

# Design Strategies for Visible Counter-Terrorism in Public Spaces

Ben Dalton<sup>1</sup>, Karen Martin<sup>2</sup>, Claire McAndrew<sup>3</sup>, Marialena Nikolopoulou<sup>2</sup> and Teal Triggs<sup>4</sup>

<sup>1</sup> Faculty of Art, Environment & Technology  
Leeds Metropolitan University  
Leeds, UK  
b.dalton@leedsmet.ac.uk

<sup>2</sup> CASE, Kent School of Architecture  
University of Kent  
Canterbury, UK  
k.martin-409@kent.ac.uk, m.nikolopoulou@kent.ac.uk

<sup>3</sup> The Bartlett School of Graduate Studies  
University College London  
London, UK  
c.mcandrew@ucl.ac.uk

<sup>4</sup> School of Communication  
Royal College of Art  
London, UK  
teal.triggs@rca.ac.uk

**Running head:**  
**Designing Visible Counter-terrorism Interventions in Public Spaces**

Key words: art, design, terrorism, counter-terrorism, routine, disruption, play, authority, public spaces

## Introduction

The setting is New York City where British counter-terrorism expert, Henry Moore, ponders the problem of urban security with a roomful of architects. He asks: 'So how do you think we could reduce the risk?' (Waldman, 2011, p. 53). Thus begins the discussion of safety and fear in public spaces in Amy Waldman's bestselling novel *The Submission*. The notion of 'design against terrorism' has entered into mainstream consciousness.

This chapter explores publicly visible counter-terrorism measures – uncovering the strategic role of design in creating controlled disruption in public spaces to reduce threat while at the same time reducing anxiety. Evidence of counter-terrorism security design is now essential in the planning process and projects will need to demonstrate how such issues have been addressed (Royal Institute of British Architects, 2010). This emphasis on design is highlighted in a recent Home Office report (2012) which provides advice on how to integrate such measures at different stages, from conception to development so that 'vulnerability of crowded places to terrorist attack can be tackled in an imaginative and considered way' (Home Office, 2012, p. 3). This last point is critical if we are to develop and manage public spaces in way that will not have a detrimental effect on the quality of the public realm, but will be socially responsive, enhancing a sense of vitality and well-being.

Initiatives of civic scale counter-terrorism activity are focused on critical infrastructure, crowded spaces and symbolic targets, referring to ports of entry, transport systems, shopping areas, staged events and tourist destinations which also include historical monuments. We can think of publicly salient aspects of counter-terrorism, whether of permanent or temporary nature, as communication design for two overlapping audiences. One audience is quotidian users of a space, those passing through or spending time in a location. The second audience of counter-terrorism communication design is hostile actors, those planning or attempting to carry out a terrorist attack<sup>1</sup>.

Pre-emptive communication strategies such as the deployment of armed police guards or controlled access points (Adey, 2004; Benton-Short, 2007) often have a multiplicity of purposes. Such interventions seek to simultaneously communicate a sense of protection and reassurance to the audience of users of a space and encourage vigilance from them, while also being designed to disrupt anyone who may be engaged in covert activities and elicit noticeable behaviour (Coaffee et al., 2008; Németh, 2010). Some counter-terrorism design is also intended to prepare people for emergencies by making them aware of communication systems and expected responses (O'Connor, Bord and Fisher, 1999).

Unfortunately, too frequently counter-terrorism design interventions have resulted in ad-hoc solutions focusing on extensive disruption of covert activities, with little consideration for the resulting public realm, openness of the space and social interaction. As a result, the proliferation of security bollards and barriers has caused detrimental impact to the quality of the space in many urban environments (FEMA 430, 2007), leading to what the National Capital Urban Design and Security Plan for Washington calls the 'present intolerable environment' (NCPC, 2002).

Here we refer to both aspects of counter-terrorism communication design, that is addressing specific threats as well as the wider public, as mechanisms of disruption. By

---

<sup>1</sup> It is worth noting that there is a third potential cause for counter-terrorism activity to be communicated, and that is through leakage of visible aspects of security protocols and infrastructure not intended to be displayed.

disruption we mean an intervention to abruptly interrupt routine, attention or expectation. In the case of communication to hostile actors, the aim is to disrupt reconnaissance, preparation activity or the attempts by an individual or group to hide their intentions. These interventions can have different forms, from performative demonstrations of security aimed at disrupting pre-attack activity, to provoking identifiable reactions from those conducting reconnaissance or deterring those planning an attack from choosing a particular site (Németh, 2010). Such public 'security performances' also affect the wider audience of users in the space, often trying to elicit behaviours of heightened awareness and observation, or of compliance. Activities may be aimed at engaging the public in aiding the detection of out of place behaviour that could indicate the planning or carrying out of an attack, or aimed at fostering a sense of personal responsibility for security (Coaffee et al., 2008; Fussey, 2007). While primarily addressed to the general population of a space, these activities may also be a statement to those planning an attack that such a space is under active and wide-reaching attention. It thus becomes clear that the mechanisms of disruption are framed with a number of objectives including dissuading or drawing attention to those conducting reconnaissance and dry runs, and motivating other users of these spaces to assist in identifying and reporting behaviour of concern.

