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The Implicit Theories of Firesetters: A Preliminary Conceptualization

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Abstract

The importance of cognition in the facilitation and reinforcement of criminal behavior has been highlighted and recognized in numerous offender populations. In particular, professionals have theorized that various offender populations hold offense-supportive schemas or implicit theories that require treatment in therapy. However, the role of cognition in deliberate firesetting has received no focused conceptual or theoretical attention. Using current research evidence and theory relating to general cognition and the characteristics of firesetters, this paper outlines a preliminary conceptual framework of the potential cognitions (in the form implicit theories) that are likely to characterize firesetters. Five implicit theories are proposed that may be associated with firesetting behavior. The content, structure, and etiological functions of these implicit theories are described as well as the cognitive similarities between firesetters and other offender types. Future research implications and practical implications of the proposed implicit theories are also discussed.

Introduction

Latest U.S. firesetting statistics show that in 2007 there were 309,200 deliberately set fires, causing 480 deaths, 1,450 injuries and \$1.3 billion dollars of direct damage. A further three fire-fighters were killed and 6,100 injured in responding to intentionally set fires (Hall, 2010). It is clear therefore that deliberate firesetting involves a very high human and financial cost. Despite this there is a dearth of multi-factor theories of firesetting and little understanding of the treatment needs of firesetters (Gannon & Pina, 2010). Theories developed to account for adult Firesetting (e.g., Dynamic Behaviour Theory; Fineman, 1980; Multi-Trajectory Theory of Adult Firesetting; Gannon, Ó Ciardha, Doley, & Alleyne, 2011) highlight the importance of offense-supportive cognitions in the firesetting process but do not include detailed descriptions of these cognitions. Thus, the cognitions associated with firesetting represent a potential treatment need requiring further explication for assessing psychiatrists and psychologists. This paper sets out to explore the cognitive component associated with firesetting in detail. At this point in time, the literature we are drawing upon to inform our theoretical conceptualizations is limited. We, therefore, anticipate that empirical testing will inevitably result in further amendment and refinements and provide a fertile framework from which to build a more comprehensive picture of firesetters' cognition. In order to increase the conceptual clarity of the paper we will refer only to firesetters over the age of 18¹. We will also use the term 'firesetting' as opposed to 'arson' to refer to intentional acts of setting fire. This is because arson represents a legal term that differs greatly in meaning across various jurisdictions. The term 'firesetting', on the other hand, refers to all possible acts of deliberate firesetting that may be assessed and treated by consulting psychiatrists and clinicians that do not necessarily culminate in criminal convictions for 'arson'.

¹ However, we view our discussions as being relevant for both male and female firesetters.

One major challenge facing the development of theories of firesetting is the heterogeneity of firesetters as a group. Firesetters differ greatly in their motivations for committing offenses along with their personality characteristics, developmental features, and offending histories (for reviews, see Gannon & Pina, 2010; Gannon, Tyler, Barnoux, & Pina, in press). As a result of this heterogeneity, it is likely that firesetters will show considerable variety in the offense-supportive cognitions that they hold. Additionally, given some firesetters could be considered generalists (having many types of offenses) and some specialists (having predominantly firesetting offenses; Soothill, Francis, & Liu, 2008), it is likely that the etiological cognitions of firesetters exhibit considerable overlap with general offenders in addition to cognitions that set them apart. In this paper, we will briefly examine current theories of adult firesetting; paying particular attention to the hypothesized role of cognition. Then, we will examine and introduce the concept of implicit theories or offense-facilitative schemas as discussed in the literature associated with antisocial behavior more broadly. Finally, using previous theory and empirical research in firesetting, we apply the concept of implicit theories—for the first time—to the etiology of firesetting. By theorizing the offense supportive cognitions of firesetters, we hope to facilitate more tangible targets for the assessment and treatment of firesetters in clinical practice.

Theories of Adult Firesetting

Until very recently, only two multifactor theories of firesetting were available for the consulting professional: Dynamic Behavior Theory (Fineman, 1980, 1995) and Functional Analysis Theory (Jackson, Glass, & Hope, 1987). Of these, only Fineman's Theory refers to the cognition of firesetters in any meaningful sense. Within this theory, firesetting is viewed as the result of key historical psychosocial influences that direct and shape an individual's vulnerability to set fires via social learning. Cognitions are hypothesized to play a role in firesetting via "immediate environmental contingencies that encourage firesetting behaviors"

(1995, p. 43). It is not clear, however, whether such cognitions are viewed as justifications of the act or etiological attitudes and beliefs that contribute to the act on a more fundamental/causal level.

