

***Design strategies for the amelioration of anti-social behaviour on public transport.***

Selby Coxon,  
Senior Lecturer,  
Course Coordinator Bachelor of Industrial Design,  
Faculty of Art & Design,  
Monash University.

**Abstract: -**

There is a large body of literature that supports the view that concerns for personal safety and security are a deterrent to a wider use of public transport (Booz 2006) et al. The majority of these concerns are associated with the before and after component of public transport, for example train stations, bus stops, car-parks and the approaches to them. There is also, to a lesser extent, an anxiety that riding buses, trains and trams, especially at night contains a high risk to personal security. From irritating mischief to serious threat of assault, public transport systems are perceived as places for delinquency to flourish. (Auditor-General 2003).

The author seeks to examine how milder forms of anti-social behaviour such as public nuisance and a lack of consideration for others, as distinct from serious crime such as murder and terrorism, might be reduced by the influence of prudent design strategies. Industrial Design, in particular, is a discipline that seeks to elevate the human condition by appealing to a higher level of physical and cognitive experience than offered by pure function. It is a discipline in which humans sit at the centre and from which sensitivity to man machine interface, culture and materiality are essential. While it is beyond the scope of this research to investigate the causes of anti-social behaviour, a distinct discipline in itself, any relationship between human behaviour and the built environment can inform Industrial Design outcomes.

This paper explores two areas of this topic. Firstly an examination of the current literature that identifies the extent and type of perceived personal security risk. Secondly, this paper reviews current strategies adopted by various public transport modalities to counter anti-social behaviour. The author concludes by suggesting further development of these strategies to correlate with human behaviour and accepted cultural practice, strategies such as operant conditioning (Skinner et al)

whereby the number of opportunities to commit an offence or create mischief are reduced or taken away altogether.

**Contact Author:**

Mr Selby Coxon  
Monash University  
PO Box 197, Caulfield East, Melbourne, Victoria, 3145  
Tel: - 03 9903 2953  
Email: - selby.coxon@artdes.monash.edu.au

**Introduction; the causes of delinquency.**

Different societies affect traditions, rules and social mores that connect them to each other. These include patterns of expected behaviour that assist communication and allow large groups of people to function within a community (Schein et al). Some behaviour is attributed to biology, religion, tradition or legislated expectations. The breaking of these behavioural expectations or the attacking of the material fabric of a society is deemed 'anti-social'. If a minority or individual have diminished the quality of interaction for the majority it is considered by that society to be against the 'greater good'. Examples of this behaviour would include the breaking of windows, placing ones feet on seats, shouting and agitated behaviour, fare evasion and smoking in no smoking areas. So called 'constructive' anti-social behaviour such as graffiti or 'tagging' seeks to go beyond the destruction of social interactions and impose a different one. This can be implied by sub-cultures such as 'skinheads', 'hoodies' etc. Some sub-cultures force their presence upon the established society through aggression. Most recorded anti-social behaviour is associated with young people where the biological imperative to assert themselves combine with higher levels of confidence and a willingness to experiment in new life experiences and impulsive behaviour. This can lead to exposure to illicit drug and alcohol abuse. (Psychology Today 2006).

However only a minority of people are compelled to delinquency. The root causes of miscreant and criminal behaviour are varied and widely documented, within other disciplines. They include adverse social, economic, cultural and family conditions, and that all are inter-related. Economic poverty is a relative issue. The poor of a well-developed country might be wealthy beside the poor of an underdeveloped nation. Poverty of opportunity and wealth is observed as relative to the person next to them. However lack of financial resources, lack of educational opportunity, lack of meaningful employment options, poor housing, and prejudice against persons living in poverty are all very real to that individual. Researchers also describe the effects of social

environment. Inequality, not sharing power, a lack of support to families and neighbourhoods, real or perceived inaccessibility to services, a lack of leadership in communities, a low value placed upon children and individual well-being and the overexposure to violence and 'fantasy' on television all have a detrimental effect upon the individual.