A system consisting solely of disruption, constantly evolving changes and interactions runs the risk of becoming not only common place and ineffective, but also a tiring drain on the attention of regular users of a space. How then can visible aspects of security and counter-terrorism in public spaces be designed in an imaginative and considered way, applying effective uses of disruption while being socially responsive, fostering corresponding routine and comfort?

This chapter responds to this question, offering insights from two projects funded under the Research Councils UK 'Global Uncertainties' programme (see 'Security for All in a Changing World' one of six programmes supporting leading-edge research on significant global challenges, for more information <http://www.globaluncertainties.org.uk/about/>). *Shades of Grey – Towards a Science of Interventions for Eliciting and Detecting Notable Behaviours* (2010/13) sought to explore the relationship between environmental and interpersonal stimuli and behavioural responses in public spaces. *Safer Spaces: Communication Design for Counter Terror* (2008/09) examined the potential of creative approaches to reduce fear and re-engage awareness in public spaces. What these projects share are design-led insights that offer visual strategies to countering terrorism via choreographed disruptions and communication in public spaces. Conclusions from both projects recognise the importance of socially acceptable design contexts such as functionality, creativity and playfulness over authority-focused interventions for the sustainability of counter-terrorism activity.

A compendium for these critical insights, this chapter describes the desired effects of disruption in publicly visible counter-terrorism using the concepts of (i) triangulation, (ii) performance and (iii) flow. The sustainability of disruption-based intervention is reviewed by considering the issues of attention, fatigue and the disruption of civil inattention. Design for routine and usability in public space is reviewed as a vital counterpoint to disruption through the principles of foresight and communication. Implications for the broad spectrum of stakeholders implementing principles of disruption and routine are also considered. This chapter includes key examples drawn from a review of art as a means of disruption from the *Shades of Grey* project, and design findings from the *Safer Spaces* project of how one can design for disruption and routine with these principles in mind.

## **The Effects of Disruption in Publicly Visible Counter-Terrorism**

Guided by insights from Safer Spaces, this section reviews the attributes of triangulation, performance and flow described by Martin, Dalton and Nikolopoulou (2013) as currently used mechanisms for controlled disruption in public spaces. Exploring such effects frames advice on the strategic role of design later in this chapter.

### *Triangulation*

Creating places where the unusual will be noticed and talked about is often a design goal for managers of spaces and security staff. For example in the UK a joint partnership between police and private sector security, Project Griffin, cites a key objective to 'empower people to report suspicious activity and behaviour' (City of London Police, 2004). The challenge to designing for attention is that people employ strategies of 'civil inattention' to manage routine co-presence in public spaces that are characterised by the acknowledgement of others, followed by deliberate minimization of contact (Goffman, 1966). Martin et al. (2013) apply the urban planning concept of 'triangulation' (Whyte, 1988) to describe the use, in counter-terrorism strategies, of disruption of civil inattention as a means of assisting in informal surveillance and reporting. Encouraging members of the public to increase their vigilance and report suspicions recurs regularly as a recommendation in counter-terrorism guidelines (Coaffee et al., 2008).

Design for what Hillier (2004) calls 'natural policing' consists of two aspects, increasing opportunities for observation and shifting a greater proportion of focus from members of the public on to observing their surroundings. Considerations of sight lines and vantage points for observation build on the field of crime prevention through environmental design by extending concepts of 'natural surveillance' from Jacobs (1961) and Newman (1972) to the context of counter-terrorism. Shifting public attention to suspicious activity has been driven by communication design techniques (Triggs and McAndrew, 2009). The US Department of Homeland Security (2010) 'If You See Something, Say Something' poster campaign offers an example of the sorts of visual communication strategy security staff have historically employed to try to heighten public attention to the unusual activity.

Triangulation can be understood as a temporary disruption of a state of civil inattention (Whyte, 1988). It is a process by which some external stimulus creates a stimulus for social interaction that prompts strangers to talk to each other. In counter-terrorism strategy, the external stimulus is the unusual activity of a potential hostile actor, or an unexpected item in the public space. Triangulation offers a framework to understand existing counter-terrorism strategies, such as signage, announcements and security as attempts to stimulate linkages between users of a space and staff who are able to respond. Taking public transport systems as its case study, Safer Spaces experimented with disruption as a means to re-engage members of the public in the protection of civic space in a non-fearful manner. Prototyping the transformation of digital screens into mirrors (both filming the person facing it and displaying live feeds of visual activity streamed from other proximal but distinct locations) offered a form of visual disruption that connected localities, reduced anxiety through foresight (a sense of what lies ahead) and facilitated 'peer-to-peer monitoring' via the designed object (McAndrew, 2012; Triggs and McAndrew, 2009). Experimenting with the form of visual disruption through variations of scale (stable versus motion-responsive dilation) and image clarity (including mirror-representations, laplacian filters and sensor-dependent coloured filters) mediated

the spectrum of responses to disruption as ‘security’ and/or ‘play’ (see section on performance for further elaboration on the role of play).

