36b, below (i.e., lag 1; row 1), it can be seen that the first behaviour to occur for the participant in the Offender group after the criterion behaviour 'Remote' (i.e., column B) is the behaviour 'Nearby' (column C). This behaviour is then

followed by a move to behaviour 'Rationale' (column A) at lag 2. From 'Rationale' the participant performed behaviour 'Nearby' (column C) at lag 3. At lag 4 the participant moved forward to perform behaviour 'Outside' (column D). At lag 5 the participant moved forward to perform behaviour 'Inside' (column E). At lag 6 the participant moved backwards by performing behaviour 'Nearby' (column C). At lag 7 the participant continued to move backwards by performing behaviour 'Remote' (column B) and finally at lag 8, the participant moved to the end of the lag chain by performing behaviour 'Rationale' (column 8). This was the end of the chain lag for the participant only because there were no more movements forward in response to any further questions. Below Table 36b are the specific questions and responses that determined the positioning of this particular participant across the table.

Table 36b: Lag-sequence worked example of a single participant from the Offender group.

	Lag	A	B	C	D	E
Offender	1			1		
	2	1				
	3			1		
	4				1	
	5					1
	6			1		
	7		1			
	8	1				

The following transcript is a partial copy of the data from which the worked example was derived and represents the critical comments that led to the lag positioning presented in Table 36b:

Question 4d: Lag 1; "3-4 hundred yards"
Question 5: Lag 2; "pull over, stop job"
"Risk of identification"
"Infared goggles, glass cutter, gloves, carrier bags, weapons"
"These may be needed."
"Army/naval stores, internet"
Question 7: Lag 3; "with caution"

Question 8: Lag 4; "check security arrangements, i.e., dogs, cameras, guards."
"Proceed to inner area of property, garden"
"Check kit and inhabitation, alarms off"
"Knock out any more alarms"
Question 9b: Lag 5; "go to room where safe is"
"Check where applicable of valuables"
"On my body"
Question 12: Lag 6; "to the transport"
Question 12a: Lag 7; "leave everything make hast and try to look unsuspicious"
Question 13: Lag 8; "look as calm as possible and walk on"

4.4.3. The complete results

The table below is the overall results for the two groups and as with the worked example the table is read in the following way:

Reading across the upper half of Table 36c below (i.e., lag 1; row 1), it can be seen that the first behaviour to occur in the Offender group after the criterion behaviour (i.e., column B) is in column 'C' (i.e., 'Nearby'). This behaviour followed the criterion behaviour at lag 1 a total of 4 times across the whole of the group. As there are only four participants in the group it can be seen that there cannot be any other lag 1 behaviours across the row, indicating that all four members of the group used category 'C' (i.e., Nearby) to respond at that point. In contrast, the 'Elites' group reverted to category 'A' (i.e., Rationale) immediately after the first occurrence of the criterion behaviour (i.e., column B). Table 36b takes both groups of participants to lag 8 for the purpose of comparison. Lag 8 represents the final point in the sequence for all participants in the Offender group. The patterns of behaviour at each of the lags will be described below Table 36c.

Table 36c: Event lag-sequencing of movements between stages of behaviours for both the Offender and the Elite groups (taken to 9 lags).

	Lag	A	B	C	D	E	Total
Offenders	1	0	0	**4**	0	0	4
N = 4	2	**1**	**3**	0	0	0	4
	3	0	0	**2**	**2**	0	4
	4	0	0	0	**1**	**3**	4
	5	0	0	**3**	**0**	**1**	4
	6	0	**3**	**1**	0	0	4
	7	**3**	**0**	**1**	0	0	3
	8	**1**	**0**	0	0	0	1
		A	B	C	D	E	Total
Elites	1	**3**	0	0	0	0	3
N = 3	2	0	**3**	0	0	0	3
	3	0	0	**3**	0	0	3
	4	0	0	0	**3**	0	3
	5	0	0	**3**	0	0	3
	6	0	0	0	**2**	**1**	3
	7	0	0	**2**	**1**	0	3
	8	0	0	0	0	**3**	3
	9	0	0	**3**	0	0	3

Note: The lag positions for different participants are independent of one another (see below). Furthermore, it is the responses to the questions, not the questions themselves that determine the positioning of a participant in the table (i.e., that means that any question, even ones which are not intended to elicit a movement can do so if the participant indicates that they would move in response to that particular question). Therefore, the positioning is determined by the individual participant's responses to the questions. Multiple participants can be in a different position at the same lag from the same question or in the same position but at a different lag. Conversely, a question that elicits a move for one participant may not do so for another. Where a participant does not allude to a movement in a response, the assumption is that the participant has not moved from the previous position and so the response is noted without moving to a new position.

Lag 1 description

Inspection of Table 36c shows that there is some difference between the groups in their movement during the earlier lags of the event. As mentioned above, the Offender group moved to position 'C' (nearby) at lag 1. The Elite group moved from 'B' to 'A' (at lag 1). This indicates that the Offender group continued to move onto the next component of the burglary (C, but the Elite group moved back to 'A' (i.e., Rationale) where there is an

opportunity to reconsider the next move.

Lag 2 description

At this point the two groups perform similarly in that they both (with the exception of one participant from the Offender group), move to position 'B' (i.e., Remote location). In the case of the Offender group, this represents a reverse move and in the case of the Elite group it is a forward move.

Lag 3 description

At lag 3, two participants from the Offender group move to position 'C' (Nearby), whereas the remaining two move to position 'D' (Outside of the property). The Elite group all move to position 'C' (Nearby).

Lag 4 description

From the Offender group, one participant moved from position 'C' to position 'D' (Outside of the property), whereas one other participant skipped position 'D' and moved forward to position 'E' (Inside of the property). The fourth participant moved from position 'D' to 'E'. The three participants from the Elite group all move forward to position 'D' (Outside of the property).

Lag 5 description

The Offender group members split into two different positions, three moved back to position 'C' (Nearby) and one moved forward from position 'D' (Outside of the property) to position 'E' (Inside of the property). All three members from the Elite group moved backwards to position 'C' (Nearby). By the completion of lag 5, all four participants from the Offender group have been into the property, exited it, and moved to other positions. Conversely, the

Elite group had not entered the property and have reached position 'D' (Outside of the property) but have not gone further than that point.

Lag 6 description

Three members of the Offender group moved from position 'C' (Nearby), to position 'B', whereas the remaining participant moved to position 'C' (Nearby). Conversely, two members of the Elite group moved forward to position 'D' (Outside of the property) for the second time, whereas the one remaining member moved to position 'E' (Inside of the property). This is the first occasion that anyone from this group has gone as far as this in the sequence.

Lag 7 description

At this stage three member of the Offender group has moved back to 'A' (Rationale), whilst one has moved backwards from position 'C' to position 'B' (Remote). One member of the Elite group moved to position 'D' (Outside of the property), and the other two members moved to position 'C' (Nearby).

Lag 8 description

At this stage, the one remaining member of the Offender group moved from position 'B' (Remote), back to position 'A' (Rationale). This is the end of the lag chain for the Offender group as none of the members moved forward again. At this lag, all three members of the Elite group moved forward to position 'E' (Inside of the property). This is the first time that two members of the Elite group have moved into the property and the second time for the other member.

Lag 9 description

At this stage, the members of the Elite group moved back to position 'C' (Nearby).

Exploratory statistical analyses

There are a number of differences between the two groups that inspection of Table 36c reveals. First, the Offender group enter the property (i.e., reach category E) considerably earlier in their sequence than do the Elite group. A Mann-Whitney U test revealed that the Offender group's lag to enter the property (mean lag=4.25) differed from the lag of the Elite group (mean lag=7.33; Z=-2.223, $p<0.05$). Second, the point at which they return to the criterion position (i.e., B: remote) occurs more rapidly in the Offender group than the Elite group; in fact, none of the Elite group had returned to this position by lag 9, and the minimum number of lags at which each of the participants in this group could have done so would have been lag 10. A Mann-Whitney U test revealed that the Offender group's lag to return to B (mean lag=8.00) differed from the corresponding lag for the Elite group (mean lag=10.00; Z=-2.223, $p<0.05$). Finally, participants in the Elite group were much more likely to repeatedly move between category C ('Nearby') and categories D and E ('Outside' and 'Inside', respectively) than participants in the Offender group. A Mann-Whitney U test revealed that the Elite group's lag transitions (mean number of transitions=5.33) differed from the corresponding transitions for the Offender group (mean transitions=2.00; Z=-2.366, $p<0.05$).

4.5. Discussion

Study 3 investigates the responses of two groups of offenders to a burglary vignette. One group of offenders, Group Elite, declared that they had no criminal convictions in their adult lives whereas the comparison group self-declared several convictions. The sequence of behaviours (or categories) that the two groups showed was quite distinct. Participants from the Offender group showed a rather linear sequence of categories (moving from a remote location (B) to inside the property (E) and then retracing their steps to the remote location. However, participants in the Elite group showed a greater lag to both enter the property and to leave it, but also tended to move repeatedly between nearby (C) and inside the property (E).

