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Evaluating the Societal Response to Antiterrorism Measures

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Abstract

Emergency managers, urban planners and building designers have embraced antiterrorism measures to create a human environment that is difficult to attack, resilient to the consequences of terrorist attack, and protective of its populations and assets. However, quick to adopt a “guns, guards and gates” posture following 9/11, it has become apparent that many antiterrorism measures may actually intensify and reinforce public perceptions of vulnerability and fear. Two studies conducted by the University of Florida in 2004-05 evaluated public perceptions of security measures within the contexts of traditional crime and terrorism. When presented with images of interior and exterior building spaces, respondents felt 3-6 times less vulnerable to theft, battery and sexual assault in areas having a visible security presence. Only a minority of respondents considered areas with a highly visible security presence to be unfriendly (6%), uninviting (12%) or uncomfortable (13%). In the context of terrorism however, respondents viewed many of the same visible security measures with suspiciousness, tenseness and fear. Such responses may be caused by a comparative lack of understanding of the nature and predictability of terrorism and a reluctance to accept measures that serve to reinforce feelings of vulnerability or danger.

KEYWORDS: antiterrorism, environmental design, prevention, security, safety, public perception, symbolism, fear, anxiety, mental health

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INTRODUCTION

911 showed that *counter-terrorism* efforts to intervene and disrupt terrorist activities could not absolve the threat of terrorism alone, nor could traditional response capabilities be relied upon to respond and recover from incidents involving weapons of mass destruction, disruption and effect. As a result, domestic security planners have embraced *anti-terrorism* measures to create a human environment that is difficult to attack, resilient to the consequences of such incidents, and protective of its populations and assets. Specifically, antiterrorism strategies seek to change the fundamental nature of terrorist targets by lessening their real and symbolic value to terrorists while simultaneously reducing their physical vulnerability to terrorist threats.

Although terrorist attacks are often measured in loss of life and destruction, the immeasurable toll and intended consequence of terrorism is fear. The power of terror lies not only in attacks themselves, but also in the expectation and unpredictability of an attack. It is well known from psychological studies in humans and animals that the strongest form of conditioning occurs when the reward or punishment is unpredictable. This variable ratio (VR) conditioning demands more attention and its effect lasts much longer. Quick to adopt a “guns, guards and gates” posture following 911, it has become apparent that many antiterrorism measures may actually intensify and reinforce public perceptions of siege or vulnerability, and thus heighten the sense of imminent danger and anticipation of attack.

ANTITERRORISM MEASURES

Antiterrorism can be defined as those physical, technological and operational measures intended to devalue, deter, deny and defend against acts of terrorism. To *devalue* means to lessen the significance of critical infrastructure and key assets as potential targets. Examples include efforts to conceal vulnerable functions, eliminate use or production of hazardous materials and avoiding large assemblies of occupants in unprotected areas. To *deter* means to create perceptions of unacceptable risk to would-be offenders by providing a visible security presence. To *deny* means to prevent access to the site, building or target asset. Anti-terrorism measures must also *defend* the target if means to devalue, deter and deny hostile or criminal actions fail to absolve the threat. *Physical measures* use shapes and spatial arrangements to create controlled access, barriers, visibility and other non-mechanical means to create defensible space. *Technological measures* use mechanical means to achieve access control, surveillance, lighting, communications and other actuated hardware to gather intelligence, interdict a threat or mitigate the effects of hostile or criminal activity. *Operational measures* use human resources to reinforce access control, surveillance, and emergency response (Table 1). Technological and operational measures may also include modes of communication to better prepare and protect the public.

Antiterrorism measures are selected according to asset vulnerabilities, factors that invite hostility, and capabilities of known terrorist organizations. Assets may include people, operations, commerce, product, property and information. Factors that invite hostility may include economic value, symbolism, political, ideological, or religious significance and history of past targeting. Individuals and organizations engaged in such acts may include foreign and domestic terrorist groups, criminals, and social deviants. Threats consist of any action with the potential to cause harm, loss, disruption or denial of use of an asset (AIA, 2001). To effectively assess the vulnerability of a given asset to a likely terrorist threat, risk analyses can be used to identify appropriate antiterrorism measures through the following steps:

Table 1. Antiterrorism strategies and measures.