Techniques of interaction and reflection prevalent in art are well suited to the objectives of triangulation. Technology in interactive art can in some cases allow for the disruptive effects of sculpture to be temporarily added to a space comparatively cheaply and quickly. For example, the video installation *Body Movies* by Rafael Lozano-Hemmer (2001) has been used in public spaces around the world. It uses floodlighting and projection to elicit participation and unexpected intimacy in night-time public spaces. In this artwork passers-by project their shadows high onto the walls with photography portraits being revealed inside these dark silhouettes. Snibbe and Raffle (2009) observe that people quickly recognise their own shadows and those of people they know. This suggests that shadows and silhouettes have the ability to provide identifiable representations while preserving an individual’s sense of anonymity in the crowd.

### *Performance*

Publicly visible counter-terrorism interventions are often intended to evoke performances from people in a space (Edwards, 2010). We can consider these performances as means to either elicit behavioural cues that help security staff identify people who have something to hide or deter unknown hostile actors who are unwilling to perform in public for fear of giving themselves away. Initiatives such as BASS (Behaviour Analysis Screening System) in the UK, and SPOT (Securing Passengers by Observation Techniques) in the US, train security staff to try to identify suspicious behaviour and body language in response to temporary, high-visibility disruption of spaces such as temporary cordons and high visibility patrols (Coaffee et al., 2008).

Martin, Dalton and Nikolopoulou (2013) give the example of the UK Protecting Crowded Places guidelines which include discussion of the role a visible security regime can play to ‘deter, detect and delay’ suspicious terrorist activity including hostile reconnaissance (Home Office, 2012). The guide is aimed at professionals involved in design of the built environment. It describes a case study example of an archway metal detector at a crowded venue, with staff in high visibility jackets and signs highlighting partnership with the police as ‘a potential deterrent to a large amount of criminal activity, including hostile reconnaissance’ (Home Office, 2012).

While the potential impact of effective searches and metal detectors on concealed weapons is clear, the effect a ‘pinch point’ arch and high visibility activity have on deterring hostile reconnaissance is less well defined. We can imagine this form of disruption could raise the stakes for an individual trying to maintain a constructed inconspicuous identity or heightening the risk of revealing concealed reconnaissance materials like a specialist map or hidden camera.

The queue and search routines of the archway metal detector require pedestrians to ‘perform’ in public view. For someone conducting hostile reconnaissance a performance of normality at this pinch point of scrutiny might evoke fears that their covert intentions will be found out. To understand this aspect of disruption to elicit performance we can consider the pressure to appear normal in the context of the literature on lying and deception. De Paulo et al. (2003) suggest that liars and truth-tellers all share the same goal of trying to appear honest. Granhag et al. (2004) argue that liars awaiting interview tend to compensate by planning their responses in greater detail than truth-tellers do. We should therefore expect performances of fictional honesty to demand a greater cognitive load and differ noticeably to unexpected questioning. Vrij et al. (2009) showed that when

liars are presented with unanticipated questions, such as spatial or reverse chronological, they can noticeably struggle to answer them. This offers us a framework to understand unanticipated visible counter-terrorism interventions that elicit public performance as attempts to evoke physical 'unexpected questioning'.

In the context of deterring hostile reconnaissance, we are interested in design and art that can create physical examples of unexpected questioning through playful disruption or a heightened sense of being on view. The design concepts of interaction and reflection found in mirrors and shadows are not only useful for stimulating triangulation but can also be effective at encouraging performance from audiences. The interventions developed through the Safer Spaces project use the playfulness of video mirrors to entice public involvement and simultaneously enhance the sense of being on view. One participant in the study focus group comments:

You know, it's a good thing if you are looking at it and it is looking arty ... It's something you enjoy. But, it's also... it's like a dual-purpose thing. It's doing the aspect of working as a security thing, but you're also seeing different people.

O'Shea's (2009) intervention *Hand From Above* similarly appropriates surveillance technologies. In this artwork O'Shea interrupts routine behaviour by playing on people's tacit awareness of the ubiquity of video surveillance. Installed on the BBC's Big Screens, *Hand From Above* appears to show a real-time video feed of the space in which the screen is located, however, at intervals, a large hand appears on the screen and picks up, or tickles, one of the passers-by so lifting them out of reality for a few seconds. The artist highlights how *Hand From Above* 'encourages us to question our normal routine when we often find ourselves rushing from one destination to another. ... Passers by will be playfully transformed.' (O'Shea, 2009).

