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RUNNING HEAD: SEXUAL INTEREST AND COGNITIVE DISTORTION

A theoretical framework for understanding deviant sexual interest and cognitive distortions as overlapping constructs contributing to sexual offending against children.

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Abstract

Most current research and theory accepts implicitly or explicitly that there is a relationship between deviant sexual interest and cognitive distortions surrounding sexual contact with children. However the current literature is lacking a framework by which deviant interest and offence supportive or facilitative cognitive structures or processes may interact. Recent advances in the application of indirect measures of cognitive distortions and sexual deviance have indicated a potential utility of such measures as alternatives or adjuncts to existing measures such as penile plethysmography, viewing time tasks and questionnaires. However, without a coherent theory of what these subtle tasks are measuring and how constructs such as offence-supportive schema and deviant sexual interest interact, it will be difficult to make sense of current findings and indeed to agree on best practice for the use of indirect measures in clinical assessment. This article discusses the cognitive structures and processes involved in both cognitive distortions and deviant sexual interest and explores how they might overlap and interact in facilitating and maintaining offending behavior

1.1 Keywords

Cognitive Distortions

Deviant Sexual Interest

Sexual Offending

Indirect Measures

Schemas

1.2 Introduction

Deviant sexual interest and cognitive distortions are implicated as factors in offending by almost all modern theories of sexual offending. For example the Integrated Theory of Sexual Offending (Ward & Beech, 2006) describes both deviant interest and cognitive distortion as clinical symptoms or state factors in offending. There is an implicit acceptance in the literature that both cognitive distortion and deviant sexual interest are overlapping constructs to a degree. This implicit acceptance can be seen in several ways. First, there are some clear points of potential overlap between the two, such as between a sexual interest in children and the implicit theory of *children as sexual beings* that Ward and Keenan (2009) posit to be held by many offenders. Additionally, problematic schema may be involved in both deviant sexual interest (Ward and Beech, 2006) and cognitive distortion (e.g. Mann & Beech, 2003; Ward & Keenan, 2009). Finally, there has been some overlap between the types of task used to measure both. Different authors have used very similar tasks, e.g. versions of the Implicit Association Test (Greenwald, McGhee, & Schwartz, 1998), while setting out to measure cognitive distortions (Mihailides, Devilly, & Ward, 2004) and deviant sexual interest (e.g. Banse, Schmidt & Clarbourn, 2010; Gray, Brown, MacCulloch, Smith & Snowden, 2005; Nunes, Firestone & Baldwin, 2007). Despite the tendency to consider cognitive distortion and sexual interest as related phenomena there remains a lack of a clear theoretical underpinning of the relationship between the two. In attempting to explore this relationship, this paper first summarizes the Integrated Theory of Sexual Offending (Ward & Beech, 2006). It then summarizes the current understanding of cognitive distortion and deviant sexual interest before proposing a framework for understanding the interaction of sexual interest and cognition.

1.3 Ward and Beech's Integrated Theory of Sexual Offending

Figure 1 outlines schematically the Integrated Theory of Sexual Offending (ITSO; Ward & Beech, 2006, 2008). The ITSO attempts to incorporate the key components of previous theories of sexual offending into a coherent whole. It draws on disparate fields of research to inform our understanding of sexual offending. The framework proposed suggests that the clinical symptoms (or state factors) i.e., emotional problems, social difficulties, cognitive distortions and deviant arousal, that may be seen in offenders and that directly result in offending behavior (Ward & Beech, 2008) arise out of underlying problems in neuropsychological functioning. These underlying problems are envisaged as originating in three neurological systems (the motivational/emotional; action selection and control; and perception and memory systems). Ward and Beech (2006) draw on Pennington (2002) for the proposed functioning and neuroanatomical structure of these systems. Problems in underlying neuropsychological functioning are posited to be a result of abnormal brain development and/or what Ward and Beech (2006) refer to as an ecological niche. Brain development is seen as a result of evolution and genetics, and the neurobiological infrastructure that results is implicated in the neuropsychological functioning already mentioned. 'Ecological niche' encompasses the social, cultural, and personal circumstances of the individual along with the physical environment in which they find themselves and impacts on neuropsychological functioning primarily through a process of social learning (Ward & Beech, 2006, 2008). The theory also states that these ecological variables can function as a trigger for offending behavior and that once triggered offending results in a positive feedback loop to entrench the individual's vulnerabilities and thus maintains and/or escalates the offending behavior (Ward & Beech, 2008). The strengths of the ITSO lies in the fact that it provides a useful platform for informing clinical work and also provides a framework by which new theories could be advanced to deal with particular components of the framework. In this way approaches to

treatment such as the Good Lives model (Ward, Mann & Gannon, 2007) and theoretical explanations of certain phenomena such as the Judgment Model of Cognitive Distortion (discussed in more detail later; Ward, Gannon & Keown, 2006) can be seen as ‘hooking-on’ to the ITSO. This need to hook-on other theories or models can also be viewed as the ITSO’s biggest limitation. In the attempt to unify the many different factors involved in sexual offending into one theory, it becomes difficult to go into detail regarding the processes, structures and etiology associated with each component of the theory. This leaves researchers with framework for investigation with which to fill in these blanks in the ITSO. One of the areas requiring further investigation is the development of an understanding of how deviant interest is represented in the brain and also how that interacts with other factors such as distorted cognition. The following sections focus on cognitive distortion and deviant arousal (both referred to as clinical or state factors in the ITSO) and discuss how these factors may interact and overlap.

Approximate Location of Figure 1

1.4 Cognitive distortion

Cognitive distortions are a key component of virtually all modern theories of sexual offence etiology (Gannon, Ward, & Collie, 2007). In the ITSO, Ward and Beech (2006) see cognitive distortions as clinical symptoms or state factors, related to the committing of sexual offences in many cases. Cognitive distortions were first proposed as a mechanism underpinning child abuse by Gene Abel and his colleagues in the 1980s (e.g. Abel, Becker, & Cunningham-Rathner, 1984; Abel, Gore, Holland, & Camp, 1989). Definitions of cognitive distortions in the context of sexual offending have often been vague leaving the concept so broad that it can be applied to attitudes and thought processes that are offence-supportive, and

play a causal role in offending, or processes that are a post-hoc rationalization or neutralization of the offence (Blake & Gannon, 2008; Gannon & Polaschek, 2006; Maruna & Mann, 2006). This results in a situation where the term's intended meaning often remains ambiguous (Blake & Gannon, 2008). Given that many current treatment programs emphasize the identification and challenging of cognitive distortions, Maruna and Mann (2006) question whether all of these so-called cognitive distortions are problematic (and therefore should be a focus for treatment). They ask whether some of what are sometimes considered distorted cognition (especially justifications and excuse making) is not an attempt to reconcile in a normative way the fact that the offender considers themselves an inherently good person albeit one who has done bad things. In addition they make the point that some of the excuses offered by individuals for criminal behavior may have in fact contributed to their offences and are thus not necessarily the product of sloppy or distorted thinking (e.g. drug and alcohol use, family upbringing etc.). They also suggest that some degree of excuse-making may indicate less risk of recidivism (Maruna & Mann, 2006) since to make excuses may indicate an acceptance of society's norms regarding the inappropriateness of the offending behavior.