The results of this small-scale study have a number of important theoretical implications when considered in conjunction with those from Studies 1 and 2. These implications will be briefly considered in turn, before their broader significance is discussed in the final chapter (Chapter 5).

The sequence of behaviour seen in the Offender group is consistent across the four individuals and is in keeping with the view that they possess script-like knowledge (see also Studies 1 and 2); knowledge that appears to be exhibited as a matter of course, seemingly in ignorance of the potential for adverse changing circumstances and new information. The sequences of behaviour observed in the Elite group were also consistent across the three individuals; however, it was quite unlike that seen in the Offender group. The Elite group appeared to take more steps prior to accessing the property and yet they were more inclined to leave and then re-enter the property. This pattern of behaviour suggests that their approach is rather more strategic, involving multiple explicit decision points, and sensitivity to the potential for changing circumstances and new information.

The essence of Schank and Abelson's (1977) script theory is that a sequence of behaviour follows a predictable pattern (e.g., the sequence of a restaurant event). In addition, this theory also considers that interferences can occur. They are called obstacles, where some enabling condition for an impending action is missing. In such cases the script holder may respond by leaving the script altogether or taking corrective action in the form of a 'prescription'. However, in this instance, the offender group tended to follow a similarly linear and perhaps therefore predicable pattern, suggesting limited capacity for prescriptions.

The 'Elite' offenders did appear to have prescriptions incorporated into the overall sequence. These prescriptions were pre-emptive in that they anticipated potential problems occurring and were routinely part of the sequence. For example, in Table 36c it can be seen that at lag 6

one member of the Elite group enters the property and then exits it. This is done without taking any property. In doing so the participant returns to the safety of the 'nearby' location for a period of time so as to test whether it is safe to continue with the offence, by assessing whether his presence inside of the property has activated any security measures, such as a silent alarm. In contrast, the Offender group appear to have prescriptions which are evoked only after a problem had occurred. For example, in Table 36c it can be seen that at lags 4 and 5 all participants from the Offender group have entered the premises, gathered up all of the property they intend to steal and exited the building. In doing so, a prescription is evoked retrospectively to the changing circumstances, such as running away once the police are heard approaching. By spending the initial time in the property taking goods, the Offender group members may have unwittingly allowed the police an opportunity to close the net (i.e., get close to the building with the offenders either inside or in close proximity to the property), thereby making an effective escape less likely. This difference between the groups may be one of a number of critical differences in evading detection. The Elite group members had initially spent a very short period of time inside of the property before positioning themselves at a strategic location from which they can make good their escape, as they wait in anticipation of the potential risk from the police arriving.

These group differences can also be characterised by the notions of concrete versus abstract thinking and impulsivity. Ross and Ross's (1995) notion of concrete thinking (i.e., goal derived here and now behaviour) would suggest that some offenders are unable to anticipate potential risks and develop suitable prescriptions or strategies for dealing with those risks. Similarly, impulsivity (e.g., Gottfredson and Hirschi's (1990) theoretical trait of a lack of self-control), means that offenders would be unable to stave off the need for immediate gratification, hence the rushing in to steal items before ensuring that it is safe to do so. The Elite offenders appear to have developed prescriptions for dealing with potential risks, which

is indicative of an ability to think abstractly as these risks are projectory rather than concrete. There still appears to be a clear structure to the sequence of movements in the Elite group. Therefore, speculatively, even a complex set of behavioural movements, underpinned by abstract processing, can become routinised if rehearsed sufficiently well (Ward & Hudson, 2000). It is thus possible that the Elite offenders use more complex scripts to conduct the offending process. Furthermore, when the results are viewed within the script theory framework, the pattern of behaviours observed in the Elite offenders does conform to the definition described in Chapter 1 (see Section 1.5).

Chapter 5

General Discussion

5.1. Summary of aims and new results

The principal aims of this thesis were to provide a detailed assessment of the applicability of script theory to versatile and repeat offenders who have different amounts of experience in offending. Two large-scale studies were conducted to achieve these aims, with two age groups of offenders, within which there were subgroups of versatile and non-versatile offenders. The same methodology, involving soliciting actions associated with a range of vignettes, was used in both studies. The questions of central interest were whether the actions would conform to the definition of scripts presented in Chapter 1, and if so, whether evidence for such scripts differed according to the type and age of the offender. Studies 1 and 2 included a comparison group of non-offenders. Study 3 was a smaller scale assessment of whether the responses to a burglary vignette in a group of Elite offenders (those who have not been caught) differs from those of another group of offenders (who have multiple convictions).

The results in Studies 1 and 2 revealed that offender groups and subgroups provided more procedural knowledge across a series of potential criminal situations than non-offender groups. The log-linear analysis showed that there were more elements (i.e., categories) of procedural knowledge to the answers. Moreover, there were a greater number of complete offence responses (responses that included all categories associated with a vignette) in the offender than the non-offender groups. Comparison of the results from Study 1 (involving young offenders) and Study 2 (involving older offenders) revealed a similar overall structure to the offenders' knowledge. However, the results of Study 2 indicate that the older offenders were more likely to incorporate items related to the category 'rationale' (which includes items relating to anti-detection) than were the younger offenders from Study 1. Nevertheless, the results of Studies 1 and 2, when taken together, show that the offenders hold a higher degree

of procedural knowledge pertaining to various potential criminal acts than do the non-offenders. The results of Study 3 reveal that the responses of Elite offenders to a potential burglary are very different from those of other offenders. In particular, the Elite offenders tend to take longer to enter a property, and, when confronted with additional information, are more likely to remain at the scene of the burglary, and consequently take longer to exit the vicinity of the burglary.

5.2. Theoretical and applied implications

Schank and Abelson (1977) supposed that scripts underlie routine behaviours and can be applied to a variety of social encounters; they also supposed that an actor may have a repertoire of scripts available for a range of common social situations. The results from Studies 1 and 2 confirm that this theoretical framework can be extended to versatile offending, and shows that the approach is as applicable to young and versatile offenders as it is to older and more specialist offenders. Previous research on specific criminals has shown that script theory is a plausible framework in which to consider the actions of 'experts' or 'specialists'. This previous research has focused on the overall procedure of carrying out a burglary (Wright & Decker, 1994) and also on very specific components within it (Nee & Taylor, 2000).

Although the results from Study 1 and Study 2 are entirely consistent with the notion that direct experience with offending has produced knowledge structures that are akin to Schank and Abelson's (1977) notion of scripts, alternative interpretations are clearly viable. For example, experience in conducting burglaries will almost inevitably involve the categories approach, search and steal. Therefore, showing that offenders are more likely to include these categories in their responses might merely indicate that they have knowledge about each of these independent components. The fact that non-offenders, who presumably have less

experience with burglaries, do not include all of these categories might simply reflect that they have less knowledge, of any kind, about burglaries. The fact that older offenders tend to use additional categories in their responses to the vignettes (i.e., rationale) is interesting in its own right, but again it need not indicate that they possess scripts for criminal activities that are changing over time. However, in this context, the results of Study 3 are very interesting, as the activity of the Elite offenders appears to be un-script like, in terms of the simplistic linear style observed in the offender group. The Elite group responded flexibly when confronted with changing circumstances in comparison to the Offender group. This difference in the responses of the two groups is certainly consistent with the view that the repeat offenders process knowledge in a script-like manner, whereas the Elite offenders do not. Moreover, the fact that the repeat offenders have (self-declared) criminal convictions whereas the Elite offenders do not, might be taken to imply that the procedural or script knowledge that repeat offenders use is resulting in an increased likelihood of being caught. That is, in this instance, there might be a real cost associated with the possession of a script for a criminal act that cannot be modified or abandoned when it is appropriate to do so. Of course, this series of arguments is entirely speculative. However, the theoretical framework developed in this thesis does suggest a series of additional studies that might be conducted in the future to further assess its validity (see Section 5.3).

The results of Studies 1-3 are also generally consistent with the cognitive deficits approach to explaining repeat offending. According to such an approach, the behaviour of offenders is a consequence of a bias towards concrete as opposed to abstract thinking and rigid as opposed to reflective or analytical thinking (e.g., Ross & Ross, 1995). In this context, the behaviour of offenders who make use of script-style processing might come at the expense of abstract processing and would partially differentiate this particular population of offenders (i.e., habitual offenders) from non-offenders and other types of offenders, who may use scripts less

dominantly. The interaction between the possession of scripts and abstract/reflective thinking is one that could be addressed by the simultaneous assessment of these thinking styles and the nature of responses to vignettes. Before considering this, and other such future studies, the next section concludes with a brief consideration of the applied implications of the results of this thesis.