## Flow

With extensive public surveillance increasingly being described as forensic rather than deterring, there are concerns about the potential of CCTV systems in preventing terrorism activities, despite claims that effective CCTV systems can help prevent or even deter hostile reconnaissance. A recent review on the effectiveness of CCTV in public spaces by the Scottish Government (2009) concluded that it was only effective in deterring vehicle and property crime, with virtually no impact on reducing violent crimes, or in complex environments. In the case of counter-terrorism, the presence of widespread visible CCTV in London had no noticeable effect on the suicide bombing of the mass transit systems in 2005 (Fussey, 2007). One argument made for publicly visible surveillance infrastructure is that it has the potential to be used to manipulate the spatial patterns of hostile reconnaissance. One of the guides to 'protective intelligence' (Stratfor, 2010) suggests that overt displays of security can be used in 'heating up' key locations to attempt to repel those conducting hostile reconnaissance towards areas or routes that are less useful or 'honey pot' locations that have been prepared with covert surveillance.

The control and shaping of pedestrian movement recurs as an aspect of security planning for crowded spaces. At its simplest, permanent or temporary physical barriers are used to shape crowd flow, but flow can also be shaped without directly blocking paths through a space. For example, in the case of airport design, Adey (2008) describes manipulation of form, materials and configuration to direct the movement of passengers around departure areas. Physical and social characteristics of a space are interdependent, and changes to one element will elicit change in the other (Hillier and Sahbaz, 2009).

To understand potential mechanisms of disruption in pedestrian flow Martin, Dalton and Nikolopoulou (2013) draw on the advertising and marketing literature of shopping behaviour. Reviewing experimental evidence of techniques for shaping pedestrian movement, a number of studies have looked at how emotional states influence ‘approach’ – pedestrian movement towards a display – and ‘avoidance’ – movement away or around an area for pedestrians. Mehrabian and Russell (1974) established the importance of pleasure, arousal and dominance or personal control. More recent studies have confirmed that pleasure has a strong impact on approach (Chebat et al., 1995), and that feelings of personal control in a space are influenced by pleasure and reduced by feelings of crowding (Bateson and Hui, 1987; Hui and Bateson, 1991). To explore possible differences in flow behaviour between general users of a space and hostile actors, we can also consider discussions of personal control in criminology literature. People carrying out crime develop a ‘crime template’ or idealised site for their criminal act and then try to match this location with places they already know or those that they come into contact with, suggesting that a criminal’s ideal crime location is one where they are comfortable and feel that they fit in (Brantingham and Brantingham, 1993). By intervening at the point where situational aspects of covert activity converge, that is the times and places where the actors, location and opportunity for criminal endeavours overlap, the intended action can be interrupted (Cornish, 1994).

The importance of pleasure and interrupted personal control in shaping movement suggest that playfulness may be a particularly effective form of disruption for counter-terrorism in public places because it can heighten crowd pleasure (approach), while reducing feelings of certainty and therefore control in those conducting hostile reconnaissance (avoidance). We therefore seek design that can heighten crowd pleasure to encourage pedestrians to approach a specified location, while simultaneously reducing feelings of personal control through disruption of routine for those conducting hostile reconnaissance. The prototype intervention in Safer Spaces intentionally played with digital screens to catch attention, elicit crowd pleasure and sense of performance, which testimonies confirmed were intriguing and held potential to make journeys less monotonous. Design interventions of different floor patterns in Shades of Grey also had a positive effect in a range of spaces where they were used, triggering curiosity while encouraging playfulness. This is consistent with the Piano Stairs project, which demonstrated the dramatic change in patterns of flow of people by alterations to the physical space (DDB Stockholm, 2009). Transforming the stairs at the entrance to a Stockholm subway station overnight into a keyboard where each step produced a different note, with the escalator left untouched, had 66 per cent more people opting to walk up the stairs, actively changing their routine.

### **Designing for Routine and Usability in Public Space**

The attention of the users of a space, including employees and security, is a resource that must be carefully managed. Routines and norms can be disrupted in order to heighten awareness of the surroundings and other people. However, constant disruption is both difficult to maintain and likely to become gradually more ineffective as users of the space adapt to maintain their state of civil inattention (see for example, the growing literature on ‘display blindness’, such as Huang, Koster and Borchers, 2008; Müller et al., 2009). There is a strong argument, therefore, for a design approach in a space that fosters daily routines and aids civil inattention, so that when attention is required, it can be evoked easily and effectively through simple disruption techniques.

This issue of habituation, that is the decrease in response to a stimulus after repeated exposure to it, can be a critical parameter in the design of interventions for counter-

terrorism. From the focus group discussions of permanently positioned interventions in the Safer Spaces study, it is noted that the impression of heightened awareness that a temporary response evokes is gradually lost over time. This also seemed to be the case with the design of interventions employed in Shades of Grey. The effect of the different floor patterns was monitored for a week and with all the designs the initial heightened awareness was reduced over the course of the week. Such findings are consistent with more traditional strategies, such as CCTV where initial deterrence fades with time (Scottish Government, 2009).