More recently, Gannon et al. (2011) presented a new framework, the Multi-Trajectory Theory of Adult Firesetting (M-TTAF), in which multiple factors are proposed to interact and result in firesetting behavior. Gannon et al. hypothesize that a combination of *developmental factors* (i.e., caregiver environment, abusive experiences), *biological factors/temperament* (e.g., brain structure), *cultural factors* (e.g., societal beliefs and attitudes towards fire), *social learning factors* (e.g., fire experiences, coping scripts), and *contextual factors* (e.g., life events and other contextual triggers) contribute to firesetting. Gannon et al. also hypothesize that as a result of these factors, *psychological vulnerabilities* (e.g., inappropriate fire interest, offense-supportive cognition, self/ emotional regulation issues, and communicative problems) develop and subsequently represent key clinical features observed in therapy. Gannon et al. hypothesize that distinct psychological vulnerabilities predominate for different firesetters and as a result individuals can be conceptualized as belonging to one of five prototypical trajectories leading to firesetting: *Antisocial cognition*, *grievance*, *fire interest*, *emotionally expressive/need for recognition*, and *multifaceted*. Each of these trajectories involves one or more characteristic vulnerabilities and are described in brief below.

Key Prototypical M-TTAF Trajectories

Antisocial cognition

Individuals following the antisocial cognition trajectory are hypothesized to engage in a generally criminal lifestyle without any particular interest in fire. Thus, fire is viewed simply as a means to an end. The types of offense-supportive attitudes hypothesized to be held by these individuals revolve around criminality generally and such individuals are also hypothesized to exhibit self-regulation issues, problems with impulsivity, and conduct

disorder or antisocial personality disorder. Hypothesized motivators for setting fires may include boredom, vandalism, crime concealment, profit, or revenge.

Grievance

As with antisocial trajectory firesetters, individuals following the grievance trajectory are hypothesized to hold no particular fascination with fire; instead viewing fire as a powerful means to an end. Core issues for these individual are hypothesized to involve problems with self-regulation, aggression, anger, and hostility. Additional risk factors are likely to include communication problems and inappropriate fire scripts. Potential clinical features include low assertiveness, poor communication, and a fusion of scripts involving aggression and fire. The key hypothesized motivators for firesetting in this group are revenge or retribution.

Fire interest

Individuals following a fire interest trajectory are hypothesized to be fascinated by fire. They may also have developed scripts whereby fire is used as a coping strategy and hold cognitions and deeply ingrained attitudes that support firesetting in addition to impulse control deficits. Hypothesized motivators for setting fires would include an inherent interest in fire, thrill seeking, or stress and boredom. Gannon et al. (2011) argue that a diagnosis of pyromania (APA, 2000) would not be necessary for an individual to fall within this trajectory.

Emotionally expressive/need for recognition.

Firesetters following this trajectory are hypothesized to have difficulties with communication and may be conceptualized as two subtypes. Those who belong to the *emotionally expressive* subtype are hypothesized to additionally exhibit difficulties with problem solving and impulsivity. Thus, contextual factors are hypothesized to facilitate firesetting since these individuals feel unable to voice their needs through other means. Those following the *need for recognition* subtype of this trajectory are hypothesized to also

communicate via firesetting but do not exhibit the impulsivity associated with the emotionally expressive type and instead may pre-plan firesetting to enhance standing or status in the community (e.g., by ‘saving people’). Individuals from this overall trajectory are hypothesized to set fires as a cry for help, to self harm or commit suicide, or to satisfy an intense need for social recognition.

Multi-faceted

The final trajectory proposed within the M-TTAF framework is similar to the antisocial trajectory in that the individual is hypothesized to hold cognitions and display behaviors supportive of a generally criminal lifestyle. However multi-faceted individuals are also hypothesized to hold a pervasive and long-standing fire interest. Further risk factors for offending contributing to this trajectory are likely to involve self-regulation issues and communication problems resulting in a multitude of clinical features (e.g., pervasive firesetting, general criminal behavior, fire fascination/interest, antisocial attitudes,). An individual following this trajectory may hold various motivators including revenge, coping, or sensation-seeking.