A more useful way to consider the cognitions that are involved in offending may be to talk in terms of cognitive structures (e.g. schemas, implicit theories), cognitive processes or operations (e.g. information processing) and cognitive products (e.g. self-statements, beliefs and attributes; Ward, Hudson, Johnston, & Marshall, 1997). There has been quite a large amount of research to date attempting to measure and identify cognitive products held by offenders (for a comprehensive review on attempts to measure cognitive products see Navathe, Ward, & Gannon, 2008). However, there has, until recently, been a lack of theory-driven research looking at offenders' cognitions, especially when it comes to differentiating products from processes and structures (Mann & Beech, 2003; Ward et al., 1997). Polaschek

and Gannon (2004) state that: “Until recently, researchers focused on measurement of surface cognitions at the expense of developing an understanding of the underlying architecture responsible for generating and organizing them (p. 300)”. Ward hypothesizes that cognitive structures emerge from an offender’s early developmental experiences (i.e., trait factors), while the cognitive products (state factors) are produced by an interaction of those cognitive structures and environmental factors (2000). Ward and Beech later flesh out this interaction in terms of neurobiological and neuropsychological functioning along with ecological factors (2006).

In order to attempt to understand the phenomenon of faulty cognition among offenders, researchers have tried to place ‘cognitive distortions’ in the broader framework of social cognition and the theory underlying cognitive therapy. Specifically they have looked at certain cognitions held by offenders as schemas. These schemas are cognitive heuristics employed by individuals to interpret their social environment. They “are the structures within memory that guide our attention, inform our perceptions, prompt our inferences, and save us energy by providing shortcuts to interpreting social situations. Thus, schemas are structures, but they affect our cognitive processes” (Mann & Beech, 2003, p. 139). Three theories in particular have used schemas to attempt to explain the presence of cognitive distortions among offenders: Ward’s *implicit theories* (Ward, 2000; Ward & Keenan, 1999); Mann and Beech’s *schema-based model* (2003); and Ward, Gannon and Keown’s update of the implicit theories model, the *judgment model of cognitive distortions* (Ward, Gannon & Keown, 2006; Ward, Keown, & Gannon, 2007).

1.4.1 The implicit theories model of cognitive distortion (Ward, 2000; Ward & Keenan, 1999)

Schemas represent ‘deep’ cognition and may only be able to be assessed indirectly through cognitive products (Kwon & Oei, 1994; cited in Ward, Polaschek, & Beech, 2006). Ward (2000) argues that if some of the cognitive distortions identified by previous research are in fact cognitive products, then they must be products of underlying schema. However since the definitions of schema can be quite broad, Ward instead regards these schema as causal (or implicit) theories to emphasize the fact that he believes they behave similarly “to scientific theories, that are used to explain, predict, and interpret interpersonal phenomena (Ward, 2000, p. 494)”. Ward and Keenan (1999) introduced five of these implicit theories that they see as schemas that may be present among offenders against children. These theories were developed by condensing distortions from various measures (Abel et al., 1984; Bumby, 1996; Hanson, Gizzarelli, & Scott, 1994), interview studies (Neidigh & Krop, 1992; Ward, Fon, Hudson, & McCormack, 1998) and a review paper (Ward et al., 1997).

In the first implicit theory suggested by Ward and Keenan (1999) the individual hypothesizes children to be inherently sexual creatures who can enjoy, and even seek out, sex with adults. Innocent childhood behaviors may, thus, be misinterpreted as sexual by someone who holds this distortion. This is referred to as the *children as sexual beings* implicit theory. Those holding the second implicit theory, known as *nature of harm*, believe that sexual contact between children and adults is harmless unless significant physical violence and/or injury is involved. The third theory, or *uncontrollability*, involves the belief that events just happen, and that behavior is dictated mainly by powerful urges and emotions. Offenders holding this belief do not believe they have control over their own actions. Offenders are thought to have the *entitlement* implicit theory when they believe that their own needs are more important than anyone else’s and therefore they are entitled to use inferior individuals

such as children to satisfy those needs, including sexual needs. Finally, those having the *dangerous world* implicit theory believe that the world is a menacing, excessively hostile place, teeming with abusive and exploitative people. In one version of this implicit theory offenders perceive all individuals, including children, as hostile and rejecting, and attempt to control them through sexual abuse. In the second, they perceive adults but not children to be dangerous. By comparison, children represent a safe haven and therefore are a preferred choice for a sexual partner.

These five child molester implicit theories accounts for many of the cognitive products identified by other researchers (e.g. Neidigh & Krop, 1992). It should be noted that Keenan and Ward (2003) state that any given sex offender is only likely to hold a subset of implicit theories. In a qualitative analysis of interviews, Marziano, Ward, Beech and Pattison (2006) found evidence for all five implicit theories in the majority (18 participants were judged to hold the five distortions with the remaining 4 participants holding four) of their heterogeneous but small sample of offenders. They also found that offenders, who themselves had been abused, held the *dangerous world* theory to a significantly higher degree than those who had not. This finding makes intuitive sense: victims of abuse may well have an entrenched view of the world as a hostile and dangerous place as a result of that victimization. Offenders against males also showed a higher level of endorsement of the *children as sexual beings* implicit theory which would be consistent with the fact that offenders with male victims are more likely to show pedophilic sexual interest as measured by penile plethysmography than offenders with female victims (Seto & Lalumière, 2001). From these findings it is possible to deduce that the strength of the implicit theories held seem to suggest that different distortions may be indicative of different offending pathways and offending behavior.

