

Juvenile Firesetting - An Appropriate Response

by

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INTRODUCTION

Background - General Discussion

Change within the fire service community has occurred for many reasons. The last twenty-five years have seen significant legislative change. Today's changes however are predominantly technological. Enhanced computer programmes, efficient personal protective systems and more advanced fire suppression techniques are just a few examples of that. The future focus of change will have more to do with financial constraints and societal expectations than with the mechanics of fire suppression.

In order to gain increased 'public support' many fire brigades have diversified their activities to meet those new demands. It is accepted that it is through education and not legislation that the fire service influences changes in the domestic and social environment to improve the safety of the individual and reduce the costs that are borne as a consequence of the failures that occur. An area of significant growth in the armoury of fire safety education has been the emergence of the 'Juvenile Firesetting' programmes.

THE SCALE OF THE PROBLEM

Statistical evidence collated by the Home Office, Fire Protection Agency and Arson Prevention Bureau, clearly demonstrates that as a proportion of the total number of fires that occur annually, those defined as malicious continue to increase. A significant factor in that is the high number attributed to juveniles. Children, some under the age of four years, are setting a significant number of fires. Whilst many of these are defined as being set accidentally by children 'playing with fire', psychological evidence exists to show that a proportion of these children knowingly and intentionally start fires.

TABLE 1
MOTIVES FOR ARSON: THE ARSON MATRIX

MOTIVE	TYPE	TYPICAL ARSONIST	MAJOR TARGETS	PROBABLE FREQUENCY
Vandalism	Deliberate	Male teenager	Any but particularly schools and public buildings	High
Playing with fire		Child under 10 years old	Dwellings Schools Rubbish Tips	High
	(a) Vehicle crime	Young males 15-25 years old	Cars	High

Crime concealment	(b) Other crime	Various offenders	Any	Moderate
Revenge	a. Domestic b. Non-domestic	Any	Dwellings Any	Moderate
Fraud	a. Insurance fraud b. Avoiding planning restrictions	Property owner or person acting on his behalf	Business premises	Moderate
Political	a. Terrorist b. Protector c. Racist d. Riot	Member of political organisation or movement. Insufficient information Usually young males	Retail and other high public profile premises Ethnic minority business and homes Inner city buildings	Low
Mental illness	-	Any	Any	Low

The Working Group on the Prevention of Arson, which considered the outcomes of a study of 238 known arson offenders, has developed the Arson matrix. It is most useful as it gives a focus to the type of individual likely to set fires, their motives and the most frequent targets for each group. Of clear significance to this research is the high probable frequency of the event in relation to vandalism and 'Playing with Fire'.

Before moving ahead to focus on the pathology of child firesetters as interesting question can be posed, 'Why do they set fires?' Wooden and Berkey (1984) in attempting to respond to that question note that 'there are broad assumptions to be made when studying irrational (or rational) human behaviour. The aetiology of the firesetting behaviour of the young appears to be unique to each child or adolescent involved, although as our research demonstrates certain patterns appear to be prevalent'.

These writers noted the changes that have taken place within society that would have had an impact on the young. The first of these is the use of and exposure to fires in the domestic environment. Whereas many of the parents of today's children will have lived in households that had open fires for heating, stoves on which to cook and no restrictions imposed to the burning of rubbish in their gardens, the child of today will not have. Therefore the safety education that would have existed in the use of those facilities no longer exists. As a result the child's curiosity about fire is not satisfied. The major exposure to fire will be to cigarette lighters or matches. They conclude that 'The diminishing exposure to the primitive uses of fire make it a more mystifying and therefore attractive element'.

A second factor that they believe may have previously been overlooked is that 'the efficiency of modern firefighting may actually work to promote fires'. They note that sectors of society have become apathetic about the danger of fire as help is only a phone

call away, when a fire occurs. Historically, when the fire service did not exist or was ill equipped to deal with fires, 'society' imposed strict adherence to safety procedures in an attempt to avoid the potentially disastrous consequences. Self-imposed and regulated fire prevention and control became paramount to human existence. An analogy can be drawn here with the social environment in Japan where the culture remains one committed to minimising the incidence of fire.

Whilst yesterday's child was taught to fear fire and was instructed in its proper use the child of today will view the fire engine and its siren as something exciting - perhaps even heroic and glamorous. Many will have little, if any, comprehension of the potential damage created by fires or the impact upon those who will suffer as a consequence of that event.