However most poor people do not commit crime. Anti-social behaviour blurs the boundaries of all strata in society. Wealthy educated people when fuelled by alcohol, drug abuse, trait motivation, skylarking, and bravado etc behave in an anti-social way (Brown 2004). Public transport appears to present an opportunity for acts of delinquency to flourish. Public transport is part of the public domain. It enables young people, and in particular the economically disadvantaged their first and perhaps only opportunity of freedom of movement (Bunting 2004). In the case of tagging those seeking self-esteem through the mark of individual identity have a captive audience. Public transport suffers from situational crime in that the system provides numerous opportunities for doing anti-social things. Modern transport systems are by and large devoid of an authority presence, bus drivers an exception. Trains appear anonymous, unless protected by the occasional group of inspectors. Without a supervisory or authority figure to 'protect' society's expectation of use, the system can become a fun park. Acts of delinquency are highlighted since most of the rationale in the design of public transport is focused upon the vast majority of users that will treat the system correctly.

### **Passenger perception of personal security**

There is a perception in the community that travelling by public transport, as opposed to personal transport, leaves one vulnerable to experiencing anti-social behaviour and crime. This perception is fed by media attention to crime incidents in a community that can unnecessarily associate it with adjacent parts of the transport network. Media reports and anecdotal evidence also contribute to the perception of danger. Surveys reveal a strong relationship between media reporting and passenger perceptions of crime (Booz Hamilton 2006).

The author has considered a small number of surveys that examine passenger perceptions of personal safety in Australia and the United Kingdom. Each of the surveys differ in technique with a consequent change in results however they all appear to correlate the following broad concerns; -

Factors influencing personal security concerns (Booz 2006): -

- The presence of darkness.
- The stage of the journey (at a stop or station or through a bad neighbourhood).
- The mode of the journey.
- The stop and station design.
- The presence of other people.
- Uncertain situations and lack of information.

These surveys also correlate that people feel most unsafe waiting, arriving or leaving public transport. Women tend to fear an attack from a single male, while men fear attack from multiple assailants. People feel unsafe in places (stations etc) where they feel enclosed such as subways, anywhere the individual is isolated or secluded and where an assailant would have the opportunity to hide. This includes the perception of the environment such as signs of disorder, broken glass, litter, graffiti etc. Other places of vulnerability include washrooms and adjacent station car parks. Fear of crime in relation to night travel is sufficiently high to discourage rail use particularly amongst females and the elderly (Symonds 1996). Concerns increase on weekend evenings, possibly due to higher instances of alcohol abuse. Contrary to these perceptions, surveys reveal that the majority of recorded crime associated with public transport occurs in the day time (afternoon) and at stations and stops but not the vehicles themselves (Booz 2006).

Respondents to surveys report a general lack of control in their circumstance as a cause of anxiety; situations such as crowds or unreliable trains, vulnerability to whom one sits next to, and being trapped until the next stop. There is a palpable need for information, how far away is the train or bus and how long will one have to wait at an interchange. The author would make the supposition that there is a significant cost to public transport for this negative perception in lost revenue and crime repair work.

#### **Current remedies.**

Passengers have reported a variation in strategies to deal with uncomfortable situations on public transport (Cappaert 1995). Active strategies include, alarmingly, the ability to defend themselves through the carrying of weapons such as knives, or developing a skill in self-defence. Passive strategies include the avoidance of empty carriages or making oneself as inconspicuous as possible to conceal any anxiety.

Evasive strategies include the avoidance of travelling alone or using an alternative form of transport altogether.

It is suggested in a number of reports (Booz Hamilton et al) that the presence of staff at stations and aboard public transport is the most important factor in improving the perception of security. Equally a raft of measures including CCTV, alarms / phones, improved lighting, clean and visible stations are increasingly utilised across most modes of transport. Providing real time information and accurate timetables also provides a feeling of security. Bus modalities have the added sense of security since the driver has discretion over who comes onboard, and the ability to expel people.