Although the data reported in this thesis does not facilitate a direct understanding of how these differences occur in processing criminal activities at the scene of a crime (i.e., natural developmental processes, vicarious and/or by experiential learning), it does allow for some useful comparisons between the two styles which can help inform both rehabilitation programs and crime prevention. Generic rehabilitation programs (e.g., Think First) are, at least in part, based on changing the cycle of thought processes which would otherwise lead to a situation in which offending begins. One of the ways in which such a change might be brought about is through changing the putative scripts for offence-related behaviours. The results of Studies 1 and 2 suggest that even in relatively young offenders procedural knowledge is present. These results suggest that rehabilitation programs that target the modification of scripts might well be effective across a range of offenders. It might be possible to introduce new information into extant scripts that alters the likelihood that an offence will be committed. For example, once the cues for the initiation of a particular offence script are identified, then the scripts could be triggered and alternative ways of responding could be introduce and associated with those triggering cues. More specifically, a rehabilitation program could be devised which makes explicit the sequence involved in a script for a given individual, at which point well-established principles of behaviour change could be introduced in the context of the script (e.g., the motivational interviewing technique used within the National Health Service).

In addition, the results suggest that the Offender group rely on linear sequences of prescribed actions and in doing so appear to lack the pre-emptive 'prescriptions' (i.e., a range of alternative subscripts that allow the holder to navigate passed a problem) observed in the Elite group. When used in a pro-social setting, these concepts can be utilised within rehabilitation programs. Firstly, the style of processing (Ross & Fabiano, 1985) and the limitations of a repeat offender's scripts, may define the boundaries of what can be achieved on a rehabilitation program. However, the theory does provide the potential tools for rehabilitation. Such programs should seek to establish what the script holder's goal is, what the script consists of in a given situation, and what cues trigger the script. From the cues, a new script could be developed as an alternative to the offence script for achieving those goals. Furthermore, in anticipation of potential problems whilst enacting the new pro-social script, prescriptions could also be developed and built in, in order to provide a means of how to overcome such problems or avoid them altogether, whilst returning the holder to the legitimate and appropriate route for achieving the goal. The critical issue is to modify the habitual style of processing which is not only linear but follows the shortest possible route to the goal; which, in turn, leads to the repeat offending pattern observed. Therefore, one important feature of a program would be rehearsal of the new scripts (i.e., pro-social contents) with the prescriptions also brought in to the process. Developed appropriately, there is no reason why these methods cannot be delivered in a range of formats such as computer simulation programs as well as workshop style rehearsals. However, rehabilitation programs which are designed to address the notion of simplistic linear processing in repeat offenders need to be aware that some offenders who commit an offence (with a similar appearance in its commissioning) may not necessarily be linear processors. For example, in the young age groups, initial assessments need to be developed and implemented to test this notion, particularly in first time offenders, where there is insufficient offence history to observe whether the offence is the result of short term peer influence or whether it is the onset of a

long term offending cycle (Moffitt, 1993). If the assessments reveal a linear method of processing, then there may be an increased likelihood of repeat offending.

Cornish and Clarke (1987) identified that offenders typically use garden hedges for cover and target corner or end properties for reduced risk of exposure. This type of research spurned the redesign of many new housing estates to be less criminogenic. However, in light of the results in this thesis, where an extensive use of nearby locations is identified particularly from the Elite group, crime scene analysts may target specific locations near to the property for evidence left from offender activity. Furthermore, if such potential locations can be identified in advance, law enforcement agencies such as the police or private security firms can routinely target these spots during patrols or as part of the strategy when responding to a crime in progress. That is not to say that this strategy does not already occur, but in light of the results in this thesis, the aim would be to identify and target this aspect of highly developed offending activities.

Another area in which the results of Studies 1-3 might have implications is in the context of profiling. Crime scene investigations sometimes use classifications such as 'organised' and 'disorganised', and often the MO is visible from the crime scene. However, at a more general level of abstraction, it might be possible to infer the type of script that has been employed on the basis of evidence available at the crime scene. In this way, it might be possible to identity the class of possible perpetrators that were involved. Conversely, the absence of an obvious script would alert the investigation to a much smaller pool of suspects whose MO is quite different. Script theory, therefore, could inform both the process of rehabilitation and crime investigation. In this sense, the theoretical framework under scrutiny in this thesis offers a unique contribution.

5.3. Future directions

The results from Studies 1-3 provide *prima facie* support for the application of the theoretical framework provided by script theory to offending behaviour across a range of offenders. There are clearly a number of possible studies that it would be informative to undertake in this context. Scripts are often described as involving a set of actions that are carried out in an unchanging sequence. Although Studies 1 and 2 provided evidence for groupings of particular categories of actions, they did not provide evidence that these actions were presented in a particular sequence. Furthermore, the participants were free to produce as many or as few items as they decided there was significant variation in the number of actions produced. This fact meant that a general analysis of the sequences in which actions or categories were produced would be problematic. In future, constraining the number of items to be produced might result in responses that would be more open to sequence analysis (e.g., a lag sequence analysis). The results of Study 3 suggest that such an approach would be feasible.

One of the aims of this thesis was to investigate possible differences between versatile and specialist offenders. In fact, there were no marked differences between these two subgroups of offenders using the current methodology. It seems possible, however, that differences between these groups might have been obscured for a variety of reasons: The specialist subgroups were heterogeneous (i.e., they included specialists in a variety of offences). Similarly, it could be argued that the versatility of the subgroups was of a relatively constrained nature. Further studies could be conducted in which the two subgroups were better differentiated. Finally, it should be acknowledged that although many of the offenders came from the probation service, their criminal records were self-declared. It would be of interest to conduct future studies in which the criminal history of the participants was validated; however, one might always be forced to rely, at least in part, on self-declared offending (cf. Study 3).

The methodology used in Studies 1-3 was clearly successful in generating responses that had script-like qualities. That is, they generated clusters of categories that were evident in many offenders. It would be of interest to supplement this approach with a more fine-grained analysis of the various categories within each response (approach, search and steal; cf. Nee & Taylor, 2000). It seems likely that this approach might reveal more subtle differences between, for example, versatile and specialist offenders. The combination of this modified approach with the type of interventions employed in Study 3 might prove to be a particularly powerful means of assessing the knowledge states of offenders. As mentioned above, it would be very worthwhile to examine whether the possession of such knowledge is associated with scores on other measures, including styles of thinking (e.g., concrete versus abstract). Finally, it would be of interest to examine whether those offenders who tend to possess criminal scripts are also more likely to hold or indeed acquire script-like knowledge in general (i.e., in non-offending scenarios).

5.4. Reflexivity, limitations and advancements

The vignette technique seemed to be an appropriate way in which to elicit participants' procedural knowledge of a hypothetical situation. However, one of the concerns with vignettes is how they can be generalised to the real world. Finch (1987) indicated that one aspect of the generalisation issue comes from how the data is to be interpreted. Given the various elements included in the presentation of a vignette, how can one determine, which triggered the response. For example, most vignettes contain a description of the context in which the response is required. Finch (1987) states that a specific, but unidentified element might have cued the response; or the overall description might have cued the response. Furthermore, the setting in which the responses were elicited (i.e., provided to a researcher in an interview) may have also acted as one of the cues to which Finch (1977) refers; in that the

participant may have felt the need to provide the most 'helpful' answer possible. That said the analyses conducted throughout this thesis utilised the knowledge base of the participants (i.e., actions) as opposed to the motives or beliefs of the participants. Whilst a participant can present an account of their beliefs which might have been influenced by the interview process, knowledge that is not available to the participant cannot be generated as a response to the vignettes. The main issue is whether participants would actually carry out the actions they had described when in a real world situation. At this stage, the only concrete guide to answering this question is the previous research that motivated the research carried out in this thesis. The research conducted by Wright and Decker (1994), using thematic analysis indicated that offenders often exhibit linear patterns of behaviour. Also, research conducted by Walsh et al (1987) using block assembly versus verbal tests observed that offenders do better on concrete as opposed to abstract tasks, showing impoverished cognitive processing generally (e.g., Ross & Ross, 1995). These general observations, using quite different methodologies but are consistent with the results presented in Studies 1-3. This consistency provides support for the view that the responses to vignettes might reflect how offenders react to analogous situations when confronted with them in the real world.

Although, it must be acknowledged that the actions listed in the vignettes may not exactly parallel how an offender would behave or processes information during a criminal situation, the results of Studies 1-3 provide further and converging evidence concerning the overall style of processing in the repeat offender population.