The role of etiological cognition in the M-TTAF

Within the M-TTAF it is hypothesized that particular cognitive patterns or structures play a role in firesetting behavior. For example, generally antisocial cognition—in the form of attitudes—is associated with firesetters from the antisocial and multifaceted trajectories. While Fineman’s Dynamic Behavior Theory (1980, 1995) also refers to cognition the M-TTAF does so in greater detail and also incorporates much of the strengths of Fineman’s theory through a process of theory knitting (Kalmar & Sternberg, 1988). As a result we feel it appropriate to explore the etiological cognition of firesetters using the M-TTAF as a backdrop. Nevertheless, the M-TTAF does not explore in detail, the structure, function, and content of cognitions that may play an etiological role in firesetting. In this paper we

hypothesize that firesetters may hold different etiological cognitions to other offender types and that firesetters following the various M-TTAF trajectories will hold distinct patterns of etiological cognitions. Specifically we explore how individuals may hold specific schema or *implicit theories* that facilitate firesetting behavior.

Implicit Theories

The offense-supportive or facilitative cognition of individuals with criminal histories has been the focus of much recent research. Specifically, theories have emerged in the literature regarding the implicit theories or schemas of child molesters (Ward, 2000; Ward & Keenan, 1999), rapists (Polaschek & Gannon, 2004; Polaschek & Ward, 2002), sexual murderers (Beech, Fisher, & Ward, 2005), violent offenders (Polaschek, Calvert, & Gannon, 2009) and perpetrators of intimate partner violence (Dempsey & Day; Gilchrist, 2009). The implicit theories of offenders are hypothesized to represent belief systems that allow individuals to interpret events and situations in a way that makes offending more likely (Ward, 2000). The term ‘implicit theory’ is preferred over schema since (1) definitions of schemas can be extremely broad (i.e., incorporating scripts and stereotypes; Bem, 1981; Fiske & Morling, 1996), and (2) researchers argue it may be helpful to consider individuals—and their social cognitive capabilities—as similar to professional scientists in their role as ‘theory testers’ (Gopnik & Wellman, 1994; Ward, 2000; Ward & Keenan, 1999; Wellman, 1990).

Using this analogy, the individual—like a scientist—utilizes observations to form hypotheses and theories, and in turn uses these theories to interpret certain phenomena or to determine behavior (Ward, 2000). In this way any individual can form inaccurate implicit theories if the underlying observations that form the theories are skewed or misrepresentative in some way (Ward, Gannon, & Keown, 2006). Formal theory testing in science attempts to minimize these dangers to theory formation by insisting on proper sampling techniques for observations (e.g., randomization, replication) and will ideally seek to falsify any newly

formed theories by attempting to identify evidence that would disprove them. Unfortunately, individuals' implicit cognition does not follow such scientific guidelines. Rather, conclusions are implicitly drawn from a limited number of observations and may become entrenched, making it difficult for later conflicting evidence to be incorporated. When evaluating theories, good scientists should be aware of confirmation bias which is the tendency to seek out information that confirms rather than falsifies a theory. An individual who holds offense-supportive implicit theories may similarly seek out events or phenomena that confirm those theories while ignoring, or discounting as exceptional, evidence that would falsify them (Plaks, Grant, & Dweck, 2005; Ward & Keenan, 1999). This may become a cycle whereby only confirmatory information is accepted as valid which may act to further entrench an existing implicit theory.

Using implicit theories allows the individual to save cognitive resources when engaging in information processing. It makes sense therefore that an individual is more likely to resort to the use of implicit theories in determining behavior or problem solving strategies when under cognitive strain (Fiske & Taylor, 1984; Molden, Plaks, & Dweck, 2006). In many offense types it is exactly when individuals hold limited cognitive resources (e.g., due to anger, sexual arousal, intoxication) that they are likely to engage in offending behavior (Marshall, Marshall, Serran, & Fernandez, 2006). Thus, problematic implicit theories may play a major part in the decisions made during such cognitive pressure.