Strategy	Type	Measure(s)
Perimeter and Access Control	Physical	Security fencing, barriers, barricades, bollards, plinth walls, landscaping features
	Technological	Operable barriers, arresting devices, electronic access systems, biometric identification systems, ID cards, visitor tracking systems
	Operational	Armed and unarmed security, guard booths, gate houses, restricted parking, restricted access zones, visitor and vehicle screening procedures
Surveillance	Physical	Open areas
	Technological	Lighting, CCTV and video monitoring, intrusion detection devices
	Operational	Armed and unarmed security, concentrated pedestrian access and circulation
Communications	Technological	Alarm systems, public information systems, signage, emergency call boxes
	Operational	Emergency notification and response planning and exercises, public emergency broadcast systems, color-coded warning systems

Asset analysis

Outlines a process for identifying key assets and the consequences of asset loss. Includes assessing the value of physical assets such as goods and services, and the value of “soft” assets, such as intellectual property. Assets can be prioritized based on how the loss or denial of an asset would affect the operation and survival of the organization.

Threat analysis

Provides a methodology for identifying and prioritizing threats specific to individuals and organizations with the intent and ability to inflict harm or gain unlawful access. Includes study of the modalities, geo-spatial and temporal characteristics of various threat scenarios as well as the changing origins and nature of threats as technology, political issues, and other factors known to motivate terrorist behaviors change.

Vulnerability assessment

Outlines a process for determining how specific asset characteristics, technologies and operations may induce and allow the accomplishment of threats. Includes information on terrorist organizations, targets of choice and how they are likely to exploit the vulnerabilities of specific assets. Includes assessment of vulnerabilities and populations in relation to environment, structure and image. Environment includes asset location, terrain, adjacent assets, as well as proximity and access to the asset. Structure includes physical scale, population density, entry, circulation patterns, spatial arrangements, and life-safety systems as well as the manufacture, transport, storage or use of at-risk goods or materials. Image includes the ideological, political, social, or competitive context of the organization, asset or population, and national or international context of their mission.

Risk assessment

Uses findings from asset, threat and vulnerability analyses to weigh the probability of criminal or hostile actions against the cost or consequence of their outcome. Results of risk analysis are first used to prioritize risk factors and then determine which physical, technological and operational measures can most effectively mitigate potential damage and loss. The cost of each measure is evaluated according to the value of risk reduction each contributes in relation to how well the measure prevents or mitigates the effects of a terrorist incident or, how the measure facilitates a more effective response and recovery effort following attack.

SOCIAL AND BEHAVIORAL EFFECTS

Researchers at the University of Florida conducted two “pilot” studies to assess the social and behavioral effects security measures have on segments of society exposed to them. Both studies presented respondents with visible and non (or less) visible security measures. The first study consisted of a 5-point Likert survey of visitors to the Alachua County Criminal Courthouse in Gainesville, Florida. Respondents ($n = 100$) were asked how vulnerable they felt to theft, battery and sexual assault in several zones (Figure 1) of the new, state-of-the-art facility where active security measures such as armed guards and screening stations were clearly visible in relation to other zones of the courthouse where security measures were concealed. In areas where a visible security presence was absent or obscured, such as the entrance plaza and restrooms, respondents felt the likelihood of theft, battery or sexual assault to be 3-6 times greater than areas having a visible security presence ($r = 0.810$). In reception and waiting areas where security measures were most visible, fewer than 3% of respondents felt “unsafe” (Sahoo, 2005). In spite of a highly visible security presence, a minority of respondents considered the lobby area to be unfriendly (6%), uninviting (12%), or uncomfortable (13%).