### *Foresight*

Spaces designed for foresight encourage planning and assist predictability. Sustaining individual routines and patterns of movement in spaces is an important base condition for flow disruption techniques. Similarly designing environments to optimise foresight heightens the effects of triangulation and performance when those disruptions are used. Designing legible spaces that pedestrians can easily plan to use and reuse acknowledges the importance of ‘activity rhythms’ within an environment (Lynch, 1981).

Lynch has written at length about the legibility of the city. The symbolic features of a city form narratives which can be read and understood as environmental signs. As Lynch describes: ‘environmental forms may be created, or combined in new ways, to elaborate the language and thus extend our capabilities for spatial communication’ (Lynch, 1981, p. 141).

More recently, the social semioticians Scollon and Scollon have looked at what they call geosemiotics – a systematic way of examining how visual language appears in the material world. They argue for a focus on the “‘in place” meanings of signs and discourses and the meanings of our actions in and among those discourses in place’ (Scollon and Scollon, 2001, p. 1). This places an emphasis on the ‘social meanings of the material placement of signs in reference to the material world of the user of signs’ (Scollon and Scollon, 2001, p. 4). This also implies a local situated-ness taking into account the characteristics and communication found within urban spaces.

Design for foresight can influence feeling of anxiety through principles of familiarity and predictability. An increasing number of practicing designers are engaging in design research focusing on the reduction of risk and anxiety (Lacy, 2008). Uniqueness and sense of place also plays a part here in route finding.

Reflecting on the design intervention to Safer Spaces, one focus group participant noted the importance of rhythm and routine in the mundane aspects of everyday activity:

If they could work security technology into the rhythm of what you do when you enter a tube station, if they could have some sort of scanning detectors, sensors – whatever is needed to do the job, as part and parcel of the machinery forming your journey, that’s fine by me.

### *Communication*

Trust in communication is important in order to make use of unexpectedness and playful disruptions. Public art, games and interaction design bound disruption in understood and socially trusted contexts. These forms communicate that an intervention is playful and disruptive without detracting from the triangulation, performance and flow effects. When a context of play is not communicated clearly, such as when the CCTV-like



screens in the Safer Spaces tests used abstracted forms instead of traditional video, people were uneasy with the sense of 'out of place', finding it disconcerting.

Artworks and interaction design that have used surveillance systems often evoke playfulness in order to foster acceptance. For example *Hand From Above* uses a visual language of the fairy-tale giant reaching in to tickle those under surveillance. *ACCESS*, by artist Marie Sester (2003) uses the design vocabulary of the theatre to evoke a sense of performance rather than persecution in the tracking where a computer vision system is used to highlight an individual in public space by turning a spotlight on them and following them as they move around the space.

Communicating risk must strike a fine balance between providing factual, relevant information and avoiding the creation of fear (Rogers et al., 2007). Communications ought to be accurate, specific and originate from trusted sources or they may be counterproductive (Sasse, 2005; Wessley, 2005). Urging state agencies for openness and transparency, the Cabinet Office's strategy unit report *Risk: Improving government's capability to handle risk and uncertainty* (2002) has sanctioned stakeholder engagement in the development of risk communications.

Communications during terrorist incidents necessitate time-sensitive and accurate information. This assists in definition of the problem and enables informed decisions about appropriate behavioural responses (O'Connor, Bord and Fischer, 1999). Providing information that is clear, consistent and reassuring has also been implicated in reducing post-event anxiety, confusion and scapegoating (MacGregor and Fleming, 1996; Newman, Davis and Kennedy, 2006).

We propose that communication channels and associated design vocabulary should be kept separate from all disruption interventions. It is important not to undermine emergency communication strategies and channels with the techniques of disruption. This applies equally to playful and authority-focused disruption. A digital screen intended for emergency instructions should not carry generic authoritative statements such as warnings about surveillance as these are likely to train users of a space that the channel is not worth paying any further attention to. Conversely users of a space can be assisted in becoming accustomed to, and trusting emergency communication channels if they provide continuous, timely information that assists foresight in their regular routines. It is worth noting that advertising often attempts to leverage disruptive design strategies to catch attention, and so should similarly be excluded from emergency communication channels.

Advertising regularly employs design techniques intended to disrupt inattention. Eye catching movement, colours and patterns are all used to engineer a shift in focus to the advertising. Reducing some of these channels of disruption may be required in heavily used spaces where a predictable flow and routine is needed, and similarly where it is desired that users shift their attention on to any suspicious behaviour rather than the distraction of advertising.

### **The Designer as Stakeholder**

We have described how the disruption techniques that underpin interventions outlined in counter-terrorism guidelines can be categorised as effecting triangulation of attention, unexpected performance or shifts in crowd flow. We have argued that in order for disruption in publicly used spaces to be effective, they must be used against a background state of functional routine, comfortable inattention or low-anxiety pleasure.