The Implicit Theories of Offenders

As noted earlier, a number of articles over the past decade have focused on the implicit theories of various subtypes of offender (e.g., Beech, et al., 2005; Dempsey & Day, 2010; Polaschek & Gannon, 2004; Polaschek & Ward, 2002; Ward, 2000; Ward & Keenan, 1999). Common implicit theories hypothesized to be held by offenders include theories regarding their victim (e.g., *children are sexual beings, women are unknowable/dangerous,*

women are sex objects), their own actions (e.g., *nature of harm, normalization of violence, uncontrollability of sex drive*), and the nature of their environment (e.g., *dangerous world, beat or be beaten*). Regardless of the offense type involved there is agreement among authors regarding the implicit theories implicated in offending. This makes intuitive sense as it seems there are many common features across offenses. For example, all the offenses studied contain some degree of violence whether direct or indirect (such as coercion in certain sexual offenses or the direct and controlling violence inherent in domestic violence). Also, many offenders also do not specialize in one type of offense; rather many can be seen as generalists and are likely to recidivate for other types of crime, not just their index offense (Hanson & Morton-Bourgon, 2005; Rice & Harris, 1996; Soothill, Ackerley, & Francis, 2008; Weinrott & Saylor, 1991). It follows that these generalist offenders at least would share common offense-supportive implicit theories.

Furthermore, since offenders often have quite similar developmental backgrounds it again makes sense that they would develop similar cognitions. Similarly to scientific theories, implicit theories are likely to arise from the collection of evidence in the form of observations of other people's interactions. However, unlike scientific theory formation the development of implicit theories is more automatic, most likely through an interaction of developmental factors, social learning, and life experiences (Polaschek & Ward, 2002). For example, the individual suffering sexual, emotional, or physical abuse as a child is quite likely to have considerable evidence to consider the world a dangerous and hostile place. Without sufficient contradictory evidence the victim may develop a *dangerous world* implicit theory (Polaschek & Ward, 2002). Indeed in an interview study of child molesters Marziano, Ward, Beech and Pattison (2006) found that those who had been victims of abuse held the *dangerous world* implicit theory to a greater degree than those who had not. A history of abuse is a risk factor for various offending behaviors (Connolly & Woollons, 2008; Daigneault, Hébert, &

McDuff, 2009; Lee, Jackson, Pattison, & Ward, 2002; Topitzes, Mersky, & Reynolds, 2011) including firesetting (McCarty & McMahon, 2005; Moore, Thompson-Pope, & Whited, 1996; Root, MacKay, Henderson, Del Bove, & Warling, 2008; Showers & Pickrell, 1987). Nevertheless, certain experiences may act as protective factors for those children who have suffered childhood victimization but do not go on to develop offense behaviors. These may include positive emotional support systems separate to the source of maltreatment (Dahlberg & Potter, 2001). In this way such children are exposed to positive evidence that prevent them from forming some of the entrenched offense-facilitative implicit theories described above.

Not all offenders are hypothesized to hold all of the implicit theories associated with their particular offense type. Instead, particular configurations of implicit theories may correspond to particular styles or other distinctive elements of offending. Beech et al (2005), for example, found that particular combinations of implicit theories among sexual murderers related to whether rape or anger were the main motivators for the offense. It follows that certain subtypes of offender such as child molesters who use coercive rather than directly violent methods to offend may not hold any (or hold as strongly) implicit theories common to other violent offenders. Similarly, firesetters may hold slightly different versions of the general violence implicit theories to other violent offenders since their firesetting may sometimes be considered a form of avoidant or non-confrontational violence (Root, et al., 2008).

The Implicit Theories of Firesetters

Research and theory on the offense supportive attitudes and beliefs of firesetters is sparse. As mentioned earlier, the latest comprehensive theory of firesetting—the M-TTAF (Gannon, et al., 2011)—suggests that firesetters hold some cognitive schemas that support firesetting. However, the M-TTAF does not describe in any appreciable detail the structure or content of these hypothesized schemas.

In the following subsections we use existing empirical evidence (relating to offender cognition and firesetting) and our clinical experience with firesetters to outline five possible implicit theories that may be held by firesetters; *dangerous world*, *normalization of violence*, *fire is a powerful tool*, *fire is fascinating/exciting*, and *fire is controllable*. We hypothesize both *dangerous world* and *normalization of violence* to be similar to those held by other offenders while we hypothesize the remaining implicit theories account for beliefs that might appear to be held more prominently by firesetters. Given the heterogeneity of firesetters as a population in terms of motives and offending careers we suggest that many individuals with arson convictions or other firesetting histories will not present with clinical features (or implicit theories) that are different to other offenders. Where the individual is a recidivist firesetter or has a history of problematic fire behavior we may be more confident in assuming the presence of strong fire-related implicit theories.