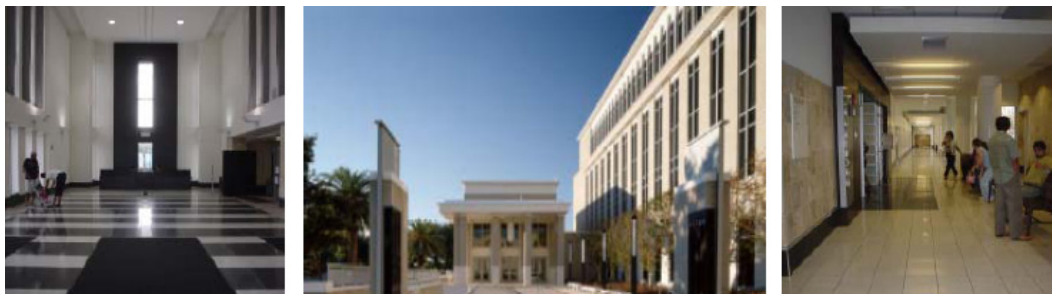


Figure 1. Security zones, Alachua County Criminal Courthouse in Gainesville, Florida.

The majority of respondents (79%) considered the number of personnel, surveillance cameras, physical barriers, screening stations and other security measures to be adequate. Later in the survey, more than half (51%) felt that security measures in general, were inadequate (Sahoo, 2005). For nearly one-third (30%) of the survey population, this apparent contradiction in perceived vulnerability may have been more related to emotion than to specific, contextual aspects of personal safety. In other words, respondent fear of crime in general and the presence of societal offenders in a criminal facility may have contributed far greater to feelings of vulnerability than any specific threat or perceived shortfall in building security. Among the respondents were defendants or persons accompanying them (86%), persons age 18-45 (81%), persons with 12th grade or less education (56%) males (53%), and persons of color (60%).

As part of a second study, university students ($n = 140$) were exposed to photographs of seven (7) security measures. Four of these photographs were visible security measures, or measures whose intent was considered obvious (Figure 2). Three photographs were non-visible security measures, or measures whose intent presumably would not readily be apparent (Figure 3). An additional photograph of the 1995 Oklahoma City bombing was included to test the validity and reliability of the survey instrument.



Figure 2. Visible security measures.

To evaluate differences in emotional response between visible and non-visible security measures, the AdSAM procedure was used. AdSAM is an emotional response tool originally developed by advertising faculty at the University of Florida to gain insight into consumer behaviors, such as product preference and purchase intentions. Unlike verbal-based semantic differential scales that use prescribed emotional adjectives, AdSAM uses a self-assessment manikin (SAM) to represent the respondent and their feelings after being exposed to visual stimuli. These simple, cross-cultural caricatures are presented in three rows. The first row presents the SAM in a range of pleasure emotions from very happy or elated to very unhappy or sad. The second row shows the SAM in a range of arousal emotions from stimulated or involved to calm or bored. The third row shows the SAM experiencing a range of dominance emotions from being in control to being controlled (Figure 4).

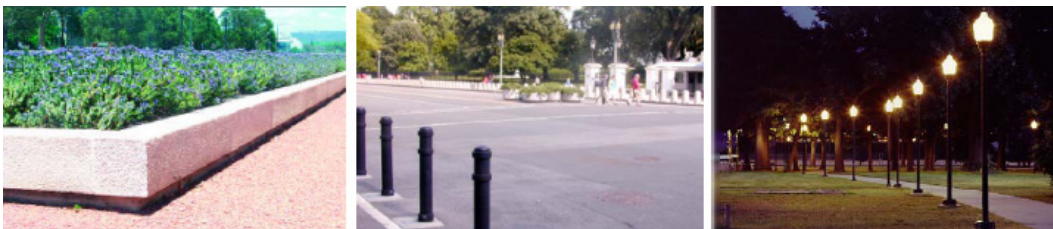


Figure 3. Non-visible security measures.