Four studies by Gannon and colleagues also explored the presence of cognitive distortions among sexual offenders against children (Gannon, 2006; Gannon, Keown, & Polaschek, 2007; Gannon & Polaschek, 2005; Gannon, Wright, Beech, & Williams, 2006). The results are somewhat mixed and indicate that the distribution of cognitive distortions among offenders may not be as clear-cut as suggested by the study by Marziano et al. (2006). In one of the four studies Gannon and colleagues (2006) found their sample of (intrafamilial) offenders were no more likely than incarcerated controls to use distortions indicative of Ward and Keenan's (1999) implicit theories when recalling vignettes of offence scenarios specifically designed to tap into those theories. Another one of the studies found that treated and untreated child molesters along with nonsexual offending and non-offending controls all tended to perform similarly on a computerized cognitive distortion questionnaire (Gannon & Polaschek, 2005). When response times for items were measured, only the treated offenders showed faster reaction times potentially indicating that they were faking good, though a number of alternative explanations may explain the faster responding. A lack of support for widespread cognitive distortions was also found when offenders were administered a cognitive distortion questionnaire on two occasions, the second time while connected to a pseudo lie detector (Gannon, 2006). The second administration did not yield more distorted belief disclosure relative to the first administration or relative to controls. However, those offenders who participated in this study were intrafamilial offenders. When the study was replicated using extrafamilial offending participants it was found that the second administration did increase cognitive distortion endorsements (Gannon, Keown et al., 2007). Taken together these studies seem to suggest that cognitive distortions can be somewhat elusive to measure and that methodology and sample makeup play an important role in their detection. It is apparent from the results of the studies by Gannon and colleagues and by

Marziano and from earlier research using questionnaires (see Navathe et al., 2008) that there is considerable heterogeneity in the presence of distorted products across offenders and that the best procedure with which to measure them has not yet been identified.

Information processing methods or methods which are influenced by implicit cognition may well provide an avenue for exploring cognitive structures that avoids some of the problems associated with looking at cognitive products only (Langton, 2007; Mann & Beech, 2003; Segal & Stermac, 1990; Ward et al., 1997). To this end several studies have used indirect or implicit measures that have utility in tapping into the some of the proposed implicit theories. These tasks include the Implicit Association Tests (IAT; Banse, Schmidt, & Clarbour, 2010; Brown, Gray, & Snowden, 2009; Gray, Brown, MacCulloch, Smith, & Snowden, 2005; Mihailides, Devilly, & Ward, 2004; Nunes, Firestone, & Baldwin, 2007; Ó Ciardha & Gormley, 2009; Steffens, Yundina, & Panning, 2008), Implicit Relational Assessment Procedures (IRAP; Dawson, Barnes-Holmes, Gresswell, Hart, & Gore, 2009) and lexical decision tasks (Blake & Gannon, 2010; Keown, Gannon, & Ward, 2008). Those explicitly attempting to tap into implicit theories (e.g. Dawson, et al., 2009; Keown, et al., 2008; Mihailides, et al., 2004) have met with limited success, showing supporting evidence for only some of Ward and Keenan's (1999) implicit theories. The remaining tasks, for the most part, were attempting to measure sexual interest rather than implicit theories. The results across tasks indicate at least that such tasks have the potential to be used to explore cognitive processes that may be indicative of underlying distorted cognitive structures.

1.4.2 Mann and Beech's schema-based model (2003)

Mann and Beech (2003) outlined a second schema-based model for the role of cognition in sexual offending. The model is not in opposition to Ward and Keenan's (1999)

theory; in fact they include the five child sex offender implicit theories as likely schemas in the model. The model is more concerned with reconciliation of the existing sex offender cognitive distortion literature with social cognition and cognitive therapy literature. Drawing on those theories, and using the example of cognitions in depression, Mann and Beech (2003) outline a framework by which developmental experiences result in dysfunctional category and belief schemas which interact with ambiguous or negative life events to influence (and bias) information processing. It is this process that results in the surface cognitions or cognitive products that have been previously referred to by many authors as cognitive distortions. Mann and Beech (2003) emphasize that they do not see schemas as the 'driving force' in offending, but something that interacts with other factors to result in sexual assault. These factors include deviant sexual arousal, poor conflict management skills and emotional loneliness. The strength and influence of this theory lies in the fact that the vague term of cognitive distortion is grounded by Mann and Beech (2003) in the broader cognition literature and is teased apart into cognitive structures and cognitive products. In this way Mann and Beech have moved away from simply measuring these products.

The schema-based model of sexual assault proposed by Mann and Beech (2003) is a step forward but suffers from some limitations. Ward, Polaschek and Beech (2006) highlight several difficulties (while accepting the preliminary nature of the model) which include the emphasis on negative life events and the fact that Mann and Beech claim that schemas are 'chronically accessible'. Activation of schema is dependent on affect and they are, therefore, not necessarily always accessible (Marshall, Marshall, Serran, & Fernandez, 2006). In addition Ward and colleagues point to the lack of an explanation of the process by which schemas interact with other factors, and they also question the suitability of using the

depression model as a template given the qualitative differences between depression and sexual offending as phenomena.

1.4.3 The Judgment Model of Cognitive Distortion

In 2000, Ward says: “At this point it is unclear whether cognitive distortions are primarily generated by maladaptive underlying schema or are the product of dysfunctional cognitive processing, or both (Ward, 2000, p. 492).” Several years later Ward and colleagues (Ward, Gannon & Keown, 2006; Ward et al., 2007) have attempted to address this point and have expanded on their earlier work on implicit theories to outline the most comprehensive model of offender cognitive distortions to date. They call their model the Judgment Model of Cognitive Distortions (JMCD). The model accounts for many of the inconsistencies and apparent contradictions found in the cognitive distortion literature. For example, it allows for offenders who make offence supportive statements indicative of implicit theories but when assessed using other measures, seem not to hold those theories (e.g. Gannon, 2006; Gannon & Polaschek, 2005; Gannon et al., 2006). It also seeks to clearly outline the relationship between distorted beliefs and post hoc rationalizations, neutralizations etc. Importantly the model is the first to make a compelling case for how non-sexual implicit theories can impact on the committal of sexual offences. Additionally the model seems to fit neatly into both Ward, Mann and Gannon’s (2007) Good Lives approach to offender treatment and Ward and Beech’s Integrated Theory of Sexual Offending (2006, 2008).