For each hypothesized implicit theory we begin by describing the proposed elements of the implicit theory (i.e., the content of the theory as well as its proposed function within social processing and the etiology of firesetting). We then present the rationale and evidence for that theory. As mentioned earlier, we see this list, not as a complete exhaustive list of firesetters' offense supportive cognitions, but rather as a starting point for further refinement and investigation. We also suggest how these implicit theories might fit with the firesetter trajectories proposed in the latest theory available to explain firesetting (the M-TTAF; see Table 1).

Dangerous World

Individuals holding this theory are hypothesized to view the world as a hostile unwelcoming place where other individuals are not to be trusted. In extreme forms the individual may feel a sense of grievance against the world in general or against specific

groups of people. They may feel the need to fight back against this perceived threat as a result.

The dangerous world implicit theory was first labeled as such by Ward and Keenan (1999) and represents a set of beliefs that has been identified by various researchers within a whole range of offending populations (Beech, et al., 2005; Polaschek & Gannon, 2004; Polaschek & Ward, 2002; Ward, 2000; Ward & Keenan, 1999). Among violent offenders Polaschek et al. (2009) reconceptualized this theory as “beat or be beaten” and divided it into two sub theories: *self enhancement*, which involves the need to act violently to maintain or enhance status in a hostile world, and self preservation, which involves the need to act violently in order to avoid perceived harm from other abusive individuals.

Polaschek and Ward (2002) suggest that the *dangerous world* implicit theory may arise out of childhood violence or sexual victimization. As mentioned earlier, there is strong evidence that many firesetters also suffer childhood victimization (McCarty & McMahon, 2005; Moore, et al., 1996; Ritvo, Shanok, & Lewis, 1983; Root, et al., 2008; Showers & Pickrell, 1987). It is likely therefore that this implicit theory would be present among firesetters. This particular implicit theory may be implicated more broadly in criminogenic behavior rather than contributing directly to firesetting. It may also contribute to a lack of empathy and altruistic tendencies since outside agents are treated with suspicion resulting in little motivation for perspective-taking. A dangerous world implicit theory may underpin violent offenses for various offenders and offense types. In the case of firesetters this aggression or revenge-seeking behavior often tends to be non-confrontational (see Gannon & Pina, 2010). Holding the dangerous world implicit theory is likely to increase the probability that an individual will be open to offending generally, as altruistic tendencies may be compromised. We hypothesize that personality factors as well as the presence or absence of

a socially learnt template for firesetting interacts with this implicit theory, when present, to produce firesetting behavior.

Among the M-TTAF trajectories displayed in Table 1, we hypothesize that the majority of firesetter subtypes hold the potential to be associated with the dangerous world implicit theory. For example, firesetters who set fires in order to express a need for help (i.e., the emotionally expressive /need for recognition trajectory) may view their overall inability to cope as stemming from an aloof and abusive society. Only the fire interest trajectory—which describes individuals who set fires *purely* as a result of fire interest—is unlikely to be characterized by the dangerous world implicit theory.

Table 1: The relationship between the implicit theories of firesetters and the M-TTAF

Theory	The implicit theories of different firesetting trajectories				
	Antisocial	Grievance	Fire Interest	Emotionally Expressive/Need for Recognition	Multi-Faceted
Dangerous world	*	*		*	*
Normalisation of violence	*	*			*
Fire as a powerful tool	*	*		**	*
Fire is fascinating/exciting			**		**
Fire as controllable			*	*	

* Implicit theories likely to be present

** Implicit theories necessarily present

The Normalization of Violence

The normalization of violence implicit theory was first labeled as such by Polaschek et al. (2009) and represents beliefs that violence is a normal and possibly acceptable way in which to deal with other people. As such, this theory may direct or normalize a violent method of conflict resolution or persuasion in which the negative consequences of violence are downplayed (Polaschek et al., 2009). Polaschek et al. (2009) propose that a normalization

of violence implicit theory is likely to underpin dangerous world attributions. Thus, where the firesetting behavior is of a violent nature (whether direct or avoidant) we hypothesize that some cognitions relating to normalization of violence are likely to be present among firesetters.