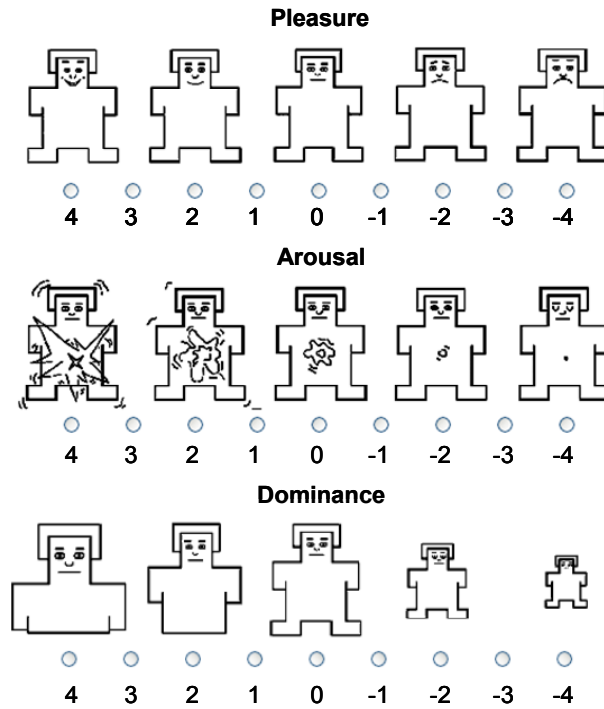


Figure 4. AdSAM self assessment manikins (Morris, 2003).

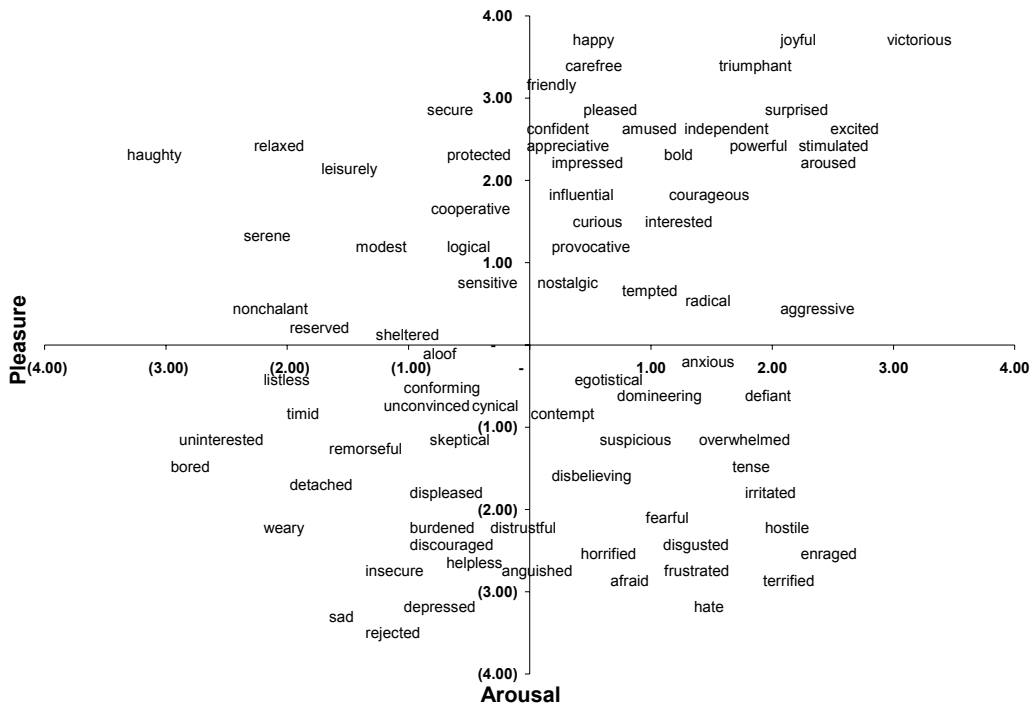


Figure 5. AdSAM (2D) Perceptual Map (Morris, 2003).

Prior to the survey, respondents were presented with a mock media headline warning of impending terrorist attack as a means to place the photographs within the context of terrorism. After being exposed to each photograph, respondents were asked to select one SAM from each of the three rows that best represented their feelings of pleasure, arousal and dominance. Each SAM in each pleasure, arousal and dominance row was assigned a value ranging from 4 to -4. Values for each were plotted on a 3D perceptual map, which identified an emotion consistent with the observed strength of pleasure, arousal and dominance. Modified and presented in 2D, respondent reactions to observed security measures within the context of terrorism included feelings of serenity and well-being for non-visible measures to suspiciousness, tenseness and fear for visible security measures (Figure 6). Photograph numbers (i.e., P-16) correspond to the database identification number of each photograph selected for the survey and have no correlation to the order in which photographs were presented (Pak, 2005).