The JMCD looks at cognitive distortions in terms of three different ways in which offenders may evaluate, or make judgments about their world: *belief-based judgments*; *value-based judgments* and *action-based judgments*. Belief-based judgments are evaluations of the world that arise out of beliefs or schemas that are held by the individual. These beliefs are

about the nature of the individual themselves, and of the world. An offender may, for example, believe that adults are dangerous and to be treated with caution and suspicion. Ward and colleagues (Ward, Gannon et al., 2006; Ward et al., 2007) argue that careless reasoning over a sustained period can result in false or distorted beliefs while such reasoning over a shorter period can result in faulty conclusions. Faulty conclusions may explain why temporary distorted thinking may have contributed to an offence without the offender having a more ingrained false belief. Value-based judgments refer to aspects of people or of the world that the individual evaluates as positive or negative. These values are directly related to primary human needs or what Ward often calls human *goods*. Ward believes that offenders do not necessarily value the wrong things, but instead that they may try and meet those primary needs or goods, such as intimacy etc. in an inappropriate way. The reason why these needs are met in an inappropriate way may involve faulty belief-based judgments. Action-based judgments are evaluations that are made as a result of actions that have been committed. This type of judgment may encompass much of the post-hoc rationalizations etc. that has been talked about in the cognitive distortion literature.

Ward and colleagues articulate a framework by which sloppy reasoning can lead to faulty temporary conclusions or more entrenched false beliefs that can interact with values to result in actions. Actions can also result in a re-evaluation of values and beliefs in light of those actions. It is a significant step forward in the theory of cognitive distortions that this framework can account for qualitative differences between post-hoc rationalizations, neutralizations, minimizations etc. and distorted beliefs that have a causal role in offending. It also addresses how a process of sloppy reasoning can operate at all levels of the framework thus explaining much of the apparent contradictions in previous cognitive distortion literature. For example: an entrenched belief that is a result of sloppy reasoning may play a

causal role (belief-based judgment) in offending but sloppy reasoning may also lead someone who has offended to believe that they were in some way justified in that offence (action-based judgment) and thus play a maintaining role in future offending. This framework, though in many ways quite obvious has been lacking from past discussions of cognitive distortions.

Ward and colleagues (Ward, Gannon & Keown, 2006; Ward et al., 2007) look at each of the implicit child molester theories (Ward & Keenan, 1999) and five implicit theories hypothesized to be held by rapists (Polaschek & Gannon, 2004; Polaschek & Ward, 2002) in terms of the three judgment types (belief-based, value-based and action-based) in what they refer to as thematic networks. To take the *children as sexual beings* implicit theory as an example, false beliefs that, according to Ward et al. (2007), may be associated with this thematic network, involve children's sexual interests and ability to consent to or make informed decisions about sex. Children may be seen as actively seeking sex. Within this thematic network individuals make value judgments that sex is always beneficial and it should be prioritized over other values (or primary goods). The thematic network may also involve value judgments about autonomy where the individual believes that children should be able to make decisions about sex for themselves. Finally Ward et al. (2007) state that the actions of abusers are likely to reflect the judgment that children can make decisions for themselves about whether they want sex. The abusers "judge (or ask others to judge) that their actions were justified because their child victims wanted sexual contact" (Ward et al., 2007, p. 63).

The JMCD model has implications for how cognitive products or offence-related utterances are interpreted. Consider the following hypothetical statement "children know

about sex, she wasn't naïve; she made a big deal about it because the mother found out". This statement would be typical of one that would fit well into Ward and Keenan's (1999) "children as sexual beings" implicit theory. However, to interpret whether this is a belief-based judgment, a more temporary faulty conclusion or an action-based judgment becomes more difficult. On one hand the offender could be interpreted as having an entrenched belief about how children think about sex; an offender who states this may consider children to be 'little adults' in terms of their sexual knowledge and appetite. However this could also be more of a temporary conclusion arising out of sloppy reasoning regarding the nature of the pre-abuse relationship with one child (e.g. a misinterpretation of playfulness as having a sexual intention). Third it could be an action-based judgment where the speaker has used sloppy reasoning to misinterpret the child's silence over the abuse as complicity. This example mentioned illustrates the necessity for sophisticated experimental techniques to identify the cognitive origin of such a statement. Ward and colleagues stress the need, albeit in an earlier work, for "experimental investigations using less direct and less conscious measures of cognition. Indeed this point is stated in *every* review of cognitive distortions... [yet] the general sophistication of research in this area remains quite low, and hampers theory development (Ward, Polaschek et al., 2006, p. 133)."

1.5 Sexual Interest

Not all individuals who molest children have a sexual preference for children (Seto, 2008). That said, a certain proportion of men who sexually offend against children do have a sexual interest in children. Of those, some have an exclusive preference to children, while some are sexually interested in both adults and children. Most authors concur that gaining some insight into the sexual interest of offenders is an important component in the addressing the problem of child abuse, whether this is in relation to carrying out research, evaluating

risk, devising treatments or assessing treatment efficacy (for an alternative view see Marshall & Fernandez, 2003). What is not agreed upon is the importance of sexual interest and its measurement relative to other factors involved in abuse. Neither is the role of the direct treatment of deviant sexual interest in therapy (e.g. Marshall & Fernandez, 2003) nor even the best method to assess sexual interest (for reviews see: Flak, Beech, & Fisher, 2007; Kalmus & Beech, 2005). The importance of sexual interest is more clearly defined in the context of predicting recidivism with deviant sexual interest in children (measured by penile plethysmography) being the single best predictor of recidivism (Hanson & Bussière, 1998). However, given that penile plethysmography (PPG) as a measure is potentially problematic, due to questions regarding its reliability, validity and fakeability, it may be that the true relationship between sexual interest and recidivism is stronger than that found by PPG studies. Indeed, an article by Marshall and Fernandez (2003), in which the authors conclude that measurement of deviant sexual interest is only of limited value fails to consider any methods other than PPG when drawing this conclusion. Currently sexual interest of offenders is assessed in several ways, including PPG, clinical interview, self-report, psychometrics, card-sorting tasks and viewing time tasks. Each approach has their advantages and drawbacks.