Kenneth R Fineman, Associate Clinical Professor of Medical Psychology (1991) noted 'Prior to developing any realistic and effective methodology for identifying young firesetters, and reducing their firesetting proclivities, it was first necessary to extensively survey the diagnostic and treatment literature concerning arsonists and firesetters of all ages. It was then that I discovered the plethora of information regarding firesetting. Unfortunately it was greatly disorganised, and as I was later to determine, more consistent with a psychoanalytical paradigm than the data allowed it to be'. Later in the same paper he concludes, 'The studies generally presented teenage or even younger arsonists as being consistent with the perception of adult arsonists in the literature; namely a male who was engaging in firesetting primarily out of a relatively severe sexual dysfunction'.

Fineman (1984) distinguishes between the normal child who sets fire out of 'curiosity' and the pathological firesetter. 'It was the former group comprising 60% of the juveniles who set fires that could be effectively educated at the firehouse level by non-mental health practitioners'. Fineman recognises that even the pathological juvenile firesetters may benefit from some educational intervention immediately after a fire episode, however this child: 'is in need of a professional mental health evaluation'.

An earlier study carried out by Ditsa Kafry (1984) undertook to determine the fire knowledge and behaviour of boys who were selected at random and were aged approximately 8 years old. The research involved a series of structured interviews with the children and their parents and the completion of questionnaires. Kafry identified that interest in fires was expressed by all 99 of the boys interviewed and that 45% of those had been involved in some form of child play activity. What was a surprising outcome of her research was the high number of boys (18%) who had set fires before the age of 3 years. A further issue of significance was that only a small proportion of the parents interviewed provided any form of adequate instruction in relation to the dangers of fires.

Kafry did note the significance of family structure and background that were prevalent in homes wherein the boys experimented with fire. Those homes tended to be characterised by a greater degree of emotional and social deprivation, fathers played a less important role (or were absent) and mothers were frequently left to deal with the child rearing.

Research undertaken by Jacobson (1985) concluded that 'Their backgrounds seemed to be characterised by parental criminality, poor supervision and harsh or inconsistent discipline with considerable family discord or disruption'.

The first part of the paper has shown the broad range of factors pertinent in identifying the reasons why juveniles start fires. The study has constantly thrown up comments, made by those professionals who have undertaken research in this area, that more research must be undertaken. If, as the research indicates, the problem is increasing then even greater effort must be invested to ensure that the most appropriate response is utilised. Where programmes are used, be they educational or behavioural, they must be appropriate for the juvenile. The programmes will only be useful if they are as a result of a full evaluation of the child being undertaken.

Research undertaken to determine whether the introduction of juvenile firesetting programmes were having a positive impact was inconclusive. A number of determinant factors for that are as follows;

- i. Under reporting of arson events.
- ii. Poor communication between interested and affected parties
- iii. Limited sharing of data and information
- iv. General lack of research leading to mis-understanding and confusion.

TYNE AND WEAR - TWO APPROACHES TO THE PROBLEM

Tyne and Wear Fire Brigade had in the early 1990's identified a serious problem in relation to the high level of malicious fires being set. Divisional Officer Ken Horne reporting at the 1992 Fire conference stated 'That within his brigade malicious firesetting, malicious ignition, accounted for fifty percent of all dwelling fires'. To emphasise the problem, in relation to his brigade, he gave the following detail. 'In 1989 there were 38 casualties including 3 fire brigade personnel, in 1990 there were 4 fatalities and 54 casualties including 7 fire brigade personnel, in 1991 there was 1 fatality and 26 casualties including 1 member of the brigade. The incidents, which resulted in these casualties were all in dwellings and were all caused by children'.

Horne's paper (1992) details the manner in which Tyne and Wear attempted to address the problem. Initially, working with Mrs Ann Eglintine, a qualified teacher who was responsible for the delivery of fire safety awareness training, they attempted to develop a greater awareness of the incident of juvenile fire raising. Jointly they undertook research and training with Andrew Muckley, and educational psychologist, at the Aycliffe Centre for Children in county Durham. Using that training, they then established a juvenile firesetter programme within the brigade's area. Horne argues throughout his paper that the fire service are the most appropriate to deal with the young firesetters. Further that social services educational support and psychologists are unavailable in the short term to deal with each individual problem. The result, children being referred to any of these services being placed on long waiting lists.