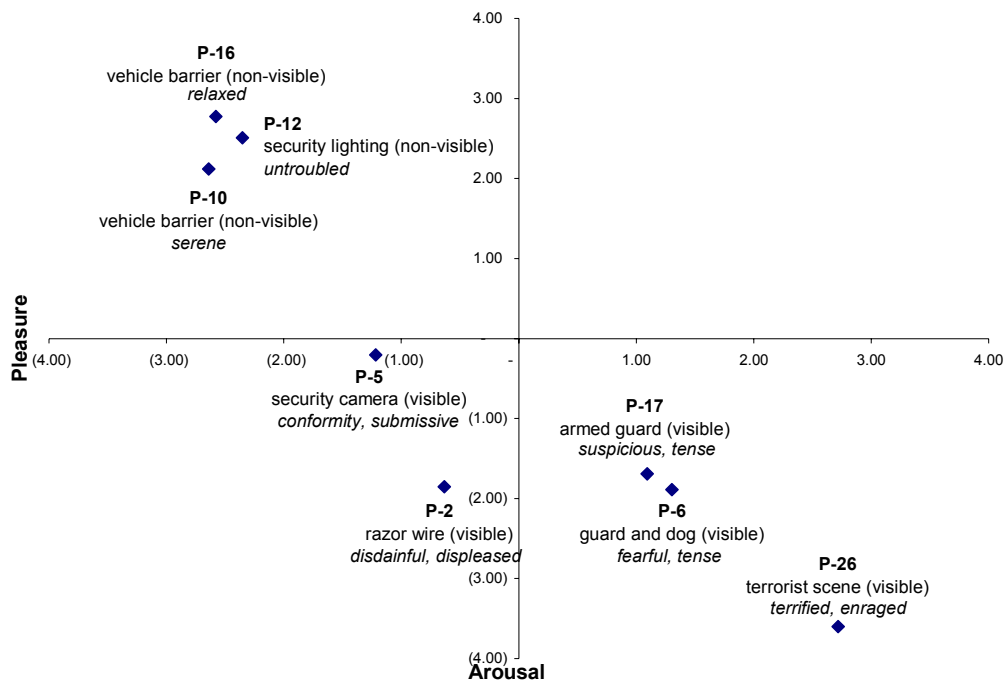


Figure 6. AdSAM (2D) Perceptual Map of respondent emotions following exposure to visible and non-visible security measures.

The Pearson product moment correlation coefficient, r , reflects the extent of a linear relationship between two data sets where 1.0 is a perfect positive correlation and -1.0 is a perfect negative correlation. Statistical analysis using Pearson r shows a nearly perfect positive correlation ($r = 0.99$) between pleasure and dominance, meaning that a positive change in pleasure would be expected to correspond to a proportionately positive change in dominance, and that a negative change in pleasure would be expected to correspond to a proportionately negative change in dominance. Further analysis showed an inverse correlation between pleasure and arousal ($r = -0.94$) and dominance and arousal ($r = -0.93$), meaning that a positive change in either pleasure or dominance would be expected to correspond to a proportionately negative change in arousal, and that a negative change in either pleasure or dominance would be expected to correspond to a proportionately positive change in arousal (Figure 7).

Table 2. Aggregate means and standard deviations for AdSAM pleasure, arousal and dominance following exposure to visible and non-visible security measures ($n=140$).

Photograph		Pleasure		Arousal		Dominance	
No.	Type	mean	σ	mean	σ	mean	σ
2	Visible	-1.85	1.770	-0.63	2.092	-1.54	1.700
5	Visible	-0.20	1.793	-1.22	2.032	-0.45	1.926
6	Visible	-1.89	2.228	1.30	2.097	-1.76	2.114
10	Non-Visible	2.12	1.626	-2.64	1.800	1.96	1.738
12	Non-Visible	2.51	1.785	-2.35	2.118	2.03	1.782
16	Non-Visible	2.77	1.461	-2.58	2.019	2.25	1.910
17	Visible	-1.69	1.891	1.09	2.049	-1.70	1.894
26	Visible	-3.60	0.938	2.72	1.969	-2.51	2.020

Respondent reactions to visible security measures indicated that such measures stimulate negative pleasure and dominance and were associated with varying degrees of displeasure and lack of control. However, among the visible security measures surveyed, passive or inanimate measures such as security fencing and surveillance equipment, appeared to stimulate significantly less arousal in respondents when compared to active security measures such as guards, weapons, and K-9 dogs. Differences in arousal resulted in profoundly different expressions of displeasure; from submissiveness and conformity for passively visible security measures to suspiciousness and fear for actively visible security measures.