This design for usability and routine can be seen as reducing disruption fatigue, heightening the impact of disruptions and fostering trust in communication channels vital for emergency response.

Playfulness and performance are seen as key design contexts for disruption. Unlike authority-focused displays, they are characterised as socially positive and imply unexpectedness without significant suggestion of possible threat. Fatigue is also useful in analysing the use of authority. If displays of authority become commonplace, with repeat occurrences, they cannot be expected to retain significant impact.

Design as disruption is intended to complement existing counter-terror strategies. Project Griffin for example, was introduced in London during 2004 with the objective of facilitating public trust and confidence in the capital's policing authorities (City of London Police, 2004). The impossibility of entirely preventing terrorist attacks (Fussey, 2007) lies at the heart of the tension between the normalisation of security practices and enduring public confidence in the capability of the UK authorities to protect civic spaces. In the event of terrorist attacks, public belief in the ability to deter through authority-focused mechanisms of disruption often falters, as does public confidence in the authorities to effectively police. It is in this midst of this tension that this chapter finds itself. Torn between the necessity of visible performances of authority for securing a safe future and the risk these run of routinising and trivialising the issue. There is also a need to acknowledge the complexity of broader cultural contexts when designing for disruption: that the presence of visible over-policing might encourage radicalisation as a response to the heightened presence of authorities in local communities (Fussey, 2007).

Designing performance, playfulness and unexpected pleasure in to public experience has long been a central focus of a wide range of arts practitioners and curators. We can expect these experts to play an important role in informing a sustainable program of visible counter-terrorism. Security professionals should reposition and schedule such arts events to meet their disruption needs. In some cases they may also wish to commission longer-term interventions specifically working with interaction designers or architects. Designers regularly respond to questions of usability, foresight and trusted communication and so are a vital resource in the design of the environments in which disruptions can be effectively used, as well as for broader multi-environment programs of trusted communication.

We have discussed how disruption and communication are both heavily dependent on context. Unexpectedness outside a playful context can be disconcerting and confusing. Communication without a context of trust is soon ignored or misunderstood. More broadly context specific responses also avoid what the UK Design Council has called 'bolted-on' crime prevention solutions, and instead, encourages a more integrated process to be undertaken (Wootton et al., 2003). This research seeks a more integrated approach that is responsive to the topography of public spaces, by using communication design as a tool to interweave information, space and time. The *Protecting crowded places: design and technical issues* guide from the UK Home Office (2012), calls for designers to take care to avoid creating 'bland and standardised places' in their efforts to design counter-terrorism features into civic spaces. The guide notes that 'it is important to retain or insert positive features that attract people to spaces', suggesting 'incorporating public art or locally important features' into spaces as a way to do this. Designing for Security: Using Art and Design to Improve Security illustrates how art might be integrated into New York City's security strategy:

Artists and designers should not hesitate to use aesthetic tools as part of the arsenal of security. Light and color, changes of scale, texture — even creative use of sound or smell, temperature and climate control — can convey a sense of safety and help to engage users, staff, and the public. Site relationships, scale relationships, transparency, and opacity may be appropriated to meet expressive, functional, and security needs.” (Russell et al., 2002, p. 35)

This braiding of a sense of safety and comfort with perceived security is one approach that echoed the findings of the Safer Spaces project, with participants declaring: ‘Comfort consoled by security. Security’s the big issue, but comfort is more important’. Design as security, has also gathered momentum within UK discussions on crime prevention – see for instance *UK Percent for Art* which states: ‘Commissioning bodies argue that good art encourages greater use of public places and increases individuals’ sense of security’ (Arts Council, 1991, p. 17). We would also argue that the adoption of a ‘designerly way of intervening’ would use the arsenal for more than just aesthetic means, that there is scope for embedding such an approach into the early stages of security’ planning in urban spaces.

### **Acknowledgements**

This research is conducted as part of the projects ‘Shades of Grey – Towards a Science of Interventions for Eliciting and Detecting Notable Behaviours’ project (EPSRC reference: EP/H02302X/1) and ‘Safer Spaces: Communication Design for Counter Terror’ (EPSRC reference: EP/F008503/1). We wish to express our gratitude to both research project teams and our partners as well as the Centre for the Protection of National Infrastructure.