In cases where the firesetting act is an expression of aggression against an individual or group or their property, we argue that firesetters would have some of the same implicit theories as other violent offenders (i.e., normalization of violence and dangerous world). In some cases, certain factors, such as a lack of assertion or an inability to express negative affect, may prevent the individual from direct, face-to-face aggression. Others will engage in firesetting as a more directly aggressive act, by setting a victim alight or by burning property in the presence of the victim. Similarly to violent offenders, firesetters may have developed an implicit theory around the normalization of violence (Polaschek, et al., 2009) as a means to address problems. This is most likely to have occurred through social learning based on witnessing direct or indirect aggression and violence in the home or community during childhood. Firesetters, similarly to other offending groups, are likely to have witnessed or experienced physical or sexual violence during childhood (see Gannon & Pina, 2010). Consequently, they will have experienced numerous opportunities by which to form an implicit theory surrounding the normalization of violence.

This implicit theory may be held by both specialist and generalist firesetters for different reasons. Specialist firesetters may see violence as normal but (1) hold personality traits that prevent them from engaging in direct aggression, or (2) may have learnt that indirect methods of expressing violent are preferential, usual, and acceptable. Generalist firesetters holding this implicit theory, on the other hand, may simply see fire as another method of direct violence. As illustrated in Table 1, we hypothesize that each of the M-TTAF trajectories where inflicting harm on others or general criminality is a motivating factor are

likely to involve some level of a normalization of violence implicit theory; that is, the *antisocial*, *grievance*, and *multi-faceted* trajectories. As well as co-occurring with the dangerous world implicit theory, the normalization of violence implicit theory among firesetters is highly likely to co-occur with the *fire as a powerful tool* implicit theory (see below).

Fire as a Powerful Tool

For some individuals fire is a powerful tool with which they can send a clear message. For these firesetters setting fires allow them to draw attention to themselves as someone to look up to, admire, fear, or help. These individuals may feel that they are entitled to use fire in this way in order to send this message or they may hold poor problem solving skills and feel that fire is the only option left available to them. Examples of individuals holding this type of implicit cognition might include so-called hero firesetters who are looking for recognition, individuals who set fires as acts of vandalism within a group or gang, or individuals who use fire in order to “cry for help”.

Several studies have suggested that firesetting is often motivated by vandalism or attention seeking (Icove & Estep, 1987; Prins, 1995; Rix, 1994). Similarly to the fire is fascinating/exciting implicit theory (described below), this is a theory that many non-firesetters could potentially hold without problematic results. We would argue that fire is a highly pervasive messenger. Therefore a further component of this implicit theory that may be present among firesetters is the degree to which they feel they are entitled to (or have no other option but to) use fire in order to achieve their goals. The idea of implicit theories relating to entitlement and self efficacy have been suggested by most recent authors examining the implicit cognitions of various offenders (e.g., Beech, et al., 2005; Polaschek, et al., 2009; Polaschek & Gannon, 2004; Polaschek & Ward, 2002; Ward & Keenan, 1999). Thus, it is possible that beliefs around entitlement and self-efficacy (Bandura, 1977) represent

separate yet potentially interactive cognition for firesetters akin to other types of offenders. Nevertheless, in the interests of theoretical simplicity (see Hooker, 1987; Newton-Smith, 2002), we prefer to highlight the possible presence of such factors as cognitive characteristics associated with personality traits (e.g., narcissism or dependency) that should be considered within any functional assessment of firesetters' cognition.

While we mention above that a version of this theory is likely to be held by many non-firesetting individuals as well, firesetters may differ from other offenders and non-offenders in the strength with which they hold the theory or in how the theory interacts with other factors. For firesetters, formative experiences of fire as an effective and powerful messenger may, for example, facilitate a more entrenched cognitive representation of power and fire.

Once again specialist and generalist firesetters may both hold this type of implicit theory. Those looking for recognition from antisocial peers will quite likely be involved in other criminal behaviors as will people who set their victims on fire. On the other hand the so-called hero firesetter who sets fires to gain the praise from the general public might not typically engage in other criminal offending.