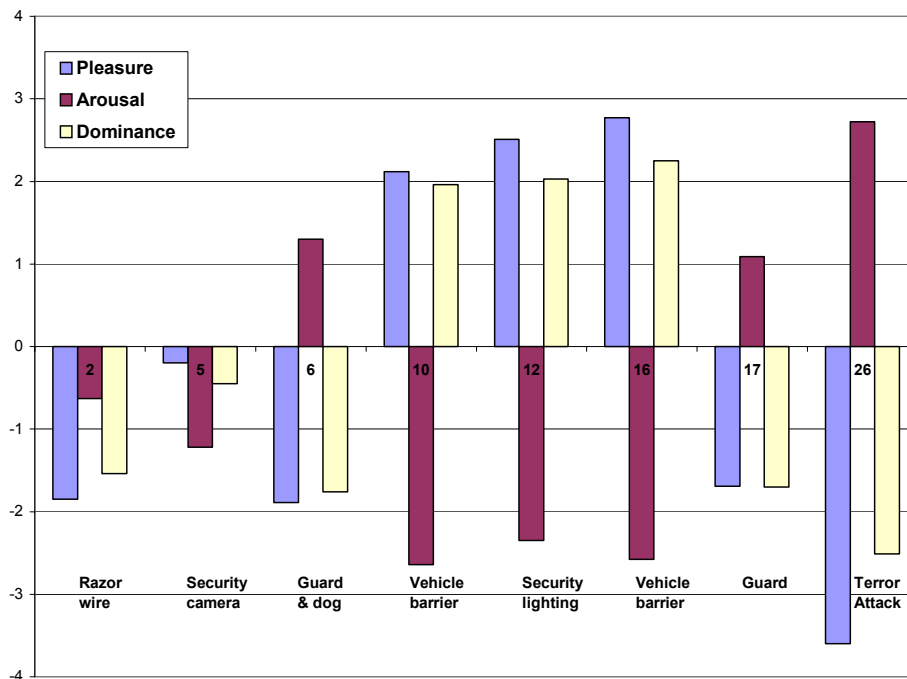


Figure 7. Correlation between pleasure, arousal and dominance in respondent perception of visible and non-visible security measures.

Although neither passive nor active visible security measures were found to be particularly pleasurable, passive measures were clearly shown to have the least negative societal response. Respondent reactions to non-visible security measures such as decorative bollards and planter barriers, indicated that such measures stimulate positive pleasure and dominance and negative arousal. Such responses showed a pattern of emotions consistent with leisure, serenity and relaxation (Pak, 2005). Among the respondents were persons age 20-27 (97%), males (87%), and white (98%).

CONCLUSIONS AND LIMITATIONS

Although not intended for comparative study, the two pilot studies *may* indicate differences in how security measures are perceived by the public. Within the context of traditional crime, such as theft, battery and sexual assault, visible security measures appeared to be well received. However, when presented with many of the same measures within the context of terrorism, the vast majority of respondents felt tense, suspicious and fearful. Possible explanations may include segments of the population having experience and understanding of the nature and predictability of crime and a willingness to embrace measures that protect society from deviant behaviors, and, a comparative lack of understanding of the nature and predictability of terrorism and a reluctance to accept measures that reinforce a feelings of vulnerability or imminent danger. However, it must be noted that both pilot studies consisted of homogenous populations not intended to represent the U.S. population or the “public” in general. As a result, the findings of this study may not be generalized beyond the demographic groups represented. This exploratory research may however, provide the impetus and justification for broader studies into the social and behavioral effects of antiterrorism measures on populations protected.

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