Furthermore, the research in this thesis has shown is that the theoretical observations of script like processing previously associated with specialist repeat offenders, is extendable to repeat offenders who are versatile. This, in turn, was facilitated by the use of multiple vignettes, each leading to the potential for a different offence type, which is an approach that is rarely used in

this field. In addition, the use of log-linear analysis provided a means of analysing the data in a standardised way across the groups and can be similarly used to in future research, providing an alternative to the contribution that the thematic analysis method has already made. With greater numbers of participants, log-linear will also be useful in teasing out subtle differences between groups in a way that thematic analysis cannot. However, direct cross-group comparisons are difficult with log-linear analysis as it is principally designed to examine models *within* a data set. Therefore, the use of Fisher's Exact probability tests can facilitate an important aspect of cross-group comparisons by providing a statistical examination of the proportions of a given outcome between two groups, particularly where group sizes are small. The analysis of participants' movements using lag sequence analysis is in itself relatively unique. It allows for better crime prevention strategies as well as being able to make inferences about some offenders' style of processing (i.e., linear), which can lend aid to the rehabilitation field. Supporting evidence for this style of processing was found in Study 3 where the linear approach of the Offender group was in stark contrast to the more cautious movements observed in the Elite group. In this case, it is clear that a linear set of movements is not the only sequence of movements open to an offender. What remains to be established is whether the linear approach is derived from choice, independent of other characteristics (e.g., cognitive deficits) or is a function of those characteristics.

The study of a group of offenders who have evaded detection for a considerable period of time (i.e., the Elite group) is clearly unusual and extends current knowledge considerably. Of particular note, is the repeated movements between different positions during a burglary. This observation appears to be deliberate and purposeful, and it does not suggest that this group of offenders have better techniques for breaking in to a building or disabling security systems. Rather, it suggests that there is a strategy designed to reduce risk to exposure at every opportunity. Furthermore, although speed might typically be associated with efficiency (see

Nee & Meenaghan, 2006), it was the Elite[2] group who took much more time in their overall approach and execution of the burglary when compared to the Offender group. Again, this suggests that a more deliberate strategy is in use in the Elite group. In understanding offender processing generally and the differences between offenders who avoid detection and those that do not, more work needs to be done on distinguishing between technique (i.e., the 'how' of a physical action) and strategy (i.e., in this context, the 'when' and 'why' of a series of movements).

5.5. Concluding comments

This thesis is concerned with the application of script theory to offending behaviour in general and to Versatile, Specialist and Elite offenders. The results of Study 1 show that this type of theory can be successfully applied to the behaviour of relatively young offenders, whether they are categorized as versatile or specialist. Study 2, which investigated older offenders, revealed a similar pattern of results; with the caveat that older offenders included various anti-detection components in their scripts that related to certain criminal acts. The results of the final smaller-scale study, Study 3, suggest that a class of Elite criminals, who have avoided detection for many years, do not exhibit the same patterns of behaviour as convicted, repeat offenders. The latter results are of particular interest because there is very little evidence regarding the nature and cognitive processes in offenders who are successful in avoiding apprehension.

[2] The use of the label 'Elite' is useful for the purposes of this thesis; however, should a publication be sought the label will be changed to avoid the positive connotations that are normally associated with such a label.

References

Bandura, A. (1989). Human Agency in Social Cognitive Theory. *American Psychologist, 44*: 1175-1184.

Bower, J. B., Black, J. B. & Turner, T. J. (1979). Scripts in Memory for Text. *Cognitive Psychology, 11*: 177-220.

British Crime Survey 2002/03 (online). Available at: http://www.homeoffice.gov.uk/rds/crimeew0203_tables_bvv.html
Last accessed on: 05-02-09

Canter, D. (2000) Offender profiling and criminal differentiation. *Legal and Criminological Psychology, 5*: 23-46.

Cherbonneau, M and Copes, H. (2006). Drive it Like You Stole It. Auto Theft and the Illusion of Normalcy. *British Journal of Criminology, 46*: 193-211.

Cornish, D. (1994). Crimes as scripts. In D. Zahm & P. Cromwell (eds.), *Processings of the International Seminar on Environmental Criminology and Crime Analysis*. Tallahassee: Florida Criminal Justice Executive Institute.

Cornish, D.B. and Clarke, R.V. (1987). Understanding crime displacement: An application of rational choice theory. *Criminology, 25*: 933-47.

Crick, N.R. & Dodge, K.A. (1996). Social Information-Processing Mechanisms in Reactive and Proactive Aggression. *Child Development. 67*: 993-1002.

Crick, N.R. & Dodge, K.A. (1994). A Review and Reformulation of Social Information-Processing Mechanisms in Children's Social Adjustment. *Psychological Bulletin. 115*: 74-101.

Criminal Statistics for England and Wales 2002 (online). Available at: http://www.archieve2.official-documents.co.uk/documents/cm60/6054/6054.pdf Last accessed on: 05-02-09

Eysenck, H. J. (1977). *Crime and Personality*. (3rd Ed.). London: Routledge & Kegan Paul.

Farrington D. (1996). The Explanation & Prevention of Youthful Offending. In D. Hawkins (eds) *Delinquency and Crime*. (pp. 68-148). New York: Cambridge University Press.

Farrington, D. P. (1997). 'Human Development and Criminal Careers, in M. Maguire, R. Morgan, & R. Reiner (eds), *The Oxford Handbook of Criminology*, 2nd Edition (pp. 361-408), Oxford: Oxford University Press.

Farrington, D. P., Synder, H.N. & Finnegan, T.A. (1988). Specialisation in Juvenile Court Careers. *Criminology, 26*: 461-487.

Felson, M. (1987). Routine Activities and Crime Prevention in the Developing Metropolis. *Criminology, 25*: 911-931.

Finch, H. (1987). The vignette technique in survey research, *Sociology, 21*: 105-14.

Fiske, S.T. & Taylor, S.E. (1991). *Social Cognition*. 2nd Ed. Singapore: McGraw-Hill.

Freedman, B.J., Rosenthal, L., Donahoe, C.P. & Schlundt, D. (1978). A Social-Behavioural Analysis of Skill Deficits in Delinquent and Nondelinquent Adolescent Boys. *Journal of Consulting and Clinical Psychology. 46*: 1448-1462.

Gibbs, J.C. (1996). 'Sociomoral Group Treatment for Young Offenders', in C.R. Hollin & K. Howells (eds), *Clinical Approaches to Working with Young Offenders*, (pp. 129-149), Chichester: Wiley.

Giles, D.C. (2002). *Advanced Research Methods in Psychology*. Routledge: East Sussex.

Gottfredson, M.R., & Hirschi, T. (1990). *A General Theory of Crime*, Paulo Alto, Cal.: Stanford University Press.

Halliday, J. (2001) Making punishments work (online). Available at: http://www.homeoffice.gov.uk/documents/halliday-report-sppu/ Last accessed on: 05-02-09

Hammond, S & Brown, J. (2005). Comparing three multivariate statistical procedures when profiling residential burglaries. *Forensic Update. 80:* 9-16.

Hollin, C.R. (2002). Criminal Psychology. The Oxford Handbook of Criminology. In M. Maguire, R. Morgan & R. Reiner, (eds) *The Oxford Handbook of Criminology*, 3rd edition, (pp.144-174). Oxford: Oxford University Press.

Howitt, D. and Cramer, D. (2005). The analysis of complex contingency tables: Log-linear methods. *Introduction to Statistics in Psychology,* 3rd edition (pp. 397-418). Harlow: Prentice Hall.

Huesmann, R.J. (1994). *Aggressive Behaviour*. London: Plenum Press.

Huesmann, R.J. Eron, L.D. (1989). Individual differences and the trait of aggression. *European Journal of Personality. 3:* 95-106.

Huesmann, R.J., Lefkowitz, M.M., Eron, L.D. & Walder, L.O. (1984). Stability of Aggression Over Time and Generations. *Developmental Psychology. 20*: 1120-1134.

Hughes, R. (1998). Considering the vignette technique and its application to a study of drug injecting and HIV risk and safer behaviour. *Sociology of Health & Illness. 20*: 381-400.

Klein, M.W. (1984). Offence Specialisation and Versatility among Juveniles. *British Journal of Criminology, 24*: 185-194.

Maguire, M. (2002). Crime Statistics, The Data Explosion and its Implications. In M. Maguire, R. Morgan & R. Reiner, (eds). *The Oxford Handbook of Criminology*, 3rd edition (pp. 322-263). Oxford: Oxford University Press.

Maguire, M. (2007). Crime Data and Statistics. in M. Maguire, R. Morgan, & R. Reiner (eds), *The Oxford Handbook of Criminology*, 4th Edition (pp. 241-290), Oxford: Oxford University Press.

McGuire, J. (2000). *Cognitive-Behavioural Approaches*. An Introduction to Theory and Research (online). Available at: http://inspectorates.homeoffice.gov.uk/hmiprobations/docs/cogbeh1.pdf
Last accessed on: 07-02-08

May, T. (1996). *Social Research, Issues, Methods and Process.* Buckingham: Open University Press.

Michael, S. E. & Hull, R. B. (1994). *Effects of Vegetation on crime in urban planning*. New York: Macmillan.

Michael, S. E., Hull, R. B. & Zahm, D. L. (2001). Environmental Factors Influencing Auto Burglary. *Environment and Behaviour, 33*: 368-388.

Moffitt, T. (1993). 'Life-course-persistent' and 'Adolescence-limited', 'Anti-social Behaviour': A Developmental Taxonomy', *Psychological Review 100*: 674-701.