In the ITSO (Ward & Beech, 2006, 2008), deviant sexual interest is hypothesized to be a product of an interaction of three neuropsychological systems implicated by Ward and Beech in offending. They postulate that it involves an inability to effectively manage mood problems and attachment issues, which relate to the motivation/emotional system. This, combined with dysfunctional schema, relating to the perceptual and memory system may lead to deviant fantasies and a pre-occupation with sex. A failure to regulate sexual drive, implicating the motivational/emotional system again may lead the person to use sex for their

emotional needs. These factors combined with problems with sexual control, from the action selection and control system may lead to deviant sexual arousal (Ward & Beech, 2006).

While this exploration of different aspects of deviant sexual interest is a step in the right direction, it is still very broad, and as a result vague, in its conclusions.

1.5.1 Cognitive components of deviant and non-deviant sexual interest

The current literature on deviant sexual interest among offenders is lacking a theoretical explanation of the cognitive architecture of such interests. Indeed the different cognitive components of non-deviant sexual interest have only been addressed by a small amount of literature. The sparse literature on cognition involved in non-deviant sexual interest offers a useful starting point for considering what is involved in deviant sexual interest. Spiering and Everaerd (2007) explain that sexual memory can be located in explicit long-term memory through recollections of sexual encounters, fantasies, attitudes about sex, and understanding of sexual costs and rewards and in implicit long-term memory through “innate sexual reflexes, learned (automatized) sexual scripts and classically conditioned sensations” (p. 767). These separate memory constructs interact to result in an individual’s cognitive, physiological and behavioral responses to potentially sexually salient stimuli. While not explicitly mentioned by Spiering and Everaerd (2007), this author would suggest that schemas are a component of the implicit memory components of sexual interest and are involved more broadly than just their role in scripts.

It has not yet been hypothesized how and whether deviant sexual interest maps onto a structure such as that described by Spiering and Everaerd (2007). However, each of the components in Spiering and Everaerd’s framework has parallels in theories of sexual offending. *Recollection of sexual encounters* can quite clearly be problematic if those

encounters involve children, either the offender's recollection of being sexually victimized as a child or of committing offences. The ITSO (Ward & Beech, 2006), among other theories, implicates the abuse behavior itself in a kind of feedback loop that may maintain or escalate the offending. The role of *fantasy* again is clearly implicated in many theories, e.g. Finkelhor's Precondition Model (Finkelhor, 1984), McGuire et al.'s Sexual Deviation Theory (McGuire, Carlisle & Young, 1965; as cited in Ward, Polaschek et al., 2006) and also Laws and Marshall's Conditioning Theory (Laws & Marshall, 1990). These last two theories also suggest a role of *classical conditioning* in deviant interest (Laws & Marshall, 1990). An individual with faulty or distorted cognition could develop deviant *attitudes about sex*, and a distorted understanding of *sexual costs and rewards*. Again, *learned sexual scripts* may be deviant if they are as a result of distorted cognitions involving problematic implicit theories or schemas. Finally, the ITSO (Ward & Beech, 2006) supports the idea that even *innate sexual reflexes*, which are a product of evolution and brain development, could include deviant reflexes. The above is not suggested as a complete framework by which deviant sexual interest is organized in an offender's memory. Instead it is intended to demonstrate that, in many ways, deviant interest may be organized similarly to normal sexual interest. It may not be necessary for all the components in the framework to be compromised in order to contribute to offending behavior. Indeed, the degree to which structures are compromised, along with the amount of structures compromised could relate directly to the dominance and exclusivity of deviant over non-deviant sexual interest seen in the offender's behavior. The above is intended as a starting point to explore how different tasks designed to measure sexual interest may work and also how cognitive distortions and sexual interest may interact with one another.

To date, the trend in using indirect tasks in attempting to measure deviant sexual interest has operated in the absence of a clear theoretical backdrop of what these tasks are measuring. Again drawing on the literature on non-deviant sexual interest may help to establish this type of backdrop. Janssen, Everaerd, Spiering and Janssen (2000) proposed an information processing model of sexual arousal. Information processing models focus on how information is perceived, encoded and filtered; how a response is selected and then how it is executed. Spiering, Everaerd and Laan (2004) went on to further refine the existing model. According to this information-processing model, sexual (or potentially sexual) stimuli are automatically appraised against representations in explicit and implicit memory, i.e. the components already mentioned. If there is a match with sexual elements in memory a physiological response is primed (Janssen et al., 2000). Attention is then brought to bear on the stimulus, which happens, according to Spiering et al. (2004), to allow regulation of the process. They also suggest that it is this triggering which results in the slowing down of responses to sexually salient stimulus in cognitive tasks in what has been termed sexual content induced delay (SCID, Geer & Bellard, 1996; Geer & Melton, 1997). Spiering et al. (2004) contend that the attention a stimulus is able to capture is a product of its ability to elicit arousal, which, in turn is dependent on matches with sexual memory. They argue that once attentional mechanisms have been triggered (which engages regulation modules), conscious appraisal of the stimulus is occurring. It is from this stage that the subjective experience of sexual arousal emerges (Spiering et al., 2004). Spiering and Everaerd (2007) elaborate to an extent on how this unconscious process develops into a subjective conscious experience. They suggest this can occur by two pathways, through 'hot' cognition where awareness of somatic responses yields a conscious sexual feeling, or through 'cold' cognition where increased attentional focus results in the conscious experience. They also suggest that 'cold' cognition is linked to explicit memory and 'hot' to implicit memory. Spiering and

Everaerd (2007) propose a network of brain structures that comprises what they propose may be a sex module in the brain. Evidence for this module, for 'hot' and 'cold' cognition and indeed for the information processing model of sexual responses is sparse. Potentially problematic is the linking of attentional processes with explicit memory and somatic processes with implicit memory. It is likely that implicit memory is brought to bear on the attentional process as that process may well contain automatic components that draw on implicit memory. It is worth emphasizing however that Spiering and Everaerd (2007) do not state that 'cold' cognition is exclusively related to implicit memory or 'hot' cognition with explicit memory.

1.5.2 A comparison of different attention-based tasks

While the information processing model of sexual arousal proposed by Spiering and colleagues (Janssen et al., 2000; Spiering & Everaerd, 2007; Spiering et al., 2004) is not complete and has not been sufficiently supported as yet by empirical research, it does give a useful framework for the interpretation of attention-based paradigms for the measurement of sexual interest. The model explains sexual content-induced delay as a delay in the processing of a task since attentional resources have been limited as a result of the demand on those resources by the sexual stimulus in question. This additional demand may be as a result of the regulation process where the stimulus is being matched with representations that exist in explicit and implicit memory. Tasks that could be argued to include a sexual content induced delay and that have been used with offenders include the choice reaction time (CRT) task (Giotakos, 2005; Gress, 2008; Mokros, Dombert, Osterheider, Zappalà, & Santtila, 2010), the pictorial modified Stroop task (Ó Ciardha & Gormley, in press), modified Stroop task using word stimuli (Price & Hanson, 2007; Smith & Waterman, 2004) and even viewing time (e.g.