We hypothesize that this implicit theory could be present among each of the M-TTAF trajectories with the possible exception of *fire interest*. While individuals on a fire interest trajectory may feel themselves in control of the fires that they set, the fire is seen as a goal in of itself, rather than as a tool to achieve something further. We hypothesize that the fire as a powerful tool implicit theory would be necessarily present among individuals on an *emotionally expressive/need for recognition* trajectory since using fire as a powerful messenger is an inherent component of this trajectory.

Fire is Fascinating/Exciting

Fire is inherently fascinating to the individual with this implicit theory. Firesetters holding this implicit theory will preferentially attend to fire related stimuli and will view potentially dangerous fires as exciting. Thus, fires may be lit for their own sake or fire may be preferentially chosen in order to achieve various aims. Some individuals with this implicit theory may not set out to cause criminal damage or injury while others may not care or have the skills to anticipate the consequences of their actions. Those holding this theory may offer some indication that their firesetting is thrilling to them, soothing in some way, or simply mesmerizing.

The idea that firesetters are obsessed with fire is one of the most pervasive causal explanations of firesetting in the literature. Indeed, it is closely linked to the formal diagnosis of pyromania (American Psychiatric Association, 2000). However the vast majority of firesetters do not reach the criteria for a diagnosis of pyromania (Bourget & Bradford, 1987; Lindberg, Holi, Tani, & Virkkunen, 2005; Ritchie & Huff, 1999) and the limiting definition of pyromania appears to underestimate the percentage of firesetters with a problematic fascination with fire. On some level many individuals are likely to hold the implicit theory that fire is fascinating or exciting. Popular culture teaches us that fire is mesmerizing, powerful, beautiful, though this may be truer of westernized cultures, since in other cultures, the emphasis on the functionality of fire may avoid imbuing it with the same mystique (see Fessler, 2006). It is when an individual becomes preoccupied with this fire fascination, in combination with other factors such as poor impulse control or a lack of understanding of consequences that this becomes a problematic implicit theory. We hypothesize that an individual can become preoccupied with fire during childhood or adolescence when a certain amount of fire experimentation and curiosity is typical (Fessler, 2006; Fineman, 1980). Increased autonomy from care-givers and increased access to incendiary and flammable materials allows ample opportunity for fire experimentation. If the individual is socially

isolated and the fire experimentation becomes a repetitive solitary activity, an unhealthy fascination may result whereby an individual learns to self-soothe or gain positive affective or sensory sensations using fire (see Gannon et al., 2011). Alternatively, fire experimentation combined with group antisocial behavior such as vandalism, truancy, illicit smoking or drug experimentation may provide an alternative pathway to an unhealthy fascination with fire. Individuals with traumatic or impoverished and neglectful childhood experiences may be particularly susceptible to developing an implicit theory that fire is fascinating since they may well experience their first positive sensory and affective experiences from the manipulation or control of fire (see Gannon et al., 2011; Jackson et al., 1987).

We hypothesize that firesetters holding the fire is fascinating/exciting implicit theory may be specialists or generalists. Specialists would follow the M-TTAF *fire interest* trajectory as this trajectory is clearly hypothesized to involve implicit theories that fire is fascinating or exiting. Generalist fire setters with this implicit theory would better match the *multi-faceted* trajectory of the M-TTAF as this trajectory requires the individual to hold some inappropriate fire interest along with other values and issues supporting general criminality.

Fire as Controllable

Some individuals appear to believe that fire is controllable because people will have enough time to see the fire and get out of the way of the fire when it starts burning or because only the intended target of a fire will be damaged or injured. A person who holds this belief is likely to present as naive about the dangerousness or the unpredictability of fire or to hold victims responsible for their inability to escape from the fire. Individuals holding this implicit theory may have intellectual disabilities and/or be ill-educated regarding fire safety.

Alternatively such individuals may have empathy deficits or other failings in perspective taking, possibly as a result of mental disorder. As a result of one or more of these factors in combination with either a *fire as fascinating/exciting* or a *fire as a powerful tool* implicit

theory, the individual may set dangerous fires without properly considering the consequences of their actions.

This is an interesting implicit theory that we hypothesize is held only by firesetters because it may separate them from non-firesetting offenders. For offenders using direct forms of violence the literature suggests that an uncontrollability implicit theory is a factor. Rapists (Polaschek & Gannon, 2004; Polaschek & Ward, 2002) and child molesters (Ward, 2000; Ward & Keenan, 1999) may feel that *male sex drive is uncontrollable* and that there is little point in trying to stop themselves, or that trying to control their sex drive will have dangerous consequences. Offenders using non-sexual violence similarly may feel that they *get out of control* sometimes (Polaschek, et al., 2009). Firesetters holding the fire as controllable implicit theory on the other hand seem to feel that they have everything under control and are genuinely surprised when people are killed or badly injured as a result of the fires they set. As a result, they tend to blame the victim or other factors for the fact that someone was killed.