## References

- Adey, P. (2004). Surveillance at the airport: Surveilling mobility/mobilising surveillance. *Environment and Planning A*, 36(8), 1365–1380.
- Adey, P. (2008). Airports, mobility and the calculative architecture of affective control. *Geoforum*, 39(1), 438–451.
- Arts Council. (1991). *Percent for Art: A Review*. London: Arts Council.
- Bateson, J.E.G., and Hui, M.K.M. (1987). A model for crowding in the service experience: empirical findings. In: J.A. Czepiel, C.A. Congram and J. Shanahan, (Eds) *The Services Challenge: Integrating for Competitive Advantage*. Chicago, IL: American Marketing Association, 85–9.
- Benton-Short, L. (2007). Bollards, bunkers, and barriers: securing the National Mall in Washington, DC. *Environment and Planning D*, 25(3), 424.
- Brantingham, P.L. and Brantingham, P.J. (1993). Nodes, paths and edges: Considerations on the complexity of crime and the physical environment. *Journal of Environmental Psychology*, 13(1), 3–28.
- Cabinet Office. (2002). *Risk: Improving Government's Capability to Handle Risk and Uncertainty*. Retrieved 21 April 2012, from [http://webarchive.nationalarchives.gov.uk/+http://www.cabinetoffice.gov.uk/strategy/work\\_areas/risk.aspx](http://webarchive.nationalarchives.gov.uk/+http://www.cabinetoffice.gov.uk/strategy/work_areas/risk.aspx).
- Chebat, J.C., Gelinas-Chebat, C., Vaninski, A., and Filiatrault, P. (1995). The impact of mood on time perception, memorization, and acceptance of waiting. *Genetic, social, and general psychology monographs*, 121(4), 411–424.
- City of London Police. (2004). *Mission*. Retrieved 18 May 2011, from <http://www.projectgriffin.org.uk/index.php/mission>.
- Coaffee, J., Moore, C., Fletcher, D., and Bosher, L. (2008). Resilient design for community safety and terror-resistant cities. *Municipal Engineer*, 161(2), 103–110.
- Cornish, D. (1994). The procedural analysis of offending and its relevance for situational prevention. *Crime Prevention Studies*, 3, 151–196.
- DDB Stockholm (2009). *Piano stairs*. Retrieved from <https://www.youtube.com/watch?v=21Xh2n0aPyw>, accessed 14 August 2014.
- Department of Homeland Security. (2010). *If You See Something, Say Something' Campaign*. Retrieved 10 November 2012, from <http://www.dhs.gov/if-you-see-something-say-something-campaign>.
- DePaulo, B.M., Lindsay, J.J., Malone, B.E., Muhlenbruck, L., Charlton, K., and Cooper, H. (2003). Cues to deception. *Psychological bulletin*, 129(1), 74.
- Edwards, R. (2010). Heathrow staff given body language training to spot suspected terrorists. *Telegraph*, January 15, retrieved from <http://www.telegraph.co.uk/travel/travelnews/6990006/Heathrow-in-security-alert-as-two-men-arrested-on-flight.html>. Accessed 14 August 2014.

- FEMA 430. (2007). *Site and Urban Design for Security: Guidance Against Potential Terrorist Attacks, Providing Protection to People and Buildings*. Washington, DC: Federal Emergency Management Agency.
- Fussey, P. (2007). Observing Potentiality in the Global City Surveillance and Counterterrorism in London. *International Criminal Justice Review*, 17(3), 171–192.
- Goffman, E. (1966). *Behavior in Public Places*. London: Simon and Schuster.
- Granhag, P.A., Andersson, L.O., Strömwall, L.A., and Hartwig, M. (2004). Imprisoned knowledge: Criminals' beliefs about deception. *Legal and Criminological Psychology*, 9(1), 103–119.
- Hillier, B. (2004). Can streets be made safe? *Urban Design International*, 9(1), 31–45.
- Hillier, B., and Sahbaz, O. (2009). Crime and urban design: An evidence-based approach. In R. Cooper, G. Evans, and C. Boyko (Eds), *Designing Sustainable Cities*. Chichester: Wiley-Blackwell. 163–186.
- Home Office. (2012). *Protecting Crowded Places: Design and Technical Issues*. Home Office. Retrieved from <http://www.homeoffice.gov.uk/publications/counter-terrorism/crowded-places/design-tech-issues?view=Binary>. Accessed 14 August 2014.
- Huang, E., Koster, A., and Borchers, J. (2008). Overcoming assumptions and uncovering practices: When does the public really look at public displays? *Pervasive Computing*, 5013(2008), 228–243.
- Hui, M.K., and Bateson, J.E.G. (1991). Perceived control and the effects of crowding and consumer choice on the service experience. *Journal of Consumer Research*, 174–184.
- Jacobs, J. (1961). *The Death and Life of Great American Cities*. London: Random House.
- Lacy, M. (2008). Designer security: control society and MoMA's SAFE: design takes on risk. *Security Dialogue*, 39(2-3), 333–357.
- Lozano-Hemmer, R. (2001). *Body Movies*. Retrieved from [http://www.lozano-hemmer.com/body\\_movies.php](http://www.lozano-hemmer.com/body_movies.php). Accessed 14 August 2014.
- Lynch, K. (1981). *Good City Form*. Cambridge, Massachusetts: MIT Press.
- MacGregor, D.G., and Fleming, R. (2006). Risk perception and symptom reporting. *Risk Analysis*, 16(6), 773–783z.
- Martin, K., Dalton, B., and Nikolopoulou, M. (2013). Art as a means to disrupt routine use of space. *Journal of Police & Criminal Psychology*, 27(1), DOI 10.1007/s11896-013-9130-1.
- McAndrew, C. (2012). Transforming public spaces. What can we learn from the ontological positioning of the 'site of the social'. *Iridescent: Icoagrada Journal of Design Research*, 2(1), 78-94.
- Mehrabian, A., and Russell, J. A. (1974). *An Approach to Environmental Psychology*. Cambridge, Massachusetts: MIT Press.