Abel, Huffman, Warberg, & Holland, 1998; Glasgow, Osborne, & Croxen, 2003; Harris, Rice, Quinsey, & Chaplin, 1996).

The tasks mentioned above appear quite similar. Each measure response times to certain stimuli and the length of response is taken to indicate a bias towards certain stimulus categories. For example, a longer response times towards images male children on the CRT task is taken to be suggestive of a sexual interest in males. The CRT task (Wright & Adams, 1994) asks participants to identify the location of a dot situated on slides. Slides can contain clothed or nude images of people. The response time is measured and systematic delays in responding are taken to indicate a sexual salience of certain image types. On the face of it the viewing time task (e.g. Abel et al., 1998; Glasgow et al., 2003; Harris et al., 1996) operates similarly. Participants are asked to rate images that are presented as slides or on a computer screen for attractiveness or some other feature. Again the response time is being recorded and slower responses are interpreted as indicative of sexual interest. Similarly in the modified Stroop task, participants are asked to identify the color in which a stimulus is presented and their reaction time is recorded. In the word version of the task, stimuli are words presented in different color fonts, while in the picture version they are images that have been tinted over using different colors. On deeper inspection, however, there are clear differences between the tasks. Perhaps the most marked difference is between the viewing time tasks and the other reaction time tasks (i.e. CRT and modified Stroop tasks). Referring to the procedure, as several studies have done, as a “visual reaction time measure” (e.g. Abel et al., 1998; Abel et al., 2004; Barboza-Whitehead, 2001; Letourneau, 2002; Williams, 2003) is somewhat of a misnomer (Maletzky, 2003) since it is different to typical reaction time methods, which are usually rapid. The participant in a viewing time task is not attempting to carry out the task as rapidly as possible and there is no correct answer, therefore they are ‘choosing’ more so than

‘reacting’. This distinction has implications for the clinical utility of this type of task and also for a theoretical understanding of what it is measuring. When a participant conducts a reaction time task they are usually told to “respond as quickly and as accurately as possible”. Participants will try and strike a balance between accuracy and speed. Which of these they prioritize will depend largely on their understanding of the task. Some participants will realize that speed of response is being measured and some will not. Typically, however, a reaction time task will be relatively unaffected by whether the participant has prioritized speed or accuracy (i.e. the effect will still show through) as long as the participant has not completely abandoned one for the other. A viewing time task, on the other hand, is far more vulnerable to distortion if a participant is aware that speed of response is being measured. Such a distortion might happen deliberately or unintentionally. Theoretically, if one adopts Spiering et al.’s (2004) information processing model of sexual arousal it is likely that viewing time measures are tapping into the stage of processing where the attention devoted to the task is sufficient to produce a subjective conscious experience.

Theoretically then, the CRT task and the pictorial modified Stroop task should be quite similar since both are true reaction time tasks, and both are measuring response to the presentation of potentially sexually salient stimuli. However, there are differences, not only between the tasks, but across results when different methodological approaches have been adopted within each task. For example, subtle differences in methodology can eradicate SCID effects. While Wright and Adams (1994, 1999) using non-offending participants, and Giotakos (2005) along with Mokros et al. (2010) using offenders, were able to identify group differences between participants using the CRT task, Gress (2008) was unable to replicate these findings. In addition, using a pictorial Stroop task, Ó Ciardha (in press), using 3 different methods of stimulus distribution (stimulus types blocked together in large blocks,

clustered together in smaller blocks or randomly presented), found that only when multiple images of the same stimulus types were presented together in clusters or blocks, did an attentional bias consistent with sexual interest occur. Ó Ciardha (in press) also reports that, in a repeated measures design, a blocked version of a CRT task did not show an attentional bias while a blocked version of the pictorial modified Stroop task did. Wright and Adams (1994, 1999), Giotakos (2005), and Mokros et al (2010) have successfully used random CRT to demonstrate group differences. This suggests that even similar tasks such as the CRT and the pictorial modified Stroop may not tap into the same cognitive processes. A task such as the pictorial modified Stroop task adopting a blocked approach to stimulus presentation may be measuring a higher-order rumination effect whereas a CRT task adopting randomized stimulus presentation may instead tap into a more instantaneous attentional capture related to arousal.

The results of two word-versions of the modified Stroop task (Price & Hanson, 2007; Smith & Waterman, 2004) indicates that this paradigm can also identify what might be called a sexual content induced delay (SCID). However, it seems that the SCID label is too broad to be useful because the sexual content in the word modified Stroop is quite different to that in the pictorial tasks. It seems more likely that the delay is caused by the activation of schema in the case of this particular task (Price & Hanson, 2007). The associative or schema-based nature of the task suggests that it is more similar to the IAT than the pictorial modified Stroop task. It is important to stress that one must be cautious in extrapolating meaning from what is essentially a momentary increase in attentional demands. For example, two modified Stroop studies have shown victims of sexual violence to show attentional bias towards words relating to the abuse/assault that they suffered (Dubner & Motta, 1999; Foa, Feske, Murdock, Kozak, & McCarthy, 1991). These studies, taken with the studies that demonstrate an

attentional bias towards offence-related words among perpetrators of sexual violence (Price & Hanson, 2007; Smith & Waterman, 2004) demonstrate that the interpretation of any bias must be viewed in the context of how the stimuli have come to be salient. In other words very different associations or schema may be activated but yield similar results.