Writing in praise of the Tyne and Wear programme, Anna Moore (1995), highlights the progress made by the Tyne and Wear programme, giving specific reference to the educational psychologist Andrew Muckley. Muckley argues within the article 'That fire fighters are ideal interventionists. They are conditioned to instant response - there's none of this waiting list stuff. Social workers will rationalise their workload, stop, start a file, make an assessment, have a case conference. They will refer it to a [psychologist, who repeats the process. Meanwhile, the child gets worse'.

Muckley opines 'Since its a barely developed area of the social and psychological fields, fire fighters know more about it than almost anyone else, they are also extremely skilled with people. They don't just fight fires, they talk to the victims, and help them through extraordinary crisis. They work as a team with other emergency services, so they are good networkers. And they are not idealists - they accept their limitations'. They question must therefore be asked 'Why, if the juvenile firesetting programme is so effective have Tyne and Wear adopted a Task Force in order to deal with juvenile incendiarism?'

In October 1997 the country's first arson task force was set up with part funding by the Arson prevention Bureau. Through this two year pilot project, it is intended to reduce the number of malicious fires in a defined area of that Brigade. That area, the West End of Newcastle Upon Tyne, which covers approximately 3¹/₂ square miles, suffers one of the highest arson rates in Europe. During 1997 it was estimated that 80% of fires in the West End of Newcastle were deliberately started and nine out of ten of those were attributable to vandalism, with most of the offenders typically being young males under sixteen years of age. The main targets were cars, rubbish and empty properties.

The task force is made up of a Social Science Researcher, a Station Officer from Tyne and Wear Fire Brigade and a Detective Constable from the Northumbria Police. This group asserts that they are the first multi-agency group operating in this field within the UK. Their aim, not only to address the significant problems associated with malicious fires, but 'To get at the root cause and do the social work behind it'. The group recognises socio-economic factors interest within the areas of the West End, typified by poverty, high school exclusion rates and high unemployment.

AN AMERICAN PERSPECTIVE - TARGETING RESPONSE

Research undertaken by Philip Schaenman et al (1977) concluded that virtually every study of socio-economic characteristics has shown that lower levels of income are either directly or indirectly tied to an increased risk of fire. The authors found that three variables were most effective in explaining variations in fire rates. These they record as 'parental presence', or percentage of children under the age of eighteen living with both parents, 'poverty', which they defined as the percentage of persons whose incomes fell below the poverty line, and finally, 'under education' or the percentage of persons over the age of twenty five who had fewer than eight years schooling.

Whilst these variables tested alone did not give a clear picture or clear indication of the likelihood of fire incidence, when added to seven other variables a clearer and more

focused picture emerged. Those seven variables included good or quality education, race, ethnicity, home ownership, adequacy of income, crowdedness within the home environment, housing vacancy and the age of housing structures. In conclusion, Schaenman et al state 'wide variations in socio-economic indicators and fire rates of the census tract level are obscured by city level analysis, with the result that city level studies are difficult to interpret and comparison between different cities can only be made with caution'.

Further, the researchers noted, 'Of the variables that explained a lot or some of the variation in fire rates among census tracts within cities, parental presence, good education, adequate income and home ownership were negatively correlated with fire rates. That is, as values of these variables increased, such as income, the fire rate decreased'. All the other variables, including housing vacancy and age of housing, were positively correlated with fire rates therefore as the percentage of impoverished persons in a census tract increased, so did fire rates.

Importantly each of these causes is generally tied directly to human actions, rather than being caused by mechanical malfunction. This suggests that public education is the tool most readily available to help reduce the occurrence of these types of fire. In recent work, Jennings (1996) attempted to conceptualise the complex interrelationships between environmental, structural and human factors as they relate to fire. He noted that the greater understanding of the role played by socio-economic factors is critical for at least two reasons.

Firstly, they have been shown to be powerful predictors of the incidence of fire in different types of neighbourhoods, and secondly, that 'socio-economic and environmental factors outweigh fire suppression factors such as fire department resources in determining losses from fire'. These losses include both the dollar value of loss to property and the rate of injury and death amongst humans.