In the author's search through developing practices in transport system design other strategies have emerged. 'Animating' is one such strategy where stops and stations are placed in mixed zoning areas. This means populating places that are dormant at night by introducing mixed land use so there is a greater likelihood of pedestrian traffic. Railway stations become activity centres rather than merely places to get on and off trains. The expectation is that this 'animation' deters illegitimate use. To function the animated areas require a sense of 'passive' surveillance. To feel protected in such areas does call for a society in which one could feel confident of being helped by another stranger in the event of a troublesome incident, or that vandalism would be stopped by a passer-by. Mixed zoning might ironically lead to the introduction of more undesirables.

Stations vary enormously in terms of layout, location, modernity, staffing activity and demographics. It is not likely to be economically viable or practical to create hives of activity at all stops and stations. Practical steps to erase graffiti as soon as it is discovered is a tactic employed in a number of stations in urban city environments, for example New York. There is also a reverse method, which is to adopt a controlled 'art wall' installation that by its very design makes tagging difficult to make prominent. Examples of both these tactics can be seen with positive results at Richmond station in Melbourne. The rapid removal of the marks of 'constructive' anti-social behaviour is often referred to as a 'broken window' policy. It is a 'zero tolerance' policy to the results of destructive behaviour that has been cited as pivotal in the improvement of the New York subway system (Greene 1999).

More novel methodologies have included the broadcasting of soothing or classical music across station platforms. The author has been led to

believe this is employed at notably Box Hill station Melbourne. The effect is to provide an irritant to those whose sensibilities are stimulated by other contemporary forms of music, apparently those youth sub-cultures prone to delinquency. (Rogers & Anderson 1997)

Social workers who deal with youth groups have exercised activities to make them part of their local station in some way rather than the problem. Oakleigh station is an example where the environment has been enhanced by the application of artworks derived from the local community.

### **Best practice systems around the world**

Hong Kong's transport system (Mass Transit Railway) is cited as one of the best in the world (Gaylord & Galliher 1999). Reasons for this have suggested that Chinese society has an overall low crime rate, there is a rapid response to issues from the police, and the MTR's station design includes a reduction of alcoves for concealment, high level of CCTV, and convex mirrors on blind corners. The MTR is a closed system with a limited number of entrances and exists. Interestingly there is no employment of the 'animation' mixed zoning tactic in stations.

Washington DC has high levels of reported crime (Snyder & Sickmund 2006). However its subway system has a good reputation. Strategies pertinent to their situation include good phones on platforms blocked from receiving incoming calls so that drug dealers can't use them for transactions. The author would question the relevancy of this tactic in an age of almost ubiquitous mobile phone use. In the United States police or security staff vigorously pursue even minor offences and infringements in the hope that it will deter individuals from committing more serious violations. In Portland, Oregon transit police have the authority to de-power the train to isolate a threatening person.

Rolling stock that utilises open connected carriages to allow people to move from one part of the train to the other reduces the feeling of entrapment. However it also enables the movement of threatening individuals. Telecommunications that keep the passenger better informed are increasing in use and from wider sources. For example the Melbourne system supports SMS timetable information for its urban train network. Some bus and tram stops display real time information on schedules. Studies show that access to real time information concerning the movement of public transport empowers a passengers feeling of control (Hickman & Wilson 1995).

### **New thinking in design**

The author contends that most public transport systems have been conceived around the available technology employed to move people. Vehicle design has been historically the product of the mechanical and anthropometric packaging of trains, trams and busses. The human centred nature of Industrial Design methodologies suits a more responsive strategy to how humans intuitively behave. Past strategies for coping with the variance in passenger behaviour have taken the form of remedial action imposed upon existing systems. The danger of a reactionary approach to public transport design is that stations become fortresses (as do bus stops in parts of Brazil) and vehicles caged escorts.