While activation of schema in the word modified Stroop task is hypothesized to impair performance on the color naming task and thus slowdown responses to salient stimuli, the activation of schematic associations may speed up performance on the IAT. This is because activation of a schema allows schema-consistent stimulus pairings to be responded to quicker than schema-inconsistent stimulus pairings. Several version of the IAT have been used to look at sexual interest and associations of offenders (Banse, Schmidt, & Clarbour, 2007; Brown et al., 2009; Gray et al., 2005; Nunes et al., 2007; Steffens, et al., 2008). As mentioned, most researchers using the IAT consider their versions of the task to be measuring deviant or non-deviant sexual interest. This is indeed likely to be the case but as the task measure the strength of associations held by the individual, it is probable that the task is giving an indication of sexual interest by measuring sexual interest-related schema. Mihailides et al (2004) on the other hand used their version to try and find evidence of implicit theories. Theirs is also likely to be an appropriate use of the IAT. The possibility that the IAT is able to tap into both sexual interest and cognitive distortion in the form of implicit theories suggests that there may be a certain amount of overlap between the two concepts. However it may also be that the IAT has utility in measuring sexual interest and implicit theories solely because schematic associations play a part in both.

1.6 The Integrated Framework of Sexual Interest and Cognition (IFSIC)

It is apparent from the preceding sections that state factors in offending, such as deviant sexual interest and cognitive distortions are not unitary constructs. Rather they are likely to involve networks of cognitive processes and structures involving explicit and implicit memory. So while it makes sense to define these by their surface clinical symptoms (i.e. distorted cognition or deviant sexual interest) it is also worth considering how these constructs may overlap with one another.

1.6.1 An interconnected cognitive network

Schemas represent one point of possible overlap between deviant sexual interest and distorted cognition. For example, it is logical to assume that schematic representations of sexual activity engaged during arousal would involve some of the cognitive distortion schemas if present. In this way, the associations that underpin a *children as sexual beings* distortion would also be implicated in a sexual interest towards children. In the same way uncontrollability and entitlement schema could be entwined with a child molester's or a rapist's fantasies or sexual scripts. However, given the broadness of the current definition(s) of cognitive distortion it may not simply be a case of implicit theories and sexual interest sharing common schemas.

As mentioned, the terms deviant sexual interest and cognitive distortion both in reality refer to a complex network of cognitive structures and processes that influence behavior. The cognitive processes of distorted cognition could interact with sexual interest in many ways. If distorted cognition is used by the individual to interpret new information then it may well be inextricably linked to the encoding of explicit and implicit memories that are involved in the

arousal process. The converse may also be true; that deviant sexual arousal (especially schemas, fantasy and memory for past encounters, if deviant) could reinforce or entrench cognitive distortions. Therefore, implicit theories and deviant interest may share common distorted schema but, in addition, cognitive distortion and deviant sexual interest may be involved causally and as a maintaining factor in the other. Indeed, sexual arousal, deviant or not, could make the individual more likely to adopt cognitive shortcuts and thus risk engaging in sloppy reasoning.

1.6.2 The offender as a cognitive miser

The pre-offence stage involves factors that may encourage an offender to behave as a ‘cognitive miser’. These factors could include extreme affect, possibly as a result of a triggering event, arousal and substance use (which would involve an additional disinhibitory effect). An individual behaving as a cognitive miser is less likely to weigh up evidence rationally and make informed decisions. In this scenario the individual is more likely to resort to schemas or implicit theories to fulfill their goals (value judgments). If these implicit theories are distorted, then offending behavior may result. While all individuals will at times resort to cognitive miserliness to make so called “quick and dirty” decisions (Fiske, 2004), the problem arises when the underlying implicit theories or scripts are distorted. Alternatively, as suggested by the JMCD, an individual might not resort to an entrenched distorted schema to guide behavior at this point but may still involve themselves in a process of offending by engaging in sloppy reasoning in the absence of implicit theories.

The degree to which schemas are entrenched may be a function of duration of criminal career for some individuals. In other words, offenders may form better-developed offence-facilitating schemas the more they are involved in offending behavior. Thus they

may need less facilitatory pre-offence factors to engage in abuse. Substance-related disinhibition, brain injury or intellectual disability could further undermine the individual's ability to seek out their goals in an appropriate manner. High levels of psychopathy may need a slightly different explanation since the psychopathic individual may be choosing to interpret the available information in a certain way rather than engaging in faulty reasoning.

When acting as a cognitive miser, the individual may draw on implicit theories or adopt sloppy reasoning to make distorted belief-based judgments about their world. This may lead them to make distorted value-based judgments, i.e. attempt to meet goals or needs in inappropriate ways. Part of the heterogeneity across offenders may stem from the fact that individuals may be trying to meet different goals or needs through their offence behavior. Therefore, the motivation to engage in sexual activity may serve one or more of several functions. These could include intimacy, self-soothing, control or a more simple sexual release. These functions or needs that are served by sexual activity relate to what Ward (2002) calls *human goods* or what Ward, Gannon & Keown (2006) refer to as *values*. What this means is that the individual engaging in sexual offending is attempting to satisfy a need or a value that is appropriate but in an inappropriate way. Thus the offender tries to meet a normal and appropriate desire for intimacy, for example, through inappropriate means (i.e. sexual contact with a child).

1.6.3 Deviant arousal

In order to attempt to meet their needs through inappropriate methods, i.e. to sexually offend against a child, the offender must be deviantly aroused. Even where a sexual assault does not include an erectile response there is likely to be a degree of psychological arousal present. This arousal may be due to a longstanding deviant sexual interest or a more temporary or opportunistic misplaced or indiscriminate sexual interest. In the case of a pre-

existing deviant sexual interest it is likely that the existing sexual scripts and schemas that the person has, i.e. their template for sexual activity, will be distorted. In the case of misplaced or indiscriminate sexual interest the offender will resort to sloppy reasoning or a reliance on distorted schema to justify their choice of sexual object. Regardless of what degree of sexual interest is present, the offender may engage, post-offence, in sloppy reasoning or resort to distorted cognitions in order to justify or excuse their actions to themselves or to others. The more the offending process is repeated, the more entrenched these distorted schema may get and the more the offender will rely on them to inform decisions. In addition, depending on the manner in which or the degree to which the offender justifies or rationalizes their abusive behavior to themselves the offender may begin to incorporate the abuse into their cognitive structures relating to sexual interest (e.g. fantasies etc). It is hypothesized here that it is not just contact offences that involve this cycle of distortion but that the use of child pornography is likely to follow a very similar pattern of interaction between sloppy reasoning, implicit theories, deviant arousal etc.