Nee, C. & Taylor, M. (2000), 'Examining Burglar's Target Selection: Interview, Experiment, or Ethnomethodology?' *Psychology, Crime and Law, 6:* 45-59.

Nee, C. (2004). The Offender's Perspective on Crime: Methods and Principles in Data Collection. In A. Needs & G. Towl (eds) *Applying Psychology to Forensic Practice.* (pp. 3-17) Blackwell Publishing: Oxford.

Nee, C & Meenaghan, A. (2006). Expert Decision Making in Burglars. *British Journal of Criminology, 46*: 935-949.

Palmer, E.J., & Hollin, C.R. (1996). 'Assessing Adolescent Problems: An Overview of the Adolescent Problems Inventory', *Journal of Adolescence, 19*: 347-54.

Rahman, N. (1996). Caregiver's Sensitivity to Conflict: The Use of the Vignette Methodology. *Journal of Elder Abuse & Neglect. 8*: 35-47.

Raynor, P. (2002) Community Penalties. In M. Maguire, R. Morgan & R. Reiner (eds). *The Oxford Handbook of Criminology*, 3rd edition (pp. 1168-1205). Oxford: Oxford University Press.

Ross, R.R. & Fabiano, E.A. (1985). *Time to Think: A Cognitive Model of Delinquency Prevention and Offender Rehabilitation*, Johnson City, Tenn: Institute of Social Sciences and Arts.

Ross, R.R. & Ross, R.D. (eds) (1995). *Thinking Straight: The Reasoning and Rehabilitation Programme for Delinquency Prevention and Offender Rehabilitation*, Ottawa: Air Training and Publications.

Sackett, G. P. (1979). The Lag Sequential Analysis of Contingency and Cyclicity in Behavioural Interactional Research. In J. D. Osofsky (ed.) *Handbook of Infant Development* (pp. 623-649), Chichester: Wiley and Sons.

Schank, R.C. & Abelson, R.P. (1977). *Scripts, Plans, Goals and Understanding, An Inquiry into Human Knowledge Structures*. New Jersey: Lawrence Erlbaum Associates.

Shover, N. (1973). The Social Organisation of Burglary, *Social Problems*, 20: 499-514.

Soothill, K., Francis, B. & Fligelstone, R. (2002). Patterns of Offending Behaviour: A new approach (online). Available at: http://www.homeoffice.gov.uk/rds/pdfs2/r171.pdf
Last accessed on: 07-02-09

Tunnell. K.D. (1992) *Choosing Crime*. Chicago: Nelson-Hall.

Walsh, A., Petee, T.A., & Beyer, J.A. (1987) Intellectual imbalance and delinquency: Comparing high verbal and high performance IQ delinquents. *Criminal Justice and Behavior*, *14*: 370-379.

Ward, T. & Hudson, S.M. (2000) Sexual Offenders' Implicit Planning: A Conceptual Model. *Sexual Abuse: A Journal of Research and Treatment, 12*: 189-202.

West, D.J. & Farrington, D.P. (1977). *The Delinquent Way of Life*. London: Heinemann Educational Books LTD.

Wright, R.T, & Decker, S.H, (1994). *Burglars on the Job*. Boston: Northeastearn University Press.

Appendix 1

Demographic Form

Please answer the following questions.

Remember that you do not have to answer any questions if you do not wish to do so.

(1) What age are you now please?.....

(2) Do you have any criminal convictions? Yes No (please circle)

Please list any criminal convictions you have gained in the last 3 years?
Include when they were, what they were for and what sentence the courts gave you.

- Year of offence, What was it for? What sentence did you receive?
-
-
-
-
-
-
-
-
-

(Please continue on a separate piece of paper if necessary).

(3) Have you ever been on a rehabilitation programme with the prison or probation service?

Yes No

(4) If so please name them

.....

(5) Did you complete the course(s)?

.....

(6) What age were you when you left full time education?

Age.....

(7) What qualifications did you gain?

Appendix 2

Example list of how to respond.

Enter restaurant
Look for table
Decide where to sit
Goes to the table
Sit down
Pick up menu
Look at menu
Decide on food
Signal to waitress
Waitress comes to table
Orders food
Waitress goes to cook
Waitress gives food order to cook
Cook prepares food
Cook gives food to waitress
Waitress brings food to customer
Customer eats food
Waitress writes bill
Waitress goes over to customer
Waitress gives bill to customer
Customer gives tip to waitress
Customer goes to cashier
Customer gives money to cashier
Customer leaves restaurant

Appendix 3

Interview schedule.

1. Did you know that your answer to.....was a criminal offence?
I will refer to the relevant vignette(s) according to the individual participant's vignette responses.

2. You listed actions leading to an offence in this.... situation(s), but not in these other ones....can you explain that?
I will refer to the relevant vignette(s) according to the individual participant's vignette responses.

3. Can you explain why you have listed those items?
Each relevant vignette will be referred to in turn.

4. Why did you choose that particular order for listing the items?
Each vignette will be referred to in turn.

5. When did you first have these thoughts?

6. From the actions you have listed as ones you would do, which one would you say is your speciality if any?

a. Why that one?

7. Is there anything that could have been asked which hasn't been?

8. Is there anything which you would like to add?

9. How do you feel about this interview? (were you able to talk openly and honestly, were you confused by anything?).

Prompt question, which could be inserted according to responses:
(1) Could you give me more detail about that?

Appendix 4

3.5.1.1. Vignette 1: Potential Physical Assault

See main thesis

3.5.1.2. Vignette 2: Potential Car Vandalism

Vignette 2 is about the potential for vandalism to a motor vehicle parked on a street. The categories are labelled as: 'Approach', (e.g., "walk to car", "find intended target"), 'Observe', (e.g., "standing up looking around", "keep a sharp eye out for neighbours") and 'Vandalise', (e.g., "kick wing mirrors off", "scratch car with pressure").

Table 19a: Vignette 2 (Potential Car Vandalism) frequency counts and associated percentage values for the categories 'Approach', 'Observe' & 'Vandalise' for both the Non-offender and Offender groups.

	Non-offenders N = 35	Offenders N = 30
Categories	Cases	Cases
Non offence responses	15 (43%)	5 (17%)
Approach	0 (0%)	0 (0%)
Observe	0 (0%)	1 (3%)
Vandalise	10 (29%)	8 (27%)
Approach*Observe	0 (0%)	1 (3%)
Approach*Vandalise	0 (0%)	2 (7%)
Observe*Vandalise	4 (11%)	4 (13%)
Approach*Observe*Vandalise	6 (17%)	9 (30%)

Inspection of Table 19a shows that the cell with the highest percentage for an offence related response was for the category 'Vandalise' in the Non-offender group: the corresponding cell in the Offender group with the highest percentage was for the interaction of all the offence related categories (i.e., the complete offence related response), which was also the highest overall in the table. There was no bias shown towards the complete offence response in the

Non-offender group, $p>0.05$. However, the Offender group showed a bias towards the 'other' category $p<0.05$ (Binomial tests). Independent log-linear analysis was conducted on the two groups using only the participants who provided an offence related response.

Table 19b: Summary of log-linear modelling from Vignette 2 (Potential Car Vandalism) for both the Non-offender and the Offender groups

Non-offender group N = 20	Estimate	Std. Error	Z	Sig.
Constant	1.946	.348	5.584	.000
Approach	-.847	.488	-1.736	.082
Offender group N = 25				
Constant	-.877	.773	-1.135	.256
Vandalise	2.442	.737	3.313	.001

The upper rows of Table 19b reveals that the final parsimonious model for the Non-offender group was significantly different from the saturated model (LR (1, N=20) $\chi^2 = 10.974$; $p<0.05$). The closet category to contributing significantly was 'Approach'. Conversely, as shown in the lower rows of Table 19b the Offender group's parsimonious model was not significantly different from the saturated model (LR (4, N=25) $\chi^2 = 7.947$; $p>0.05$). In addition, the category 'Vandalise' as a significant contributor to the model. The Non-offender group's model was not a particularly good fit to the data, but the Offender group's was a good fit.

In summary, the results show that there were some differences between the two groups: the parsimonious models differed in that the Offender group's model included the category

'Vandalise' without being significantly different from the saturated model. However, there was no difference in the proportion of complete offence responses between the two groups: 6/20 for the Non-offender group and 9/25 for the Offender group, $p>0.05$ (Fisher Exact Probability).

In comparison to Study 1, the pattern was similar with respect to the use of category associations (i.e., in both studies the Offender group used categories in combination more often than the Non-offender group).

3.5.1.3. Vignette 3: Potential Car Theft

Vignette 3 was about the potential for cars being stolen from off of the street. The categories are labelled as: 'Approach', (e.g., "walk past it slowly to size up", "spot the car in the street"), 'Break-in', (e.g., "smash any locks", "gaining entry bending door") and 'Drive-away', (e.g., "hotwire to start", "rant around or sell").