An individual may come to hold a *fire as controllable* implicit theory in several different ways. Through cognitive deficits they may be unaware of the dangerousness and unpredictability of their actions or are unable to envisage how other people may have difficulties in escaping from the fire. For example they may be unaware that fire will spread very rapidly in certain types of buildings or that victims may die of smoke inhalation without ever waking up to realize that there is a fire in the house. Alternatively, an individual with a deep fascination with fire may see fire as an element over which they have mastery. This need for mastery may emanate from a lack of control over other aspects in their lives. They may have developed this implicit theory by overestimating their degree of competence as a result of earlier fire experimentation without accounting for the variables that can cause a larger scale fire to get out of control.

We hypothesize that this implicit theory is most prominent among individuals belonging to the *fire interest* or *emotionally expressive/need for recognition* trajectories outlined in the M-TTAF. While both generalist and specialist firesetters may have distorted cognitions surrounding their control of fire we suggest that those who in addition hold a *fire as fascinating/exciting* implicit theory (i.e., those on the fire interest trajectory) are most likely to have predominantly fire-related offenses. We argue that this combination of seeing fire as controllable and fascinating makes it more likely that the individual will use fire almost exclusively in their offending. Individuals who see *fire as controllable* in conjunction with a *fire as a powerful tool* implicit theory (i.e. those on the emotionally expressive/need for recognition trajectory) may, on the other hand, use fire as one of many tools with which to attempt to address their needs. A key feature of this theory is that the individual does not expect their actions will cause damage or harm beyond that which they intend, or that if it does that it was their victim's own fault.

General Discussion

The implicit theories listed above represent a first attempt to form a picture of the etiological cognitions of firesetters. Revision of this picture will require submitting the hypothesized implicit theories to empirical testing. As with all hypothesized implicit theories it is difficult to determine whether attitudes and apparent beliefs like those proposed above demonstrate true offense-contributory schemas or are the result of post-offense justifications or minimizations on the part of the offender. A multi-method approach to answering this question is recommended whereby researchers not only examine cognitions through the use of transparent questionnaires and interview techniques but also consider indirect cognitive measures such as the Implicit Association Test (Greenwald, McGhee, & Schwartz, 1998) and the many other tasks available, to attempt to measure the cognitive structures involved. Methods that attempt to isolate on-line processing of materials should also be considered. It is

important to remember in designing such tasks that it may be necessary to manipulate the cognitive load placed on participants in order for the activation of implicit theories to occur.

It should be clear that not all the proposed implicit theories need be present in an individual to bring about firesetting. Table 1 demonstrates how we believe different patterns of implicit theories relate to the different trajectories proposed in the M-TTAF. For example the *fire is fascinating* and *fire as controllable* implicit theories are hypothesized to be found among individuals on the *fire interest* trajectory. On the other hand, the *fire is fascinating* implicit theory need not be necessary for those for whom the fire serves a purpose such as self-enhancement or to make themselves feel powerful such as those on the *antisocial*, *grievance* or *emotionally expressive/need for recognition* trajectories. These patterns of implicit theories form testable hypotheses assuming valid methods can be established both of measuring the implicit theories and of confirming the recently proposed M-TTAF trajectories.

Firesetting can be considered as a problem solving strategy (Jackson et al., 1987). Clearly it is a faulty strategy. However it is one that is based on the pursuit of certain goals that may not be themselves dysfunctional (Ward & Gannon, 2006). For example, the individual may be seeking the respect of peers or mastery. Through engaging implicit theories and/or using sloppy reasoning or distorted logic, the individual may try and achieve these goals through offending means. To our knowledge, this is not a factor that has yet been explored within the firesetting literature despite the potential impact such explication is likely to play in both the etiology and rehabilitation of firesetters. Thus, we invite researchers to test the preliminary conceptualizations of firesetters' implicit theories that we have proposed in order to facilitate theoretical and treatment gains in this highly neglected area of applied psychology.

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