1.6.4 The role of cognitive distortion in a feedback loop

If one adopts the framework above, it follows that cognitive distortion is likely to be a major component of the mechanism by which offending behavior forms a feedback loop, maintaining and possibly escalating (Ward & Beech, 2006) the behavior. Resorting to sloppy reasoning or drawing on implicit schemas to try and meet needs in inappropriate ways may help form or further entrench schemas. Rationalizing or justifying of offending behavior or deviant arousal pre, peri- or post-offence may, through a process of cognitive dissonance, also develop schemas that facilitate future offending. Assuming deviant sexual interest can be organized similarly to Spiering and Everaerd (2007) structural framework for sexual interest, it makes intuitive sense that those structures could contribute to a feedback loop. Not only would recollection of sexual encounters involve deviant memories, and fantasies that

potentially now include elements of the abusive behavior, but the more implicit components of sexual interest such as schemas and scripts could now include deviant elements, even where there were none before. Where there was deviant sexual interest already, this is likely to become more rehearsed and entrenched, with subsequent fantasizing and masturbation to those fantasies further compounding the problem. The second-time offender has at the very least a template for the abusive behavior. This taken along with the rationalizations or ameliorations that the offender has offered himself feed into this cognitive loop that make deviant arousal and distorted reasoning more likely in the future. In addition to this, it is unlikely that the need that the offender was trying to meet was adequately satisfied by their offending. This is further compounded by the fact that their emotional and social problems are unlikely to improve as they attempt to deal with the cognitive aftermath of sexually abusive behavior.

1.7 Implications and potential for empirical testing

The over arching goal of this paper is to flesh out the structures and processes associated with cognitive distortion and deviant sexual interest. Clearly, theories, such as the IFSIC, are of little value if they don't generate testable hypotheses. Our ability to test these hypotheses is currently limited by a lack of measures for empirical use. Within cognitive distortions, we have several methods by which we may be able to measure cognitive products but to understand the processes and structures involved we also need to find a methodological best practice for tasks such as the IAT. In the case of the IAT, we need to establish a consensus regarding what exactly is being measured by the task and whether it is possible to explore sexual interest and cognitive distortion with it. In addition to the IAT, other tasks need to be devised that may tap into different components of cognitive distortion. The IRAP (Dawson et al, 2009), for example, is one task that has demonstrated potential for inclusion as

part of a battery of tasks to explore implicit theories. Once such a battery of tasks exists, it will be easier to test out theories of cognitive distortion. For example, validated IATs measuring each of Ward and Keenan's (1999) implicit theories would first of all be able to establish the prevalence of those theories among offenders. Second, they could be used to determine the malleability of those implicit theories through treatment. Third, they could be compared with questionnaire measures of cognitive products to determine if both co-vary as a product of treatment (i.e. whether treated offenders maintain distorted implicit theories but simply improve at self-presentation). Fourth longitudinal studies of offenders and follow up research with individuals who recidivate or not, could indicate whether implicit theories become more entrenched over the offending career. Fifth, these validated IATs could give some insight into the origins of the implicit theories. For example if, as the results of Marziano's (2006) study seem to suggest, the *dangerous world* implicit theory is linked to childhood sexual victimization, it seems possible that victims of abuse who do not go on to abuse would also hold this implicit theory. Establishing the similarities and differences between the cognitive frameworks of those victims of abuse who go on to abuse and those who don't may indicate protective factors and also the key components that drive the abuse. This not only has implications for the treatment of offenders but also for the treatment of victims. There are many other questions that may be answered but they all rely on developing a battery of tasks that look at the multiple components of cognitive distortions in different ways.

In contrast to the cognitive distortion literature, there are many measures available which offer potential to tap into sexual interest both deviant and non-deviant. These include both physiological and cognitive paradigms. The challenge facing research in this area is to devise a best practice for all these tasks and to develop an understanding of what exactly

these tasks are measuring. This standardization and validation will allow a greater understanding of the cognitive mechanisms involved in sexual interest and deviant sexual interest. For example, disagreement between measures of sexual interest attempting to measure schema (e.g. IAT, word Stroop), attentional aspects of sexual interest (e.g. CRT, pictorial Stroop) or physiological arousal (e.g. PPG) may indicate the relative impact of various process and structural components of sexual interest. However, without clear established procedures and a theoretical framework on which to map those results, such findings are of limited value. Indeed without a theoretical understanding of what different paradigms are measuring, differing results across approaches may lower confidence in the utility of measuring deviant sexual interest. Successful multi-method measurement of deviant sexual interest will aid assessment, risk assessment, treatment target identification as well as theory building.

An added advantage of developing an array of validated cognitive tasks for administration with sexual offenders is the applicability of such tasks to neuroscientific research. Tasks that require simple button-push responses to on-screen stimuli are particularly suited to fMRI and EEG application. Therefore hypotheses regarding cognitive structures, processes and networks may be further tested by neuropsychological means in order to determine whether there is a neuroanatomical basis for such theories.

One limitation of the IFSIC is that it does not explain the offending behavior of psychopathic offenders. The heterogeneity of offenders, and the presence of multiple possible pathways to offending, make it difficult to incorporate all possibilities into one theory or framework. However, neither does the presence of psychopathic offenders falsify the current framework. Another limitation of the model is that it seems to suggest that all post-hoc

rationalizations, excuses and justifications may contribute to the entrenching of distorted schema. The author does not believe this to be the case. Excuse making demonstrates an individual's acceptance of society's norms (or at least a comprehension of them). They may also represent a genuine understanding of factors that contributed to the offending and thus offer some insight to the clinician of the needs that the offender was trying to meet.

Establishing the positive and negative aspects of post offence cognition should be a very important target of future research.

1.8 Conclusion

This paper attempts to add momentum to the growing body of literature arguing that we look carefully at the multiple factors involved in cognitive distortions in an attempt to understand how these phenomena facilitate and maintain offending. The paper advocates similarly deconstructing deviant sexual interest so that we can explore the cognitive structures and processes that underpin it. The growing interest among forensic empiricists in indirect cognitive task affords an unprecedented opportunity to look at cognitive distortions and deviant sexual interest in novel ways. Neuroscientific methods also offer potential avenues for research. However these new methods should be clearly underpinned by falsifiable theories of what is being measured by these emerging cognitive tasks as well as established best practice for conducting them. This paper proposes a cognitive framework for deviant sexual interest and explores how this might interact with distorted cognition in offending behavior. While acknowledging the preliminary nature of the IFSIC, it is suggested that it provides a starting point for both empirical research and theoretical discussion.

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***Figure Captions**

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**Figure 1: Integrated Theory of Sexual Offending. Reproduced from Ward and Beech (2006)
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Figure