Table 20a; Vignette 3 (Potential Car Theft) frequency totals and associated percentage values for the categories 'Approach', 'Break-in' and 'Drive-away' for both the Non-offender and Offender groups.

	Non-offenders N = 35	Offenders N = 30
Categories	Cases	Cases
Non offence responses	15 (43%)	4 (13%)
Approach	1 (2.9%)	0 (0%)
Break-in	4 (11.3%)	3 (10%)
Drive-away	1 (2.9%)	1 (3.8%)
Approach*Break-in	1 (2.9%)	3 (3.3%)
Approach*Drive-away	1 (2.9%)	0 (0%)
Break-in*Drive-away	5 (14.3%)	16 (53.3%)
Approach*Break-in*Drive-away	7 (20%)	3 (10%)

Table 20a shows that the cell with the highest percentage in an offence related response was for the interaction of categories 'Break-in*Drive-away' in the Offender group. The corresponding cell with the highest percentage for the Non-offender group was for the complete offence related response (i.e., 'Approach*Break-in*Drive-away'). However, the Non-offender group produced a significant bias towards the other category, $p<0.05$, although the Offender group showed no bias, $p>0.05$ (Binomial tests). Independent log-linear analysis was conducted using only the participants who had provided an offence related response.

Table 20b: Summary of log-linear modelling for Vignette 3 (Potential Car theft) for both the Non-offender and Offender groups.

Non-offender group N = 20	Estimate	Std. Error	Z	Sig.
Constant	-.799	.707	-1.129	.259
Break-in	1.735	.626	2.770	.006
Offender group N = 26				
Constant	-1.729	1.068	-1.619	.259
Approach	-1.204	.465	-2.587	.010
Break-in	3.219	1.020	3.156	.002
Drive-away	1.204	.465	2.587	.010

The upper rows of Table 20b reveals that the final parsimonious model for the Non-offender group was not significantly different (LR (4, N=20) $\chi^2 = 3.667$; $p>0.05$) from the saturated model. The parsimonious model included the category 'Break-in' as contributing significantly. Similarly, the lower rows of Table 20b show that the Offender group's parsimonious model was not significantly different from the saturated model (LR (4, N=26) $\chi^2 = 3.735$; $p>0.05$) and show that the three categories (i.e., 'Approach', 'Break-in' and

'Drive-away') contributed significantly to the model. Both group's models were a good fit the data.

In summary, the Non-offender group produced more complete offence related responses than the Offender group. However, the final parsimonious model was also more expansive (i.e., it included all the main effects) when compared to the Non-offender group. There was, however, no differences in the proportions of complete offence responses in the two groups: 7/20 for the Non-offender group and 3/26 in the Offender group, $p>0.05$ (Fisher Exact Probability test).

This outcome is similar to the results from Study 1 in that the Non-offender group provided fewer completed responses than the Offender group and yielded a lower percentage overall for the interaction of categories.

3.5.1.4. Vignette 4: Potential Burglary

Vignette 4 is about a potential house burglary scenario. The categories are labelled as: 'Approach', (e.g., "sees opportunity", "checking the house for occupants"), 'Search', (e.g., "ransacks the house", "look for items inside") and 'Steal', (e.g., "look for money", "take items easily sold/disposed of").

Table 21a; Vignette 4 (Potential Burglary) frequency totals and associated percentage values for the categories 'Approach', 'Search' and 'Steal' for both the Non-offender and the Offender groups.

	Non-offenders N=35	Offenders N=30
Categories	Cases	Cases
Non offence responses	13 (37%)	4 (13.3%)
Approach	5 (14.3%)	4 (13.3%)
Search	0 (0%)	0 (0%)
Steal	1 (2.9%)	1 (3.3%)
Approach*Search	4 (11.4%)	4 (13.3%)
Approach*Steal	9 (25.7%)	7 (23.3%)
Search*Steal	0 (0%)	0 (0%)
Approach*Search*Steal	3 (8.6%)	10 (33.3%)

Table 21a shows that the cell with the highest percentage is for the interaction of categories 'Approach*Search*Steal' (i.e., the complete offence response) in the Offender group, while the corresponding cell with the highest percentage for the Non-offender group was of the interaction of the categories 'Approach*Steal'. Binomial tests revealed that there was no bias towards the complete offence response in the Non-offender group, $p>0.05$, but that there was in the Offender group, $p<0.05$ (Binomial tests). Independent log-linear analysis was conducted on the two groups using only the participants who provided an offence related response.

Table 21b: Summary of Log-linear modelling for Vignette 4 (Potential Burglary) for both the Non-offender and Offender groups.

Non-offender group N = 22	Estimate	Std. Error	Z	Sig.
Constant	-1.587	1.032	-1.537	.124
Approach	3.045	1.023	2.975	.003
Offender group N = 26				
Constant	-1.872	1.042	-1.796	.072
Approach	3.219	1.019	3.158	.002
Steal	.811	.425	1.908	.056

The upper rows of Table 21b reveals that the final parsimonious model for the Non-offender group was not significantly different from the saturated model (LR (5, N=22) χ^2 = 5.722; p>0.05) and included the category 'Approach' contributed significantly to the model. Similarly, the lower rows of Table 21b show that the Offender group's parsimonious model was not significantly different from the saturated model (LR (5, N=26) χ^2 = 2.672; p>0.05) and included the categories 'Approach' which made a significant contribution to the model and 'Steal' which fell just outside of conventional levels of statistical significance. Both final parsimonious models for the two groups were good fits to the data.

The proportions of complete offence responses did not differ between the two groups: 3/22 in the Non-offender group and 10/26 in the Offender group, p>0.05 (Fisher Exact Probability test).

The results were similar to Study 1, in that the Offender group produced a greater number of offence related respondents and a greater number of completed offence related responses. The final parsimonious model was also a better fit to the data.

3.5.1.5. Overview of the results

Overall, the results show that the Offender group not only provide a higher number of offence related responses and offence related items, but that there was more structuring to the scenarios in the vignettes. This was shown in two ways: (1) There were more complete offence responses (i.e., where all the categories are used by a participant in providing a response). (2) The parsimonious models tended to include more categories for the Offender group than the Non-offender group. However, there was an even split between the best fit to the data. That is, the final parsimonious models in Vignettes 1 & 2 were a better fit to the data for the Non-offender group, and the final parsimonious models in Vignettes 3 and 4 were a better fit to the data for the Offender group. In addition, where the Non-offender group did provide offence related responses, they tended to us choice 'A' significantly more often than choice 'B'.

3.5.2.1. Comparison between the Non-offender and Offender subgroups who provide 3 or more offence related responses.

The criteria used for determine inclusion were the same as for Study 1.

Table 22: Number of participants who provided 3 or 4 offence related responses, together with the frequency totals and associated percentage values (upper row). Sum totals, means and SEMs for the number of offence related items (middle row). Frequency totals and associated percentage values for the number of choices for both the Non-offender and Offender subgroups (lower row).

	Non-offender subgroup N = 21	Offender subgroup N = 25
Offence		
Responses	21 Ps. = 3/ 4 response + 73 (84.52%)	25 Ps. = 3/ 4 response + 92 (87%)
Actions	439; 20.90 (means) + (2.087)	884; 35.36 (means) + (3.157)
Choices	A = 66 (89.18%) B = 7 (10.8%)	A = 53 (57.60%) B = 39 (42.39%)

Inspection of the upper rows of Table 22 shows that the subgroups were equally likely to produce offence responses. A Mann-Whitney U test was conducted between the two subgroups on the number of offence-related responses, and confirmed that there was no difference ($Z = -1.383$; $p>0.05$). The middle rows of Table 22 show that the Non-offender subgroups produced fewer actions than did the Offender subgroup. An ANOVA with group and actions (i.e., non offence vs. offence) as categories revealed a significant effect of group ($F(1,44) = 17.417$; $p<0.01$) offence related actions, ($F(1,44) = 178.185$; $p<.0.01$) and an interaction between the offence related actions and participants ($F(1,44) = 8.709$; $p<0.05$).

The lower rows of Table 22 also reveals that the highest percentage from choice 'A' or 'B' is choice A in the Non-offender subgroup. A Mann-Whitney U test was conducted between the two subgroups ($Z = -3.256$; $p<0.05$) and was significant.

In summary, the difference between the two subgroups on the number of offence related responses was not significantly different. However, there is a significant difference between

the two subgroups on the number of offence related items and the mode of choice for offence related responses: The Non-offender subgroup typically used choice 'A', and the Offender subgroup used choice 'A' and choice 'B' more evenly.

3.5.2.2. Vignette 1: Potential Physical Assault

See main thesis

3.5.2.3. Vignette 2: Potential Car Vandalism

Table 24a: Vignette 2 (Potential Car Vandalism) frequency totals and associated percentage values for the categories 'Approach', 'Observe' and 'Vandalise' for both the Non-offender and the Offender subgroups who provided 3 or more offence related responses.