- Müller, J., Wilmsmann, D., Exeler, J., Buzeck, M., Schmidt, A., Jay, T., and Krüger, A. (2009). Display blindness: The effect of expectations on attention towards digital signage. *Pervasive Computing*, 5538(2009), 1–8.
- NCPC. (2002). *The National Capital Urban Design and Security Plan*. Washington, DC: National Capital Planning Commission.
- Németh, J. (2010). Security in public space: an empirical assessment of three US cities. *Environment and Planning A*, 42, 2487–2507.
- Newman, E., Davis, J., and Kennedy, S. M. (2006). Journalism and the public during catastrophes. In B. Raphael, Y. Neria, R. Gross, R.D. Marshall, and E.S. Susser (Eds), *9/11: Mental Health in the Wake of Terrorist Attacks*. Cambridge: Cambridge University Press, 178–196.
- Newman, O. (1972). *Defensible Space: Crime Prevention Through Urban Design*. New York: Macmillan.
- O'Connor, R.E., Bord, R.J., and Fisher, A. (1999). Risk perceptions, general environmental beliefs, and willingness to address climate change. *Risk Analysis*, 19(3), 461–471.
- O'Shea, C. (2009). *Hand from Above*. Retrieved from <http://www.chrisoshea.org/hand-from-above>. Accessed 15 August 2014.
- Royal Institute of British Architects (RIBA) (2010). *Guidance on Designing for Counter-Terrorism*. London: Royal Institute of British Architects.
- Rogers, M.B., Amlôt, R., Rubin, G.J., Wessely, S., and Krieger, K. (2007). Mediating the social and psychological impacts of terrorist attacks: The role of risk perception and risk communication. *International Review of Psychiatry*, 19(3), 279–288.
- Russell, J.S., Bershad, D., Felicella, E., Kelly, M., and Kennedy, E. (2002). *Designing for Security: Using Art and Design to Improve Security*. New York: Design Trust for Public Space Art Commission of the City of New York. Retrieved from [http://www.designtrust.org/publications/publication\\_97security.html](http://www.designtrust.org/publications/publication_97security.html).
- Sasse, M.A. (2005). Usability and trust in information systems. In R. Mansell and B.S. Collins (Eds), *Trust and Crime in Information Societies*. Edward Elgar: Cheltenham, 319–348.
- Scollon, R., and Scollon, S.W. (2003). *Discourses in Place: Language in the Material World*. London: Routledge.
- Scottish Government. (2009). *The Effectiveness of Public Space CCTV: A Review of Recent Published Evidence Regarding the Impact of CCTV on Crime*. Edinburgh: Justice Analytical Services, Police and Community Safety Directorate, Scottish Government.
- Sester, M. (2003). *ACCESS*. Retrieved from <http://www.accessproject.net/index.html>, accessed 15 August 2014.
- Snibbe, S.S., and Raffle, H.S. (2009). Social immersive media: Pursuing best practices for multi-user interactive camera/projector exhibits. In D.R. Olsen Jr, R.B. Arthur, K. Hinckley, M.R. Morris, S.E. Hudson, and S. Greenberg (Eds) *Proceedings of the 27th International Conference on Human Factors in Computing Systems*. Boston, MA, USA, ACM, 1447–1456.

- Stratfor. (2010). *How to Look for Trouble: A Stratfor Guide to Protective Intelligence*. CreateSpace.
- Triggs, T., and McAndrew, C. (2009). Transforming policy practice in transport: Is there a space for communication design? In *Inclusive design into innovation: transforming practice in design, research and business*. Presented at Include 2009, London: Royal College of Art.
- Vrij, A., Leal, S., Granhag, P.A., Mann, S., Fisher, R.P., Hillman, J., and Sperry, K. (2009). Outsmarting the liars: The benefit of asking unanticipated questions. *Law and Human Behavior*, 33(2), 159–166.
- Waldman, A. (2011). *The Submission*. London: Random House.
- Wessely, S. (2005). Don't panic! Short and long term psychological reactions to the new terrorism: The role of information and the authorities. *Journal of Mental Health*, 14(1), 1–6.
- Whyte, W.H. (1988). *City: Rediscovering the Center*. New York: Doubleday.
- Wootton, A.B., Cooper, R., Davey, C.L., and Press, M. (2003). *Think Thief: A Designer's Guide to Designing Out Crime*. London: Design Council.