The case for employing a design-focused strategy centres upon removing the remedial repair response to the public transport system and developing a human behaviour centred response. It has been observed that as the quality of an environment improves, so a fear of crime decreases (Taylor Gottfredson and Brower 1981 in ACS 1995 cited in Symonds 1996). In this section the author speculates upon further design strategies in three principle rationales; the first, utilisation of 'operant conditioning', the second, design by exploiting the properties of various materials, and the third leveraging a sense of ownership as citizen not as consumer.

Operant conditioning is a technique used to modify behaviour by reinforcing desired behaviours and ignoring or even punishing undesired behaviours (Lidwell 2003). This is a well researched area of behaviour modification, most notably by Burrhus F Skinner. It is a technique that differs from 'classical conditioning' in which behaviour is modified by a stimulus creating an *unconscious* physical or emotional response. In a design context operational conditioning is applied to create a situation of use that effectively persuades the user to undertake a particular action for which there is a 'reward' and failure to comply results in a negative outcome. An example of designed-in operant conditioning cited in (Lidwell 2003) is the use of a seat belt alarm which is only silenced by the deployment of the seat belt. Therefore the correct action has been rewarded by the silencing of the annoying alarm. For the conditions to exist for the reinforcement of a desired behaviour, there needs to be a clear relationship between the use of an object and a predicted outcome. Design solutions of this type could, the author speculates, include;

- The ability to see what CCTV has recorded as it happens. This would reduce the anonymity of the lens that, in the mind of an offender might or might not be recording.
- Driver operated lighting isolators that spotlight where an unacceptable behaviour is taking place. This might have the effect of embarrassing the perpetrator(s).
- Could the carrying of a ticket be detectable by electronic means (such as shop security systems) at the ingress to a vehicle and audible response and digital display indicates when someone has got on without a ticket. Again this seeks to embarrass the offender and remove anonymity. To avoid this negative feeling the 'right' thing has to be done.
- The use of litter bins that 'reward' their use such as light up or as has been tried in the Netherlands play a short tune.
- The wilful damage to vehicles renders them to stop. Highly irritating at first but could in time become an expectation that would dissuade delinquent behaviour.

An extension to this kind of conditioning is the modification of behaviour by limiting the number of possible ways any physical activity can be done. Feet are regularly placed upon train seats for no more reason than because they can. It is comfortable to raise the legs in this way. If seats were arranged differently and or other foot rests created, then this would diminish the instances of dirty or damaged seats. Signs on seats, rather than over the door could help in reinforcing required behaviours. Folding seats take some of the effortlessness away from the feet up option. Modifying behaviour by distraction. The enthusiasm for timetable information can be supported by interesting visual stimulus such as television or video broadcast. These techniques are employed in Tokyo and some intercity trains in the UK.

The author speculates that the choice and design of materials employed in public transport is a rich area for remedying incivilities. Structural material that is impossible or difficult to tag because of texture. Equipment that is capable of 'reporting' back that it is need of repair. Low maintenance modular design that can be repaired or replaced very quickly.

Social heterogeneity has been associated with incidences of crime and violence (Parolin 1986) cited in (Symonds 1996). Same 'interest' only busses, for example women only or 'youth' only busses. These would be

designed and scheduled accordingly. A consumer society struggles with developing the concept of public ownership and the greater good. Human traits appear to lean toward self-interest, and for many the sense of self worth through proprietary ownership rather than community ownership. However other researchers point to a human willingness to 'belong'. This is exemplified in the shared values of a sports team or the support of one. If this human trait can be leveraged to create a sense of ownership to a system or part thereof then damage to that property might be curtailed through the self-interest of the group or community.

In essence the author advocates a design method that is not purely driven by explorations of form, or drive technologies but from the observations of people and their actions, and in particular their physical and emotional engagement with public transport to overcome the negative and hostile reaction some individuals direct to toward one of the communities most important assets.

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