	Non-offenders N = 21	Offenders N = 25
Categories	Cases	Cases
Non offence related responses	3 (14.3%)	3 (12%)
Approach	0 (0%)	0 (0%)
Observe	0 (0%)	1 (4%)
Vandalise	10 (47.6%)	8 (32%)
Approach*Observe	0 (0%)	1 (4%)
Approach*Vandalise	0 (0%)	2 (8%)
Observe*Vandalise	2 (9.5%)	3 (12%)
Approach*Observe*Vandalise	6 (28.6%)	7 (28%)

Table 24a shows that the cell with the highest percentage was in the Non-offender subgroup for the category 'Vandalise'. Similarly, the cell with the highest percentage in the Offender subgroup was also for the category 'Vandalise'. Binomial tests showed that there was a bias towards the 'other' category in both the Non-offender subgroup and the Offender subgroup, $ps<0.05$. Independent log-linear analysis was conducted on the two subgroups using only the participants in both subgroups who provided an offence related response.

Table 24b: Summary of Vignette 2 (Potential Car Vandalism), Log-linear modelling for both the Non-offender and the Offender subgroups who provided 3 or more offence related responses.

Non-offender subgroup N = 18	Estimate	Std. Error	Z	Sig.
Constant	1.897	.357	5.307	.000
Approach	-.693	.500	-1.386	.166
Offender subgroup N = 22				
Constant	-.701	.769	-.362	-2.209
Vandalise	2.303	.741	3.106	.002

The upper rows of Table 24b reveals that the final parsimonious model for the Non-offender group was significantly different (LR (1, N=18) χ^2 = 13.917; p<0.05) from the saturated model. The upper rows of Table 24b show that there was no category which contributed significantly to the model. Conversely, the Offender group's parsimonious model was not significantly different from the saturated model (LR (4, N=22) χ^2 = 7.909; p>0.05) and shows that the category 'Vandalise' did contribute significantly to the model for the Offender subgroup. The final parsimonious model in the Non-offender subgroup was not a good fit to the data, but the Offender subgroup's model was a good fit.

Finally, examination of Table 24a suggests that there is little difference in the proportions of complete offence responses between the two subgroups: 6/18 in the Non-offender subgroup and 7/22 in the Offender subgroup; p>0.05 (Fisher Exact Probability test).

The results were broadly similar to the overall results, though the Non-offender subgroup's percentage values for providing a complete response increased from the overall group, while the Offender subgroup's percentage value decreased marginally.

3.5.2.4. Vignette 3: Potential Car Theft

Table 25a: Vignette 3 (Potential Car theft) frequency totals and associated percentage values for both the Non-offender and Offender subgroups who provided 3 or more offence related responses.

	Non-offenders N = 21	Offenders N = 25
Categories	Cases	Cases
Non offence responses	2 (9.5%)	0 (0%)
Approach	1 (4.7%)	0 (0%)
Break-in	4 (19%)	3 (12%)
Drive-away	1 (4.7%)	1 (4%)
Approach*Break-in	1 (4.7%)	3 (12%)
Approach*Drive-away	1 (4.7%)	0 (0%)
Break-in*Drive-away	5 (23.8%)	15 (60%)
Approach*Break-in*Drive-away	6 (28.6%)	3 (12%)

Table 25a shows that the cell with the highest percentage is for the interaction of categories 'Break-in*Drive-away' in the Offender subgroup, whereas the cell with the highest percentage for the Non-offender subgroup is for the interaction of categories 'Approach*Break-in*Drive-away'. Binomial tests confirmed that the Non-offender subgroup showed a bias towards the 'other' category $p<0.05$, but the Offender subgroup did not $p>0.05$. Independent log-linear analysis was conducted on the two subgroups using only the participants in both subgroups who provided offence related responses.

Table 25b: Summary of log-linear modelling from Vignette 3 (Potential Car theft) for both the Non-offender and Offender subgroups who provide 3 or more offence related responses.

Non-offender subgroup N = 19	Estimate	Std. Error	Z	Sig.
Constant	-.696	.703	-.989	.322
Break-in	1.674	.629	2.661	.008
Offender subgroup N = 25				
Constant	-1.702	1.067	-1.594	.111
Approach	-1.153	.468	-2.461	.014
Break-in	3.178	1.021	3.114	.002
Drive-away	1.153	.468	2.461	.014

The upper rows of Table 25b reveals that the final parsimonious model for the Non-offender subgroup was not significantly different from the saturated model (LR (4, N=19) $\chi^2 = 3.357$; $p>0.05$) and include the category 'Break-in' as contributing significantly to the model. Similarly, the Offender subgroup's parsimonious model was not significantly different from the saturated model (LR (4, N=25) $\chi^2 = 3.578$; $p>0.05$) and show that the categories 'Approach', 'Break-in' and 'Drive-away' contributed significantly to the model for the Offender subgroup. The final parsimonious models were good fits to the data in both subgroups.

In summary, a Fisher Exact Probability test showed that there was no difference between the proportions of complete offence responses in the two subgroups: 6/19 in the Non-offender subgroup and 3/25 in the Offender subgroup, $p>0.05$.

3.5.2.5. Vignette 4: Potential Burglary

Table 26a: Vignette 4 (Potential Burglary) frequency totals and associated percentage values or the categories 'Approach', 'Search' and 'Steal' for both the Non-offender and Offender subgroups who provided 3 or more offence related responses.

	Non-offenders N = 21	Offenders N = 25
Categories	Cases	Cases
Non offence related responses	3 (14.3%)	0 (0%)
Approach	5 (23.8%)	4 (16%)
Search	0 (0%)	0 (0%)
Steal	1 (4.8%)	1 (4%)
Approach*Search	4 (19%)	3 (12%)
Approach*Steal	6 (28.6%)	7 (28%)
Search*Steal	0 (0%)	0 (0%)
Approach*Search*Steal	2 (9.5%)	10 (40%)

Inspection of Table 26a shows that the cell with the highest percentage was in the Offender subgroup for the interaction of categories 'Approach*Search*Steal', while the corresponding cell with the highest percentage for the Non-offender subgroup was for the interaction of categories 'Approach*Steal'. The Non-offender subgroup showed no bias towards the complete offence response, $p>0.05$, though the Offender subgroup did, $p<0.05$. Independent log-linear analysis was conducted on the two subgroups using only the participants from both subgroups who provided an offence related response.

Table 26b: Summary of Vignette 4 (Potential Burglary), Log-linear modelling for both the Non-offender and Offender subgroups who provided 3 or more offence related responses.

Non-offender subgroup N = 18	Estimate	Std. Error	Z	Sig.
Constant	-1.099	1.041	-1.056	.291
Approach	2.833	1.029	2.753	.006
Offender subgroup N = 25				
Constant	-2.007	1.070	-1.875	.061
Approach	3.178	1.020	3.115	.002
Steal	.944	.445	2.120	.034

The upper rows of Table 26b reveals that the final parsimonious model for the Non-offender group was not significantly different from the saturated model (LR (4, N=18) χ^2 = 2.997; p>0.05) and shows that the category 'Approach' contributed significantly to the model. The lower rows of Table 26b show that the Offender group's parsimonious model was not significantly different from the saturated model (LR (4, N=25) χ^2 = 2.695; p>0.05), and shows that the categories 'Approach' and 'Steal' contributed significantly to the model for the Offender subgroup. Both parsimonious models show a good fit to the data.

The Offender subgroup produced more structured responses than the Non-offender subgroup, particularly with regard to the complete offence related response. A Fisher Exact Probability test confirmed that the proportions of complete offence responses differed between the groups: 2/18 in the Non-offender subgroup versus 10/25 in the Offender subgroup; p<0.05.

The results show a similar pattern to the overall results. However, the parsimonious models

have altered to 'Approach' for both subgroups, with the addition of 'Steal' for the Offender subgroup.

3.5.2.6. Overview of the results for the Non-offender and the Offender subgroups

Further discussion on these results is postponed until after the analysis from the next section of results is completed.

3.5.3.1. Comparison between Specialist and Versatile offenders from within the Offender group, who provided 3 or more offence-related responses.

Table 27: Frequency totals and associated percentages for the number of non-offence and offence related responses (upper row). Sum totals, means and SEMs for the number of offence related items (middle row). Frequency totals and associated percentage values for the number of choices for both the Specialist and Versatile subgroups (lower row).

	Specialist subgroup N = 6	Versatile subgroup N = 9
Offence		
Responses	21 (87.5%); 6 Ps. = 3/ 4 responses	33 (91.6%); 9 Ps. = 3/ 4 responses
Actions	281; 31.22Means + (3.278)	248; 41.33Means + (8.349)
Choices	A = 16 (76.2%) B = 7 (33.33%)	A = 13 (39.40%) B = 20 (60.60%)

Note: Percentage values for 'Choices' were calculated from the total number of offence related choices and not from the total number of choices overall.