Jennings makes the telling point that the relative importance of socio-economic factors for understanding residential fire risk has been rising in recent decades as technological changes, including broad-based installation of smoke detectors, has reduced the risk of fire for most US households. Since fire risks have not declined at the same rate for all groups of people, socio-economic factors are becoming more important for explaining relative residential fire risks.

For fires originating indoors, interactions between for socio-economic factors, namely the characteristics of the building stock, characteristics of the social or household system, household demographics, and household economic factors. These interactions can lead to fire ignition indirectly with no immediate human action or directly through human carelessness. Misuse of equipment or intent (arson).

To test the appropriateness of this model for explaining differences in fire rates Jennings used multiple regression analysis on fire rate data for different census tracts within the

city of Memphis, Tennessee. Following an extensive review of available literature and data Jennings chose four variables to represent the socio-economic concepts in his model.

CONCEPT	VARIABLE
Building stock	Percent of vacant dwelling units
Social household system	Percent of households headed by single female parent
Demographics	Percentage of population less than 17 older than 65
Economics	Median household income

These variables were selected upon the basis of their consistency with the conceptual model and their correlation with residential fire rates. Multiple regression analysis revealed that each of the variables in Jennings' fire model were significant and that together they accounted for 63% of the variation in residential fire rates across the census tracts.

Jennings' model is an important step towards developing and testing a theory of fire ignition and losses. His work extends and current research beyond the identification of variables useful in predicting fire rates for different communities or different households. Theories about how various socio-economic factors and ignition factors are related to residential fire rates can be developed and tested from Jennings' model.

In its report 'Socio-economic Factors and Incidence of Fire (1997) the Federal Emergency Management Agency (FEMA) of the United States Fire Administration posed the question, 'Why study socio-economic factors of fire risk?' They conclude that socio-economic factors are among the best predictors of fire rates at the neighbourhood level. The FEMA report concluded 'since fires resulting from human activities account for a high proportion of residential fires, public education represents one of the most important avenues for reducing the incidence and severity of home fires'.

They recognise that it is analysis of differential fire risks for different socio-economic groups that will give an important guide to the design and targeting of public education and fire safety outreach campaigns. An example of this would be in terms of the targeting of public education campaigns.

CONCLUSION

Research undertaken has not shown that the advent of juvenile firesetting programmes has had an impact upon the incidence of arson. The most recent research undertaken gives a clear focus as to how socio-economic factors should be utilised in order to target appropriate and cost effective, interventions. Fire prevention efforts need to be sensitive to the needs and concerns of the different socio-economic groups as indicated by differences in fire rates, different distributions of fire causes, and the presence of unique fire risk factors within communities. These challenges are in addition to those of creating

fire prevention strategies that reach people who speak a variety of languages and have a wide variety of literacy levels.

Juvenile firesetting programmes do give fire brigades the opportunity of establishing partnerships with other agencies and are seen as an effective public relations activity. Research should now be undertaken to assess the appropriateness of the programmes that are currently utilised and confirm best practice. Equally many of the organisations responsible for the management of the outcomes of arson should be brought together to ensure that their experience, knowledge and skills are shared to the benefit of society.

REFERENCES

Federal Emergency Management Agency, 1997 *Socio-economic Factors and the Incidence of Fires*, US Fire Administration P26.

Fineman, K.R., 1991. *Educational and Psychological Intervention to Lead Children Away from Arson*

Fineman, K.R., 1992. *Cross Cultural Perspectives on Juvenile Arson*. A paper presented at the Fire 1992 Conference Eastbourne, England.

Jacobson, R. 1885. *Chief Firesetters - A Clinical Investigation Journal of Child Psychology and Psychiatry*. Vol 26 p.759-768.

Jennings, Charles R., 1996. *An Empirical Analysis of Building Stock and Socio-economic Characteristics for Memphis Tennessee*. Unpublished. Cited in 'Socio-economic factors and the Incidence of Fire, Federal Emergency Management Agency 1997 p.7-9.

Kafry, D., 1980. *Playing with Matches, Children and Fire*, in D Carter (Ed) 'Fires and Human Behaviour' Chichester, John Wiley.

Schaenmar, Philip, Hall., John Jr, Schainbalt, Alfred H., Swarts, Joseph A., 1997. *Procedures for Improving the Measurement of Local Fire Protection Effectiveness*. National Fire Protection Association p.54 & 57-58