Inspection of Table 27 shows that the highest percentage value for offence related responses is in the Versatile offender subgroup. However, a Mann-Whitney U test failed to confirm a significant difference between the two subgroups on the number of offence-related responses ($Z = -.624$: $p>0.05$).

Table 27 shows that the highest mean number of offence items is for Versatile subgroup. An ANOVA with group and actions (i.e., non offence vs. offence) as categories revealed a non significant effect of group ($F(1,13) = 1.447$; $p > 0.05$). A significant effect of offence related actions ($F(1,13) = 74.108$; $p < 0.01$) and a significant interaction between the offence related actions and participants ($F(1,13) = 96.154$; $p < 0.01$).

Table 27 also reveals that the highest percentage for offence choice 'A' or 'B' is choice A in the Specialist subgroup. A Mann-Whitney U test was conducted on the number of offence choices between the two subgroups ($Z = -1.388$; $p > 0.05$) but was not significant[1].

3.5.3.2. Vignette 1: Potential Physical Assault

See main thesis

3.5.3.3. Vignette 2: Potential Car Vandalism

Table 29a: Vignette 29 (Potential Car Vandalism) frequency totals and associated percentage values for the categories 'Approach', 'Observe' and 'Vandalise' for both the Specialist and the Versatile offender subgroups.

Categories	Specialists N = 6 Cases	Versatile N = 9 Cases
Non offence responses	0 (0%)	2 (22.2%)
Approach	0 (0%)	0 (0%)
Observe	1 (16.7%)	0 (0%)
Vandalise	2 (33.3%)	3 (33.3%)
Approach*Observe	0 (0%)	0 (0%)
Approach*Vandalise	0 (0%)	1 (11.1%)
Observe*Vandalise	2 (33.3%)	0 (0%)
Approach*Observe*Vandalise	1 (16.7%)	3 (33.3%)

[1] There were 2 ties (i.e., 2 participants with 2 choice A's and 2 choice B's) for each subgroup which were discounted from the Mann Whitney U test.

Table 29a reveals that the cell with the highest percentage was for the interaction of categories 'Observe*Vandalise' in the Specialist subgroup and the complete offence related response in the Versatile subgroup, together with the main effect 'Vandalise'. A bias toward the 'other' category was confirm in the Specialist subgroup and in the Versatile subgroup, *ps*<0.05 (Binomial tests). Independent log-linear analysis was conducted on the two subgroups using only the participants in both subgroups who provided offence related responses.

Table 29b: Summary of log-linear modelling from Vignette 2 (Potential Car vandalism) for both the Specialist and Versatile subgroups.

Specialist subgroup N = 6	Estimate	Std. Error	Z	Sig.
Constant	-1.281	1.169	-1.096	.273
Vandalise	1.609	1.095	1.469	.142
Versatile subgroup N = 7				
Constant	.560	.655	.855	.393
Approach	.286	.756	.378	.705

The upper rows of Table 29b reveals that the final parsimonious model for the Specialist subgroup was not significantly different from the saturated model (LR (4, *N*=6) $\chi^2 = 2.496$; $p>0.05$) and shows that the category closest to significance is 'Vandalise'. Conversely, as shown in the lower rows of Table 29b the Versatile subgroup's parsimonious model was significantly different from the saturated model (LR (1, *N*=7) $\chi^2 = 4.777$; $p<0.05$) and similarly did not include any significantly contributing categories. The models do not

represent a good fit to the data in either case.

A Fisher Exact Probability test revealed that there was no difference between the proportions of complete offence responses in the subgroups: Specialist subgroup (1/6) and the Versatile subgroup (3/7), $p>0.05$.

3.5.3.4. Vignette 3: Potential Car Theft

Table 30: Vignette 3 (Potential Car theft) frequency totals and associated percentage values for the categories 'Approach', 'Break-in' and 'Drive-away' for both the Specialist and Versatile subgroups.

	Specialists N = 6	Versatiles N = 9
Categories	Cases	Cases
Non offence response	0 (0%)	0 (0%)
Approach	0 (0%)	0 (0%)
Break-in	2 (33.3%)	0 (0%)
Drive-away	1 (16.6%)	0 (0%)
Approach*Break-in	1 (16.6%)	2 (22.2%)
Approach*Drive-away	0 (0%)	0 (0%)
Break-in*Drive-away	2 (33.3%)	6 (66.7%)
Approach*Break-in*Drive-away	0 (0%)	1 (11.1%)

Table 30 shows that the cell with the highest percentage is for the interaction of the categories 'Break-in*Drive-away' in the Versatile subgroup; the corresponding cell with the highest percentage for the Specialist subgroup was for the interaction of the categories 'Break-in*Drive-away' and the category 'Break-in'. Binomial tests confirmed that there was no bias within the Specialist subgroup or in the Versatile subgroup, $p>0.05$. Independent log-linear analysis was conducted on the two subgroups using only the participants who provided an offence related responses.

Table 30b: Summary of log-linear modelling from Vignette 3 (Potential Car theft) for both the Specialist and Versatile subgroups.

Specialist subgroup N = 6	Estimate	Std. Error	Z	Sig.
Constant	-1.099	1.155	- .951	.341
Break-in	1.609	1.095	1.469	.142
Versatile subgroup N = 9				
Constant	.811	.577	1.405	.160
Approach	-1.111	.667	-1.667	.096
Break-in	1.111	.667	1.667	.096

The upper rows of Table 30b reveals that the final parsimonious model for the Specialist subgroup was not significantly different from the saturated model (LR (3, N=6) χ^2 = 1.588; p>0.05) but showed that there was not a significantly contributing category. However, the Versatile subgroup's parsimonious model was significantly different from the saturated model (LR (1, N=9) χ^2 = 4.307; p<0.05), though the categories 'Approach' and 'Break-in' did contribute significantly. As a consequence neither model was a good fit to the data.

In summary, the Versatile subgroup produced more responses which included an interaction of categories (i.e., Approach*Break-in' & 'Break-in*Drive-away') and the complete response (i.e., Approach*Break-in*Drive-away'). A Fisher Exact Probability test showed that there was no significant difference in the proportions of complete offence responses: 0/6 in the Specialist subgroup and 1/9 in the Versatile subgroup, p>0.05.

3.5.3.5. Vignette 4: Potential Burglary

Table 31: Vignette 4 (Potential Burglary) frequency totals and associated percentage values for the categories 'Approach', 'Search' and 'Steal' for both the Specialist and Versatile subgroups.

	Specialists N = 6	Versatiles N = 9
Categories	Cases	Cases
Non offence responses	0 (0%)	0 (0%)
Approach	2 (33.3%)	2 (22.2%)
Search	0 (0%)	0 (0%)
Steal	0 (0%)	0 (0%)
Approach*Search	0 (0%)	0 (0%)
Approach*Steal	2 (33.3%)	3 (33.3%)
Search*Steal	1 (16.7%)	0 (0%)
Approach*Search*Steal	1 (16.7%)	4 (44.4%)

Table 31 shows that the cell with the highest percentage is for the interaction of all the categories 'Approach*Search*Steal for the Versatile subgroup, and the Specialist subgroup's corresponding cell with the highest percentage was for the categories 'Approach' and 'Approach*Steal'. The Binomial tests revealed a bias towards the 'other' category in the Specialist subgroup and in the Versatile subgroup, $ps<0.05$. Independent log-linear analysis was conducted on the two subgroups using only the participants in each subgroup who provided an offence related response.

Table 31b: Summary for log-linear modelling from Vignette 4 (Potential Burglary) for both the Specialist and Versatile subgroups.

Specialist subgroup N = 6	Estimate	Std. Error	Z	Sig.
Constant	-1.099	1.155	- .951	.341
Search	-.693	.866	-.800	.423
Versatile subgroup N = 9				
Constant	.699	.645	1.074	.283
Steal	1.253	.802	1.563	.118

The upper rows of Table 31b reveals that the final parsimonious model for the Specialist subgroup was not significantly different from the saturated model (LR (1, N=6) χ^2 = .000; p>0.05) though it did not include a category which contributed significantly. The Versatile subgroup's parsimonious model was also not significantly different from the saturated model (LR (1, N=9) χ^2 = 2.805; p>0.05) and also did not include a category with a significant contribution. As such neither of the parsimonious models was a good fit to the data.

In summary, the Versatile subgroup provided more complete offence related responses, with both subgroups providing equal percentage values for the categories 'Approach*Steal'. Consistent with this observation was that there was no significant difference in the proportions of complete offence responses in the two subgroups: 1/6 in the Specialist subgroup and 4/9 in the Versatile subgroup; p>0.05.

3.5.3.6. Overview of Specialist and Versatile subgroups results

In each of the three vignettes, both of the subgroups provided high percentage values for categories which included an interaction of categories and this remained constant throughout the analyses. Additionally, the Versatile subgroup provided more complete offence related responses across the 4 vignettes (i.e., 2 versus 8).