

Does Urban Art Deter Graffiti Proliferation?

An evaluation of an Australian commissioned urban art project

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Abstract

In Perth, the capital city of the state of Western Australia, there is a growing move towards the use of urban art as graffiti deterrence. This paper reports on an empirical evaluation of a commissioned urban art project. A former graffiti hot-spot (three bus underpass walls at a commuter train station) and a one square kilometre area surrounding the hot-spot were monitored across four time phases (i.e. a baseline, two post-art intervention and a follow-up period) over an 11 week monitoring period. Following the completion of the artwork site a marked reduction occurred in the number of graffiti recorded at the artwork site across the two post-art intervention monitoring periods and a significant increase in the graffiti frequency counts between the second post-art intervention monitoring period and the final follow-up monitoring period. Similar graffiti spikes were found to occur in the control area surrounding the artwork site. Collectively, these results would suggest that mural artworks are not a general panacea for the graffiti proliferation problem which instead seems to require a non-homogenous solution.

Key Words: graffiti, deterrent, vandalism, urban art, commissioned art

Introduction

Graffiti, the unauthorized written, scratched, marked, sprayed, or affixed defacement of public/private property, is considered by some to be a social crime, an act of youthful vandalism, which needs to be erased from urbanity because of the feelings of disgust/fear it engenders in the general populace (Cohen, 1973; Craw et al., 2006; Grant, 1996; Halsey and Young, 2006; Lachmann, 1988). However, in recent years a move has taken place to distance illegal graffiti from its legally sanctioned counterpart, *urban art*

(e.g., murals, permission structures) through creating a conceptual distinction between 'graffiti as crime' and 'graffiti as cultural expression' (Alvi, et al., 2001; King and Setter, 2003). This move is similarly reflected in the dichotomous terminology which is increasingly used to describe individuals who engage in illegal graffiti as 'wayward youths', 'idiots', 'vandals', 'proto-subversives', and individuals who engage in legal graffiti as young *people*, urban/aerosol/spray *artists*. This distinction is also apparent in the terminology used to differentiate between graffitiists' illegal and legal art-forms. For instance, *illegal art (aka 'nuisance art')* is denigrated as being visual pollution that causes property defacement/damage/destruction; and *urban art* as being a creative vibrant art-form, that transforms otherwise sterile urban spaces into contemporary public places (Craw et al., 2006; King and Setter, 2003; Garner et al., 2006). Paradoxically, this dichotomy has led to a polarization of views on how authorities should deal with graffitiists. For instance, some members of society petition for the prompt removal of graffiti and the prosecution of its predominantly youthful perpetrators; others petition authorities to recognise the social benefits to be derived from using *urban art* as a means of re-engaging disenfranchised young people back into society; and still others complain that these dichotomous viewpoints are both shifting the goalposts between 'vandalism' and 'art', and blurring the boundaries between what is deemed illegal and legal graffiti (Docuyanana, 2000; Halsey and Young, 2006; Schaeffer, 1996). It is little wonder then that government policy elites and the media have constructed an ideology of graffiti which is both accepted and at odds with the views of the general populace and with the lived experiences of graffitiists (Ferrell, 1993).

While debate continues as to how to situate graffiti in the 21st century, the cost of its removal and the damage it causes to property is undeniable. Typically, this cost is borne by taxpayers. For instance, the cost to Western Australian state taxpayers is estimated to be around \$25 million per year; to Australian taxpayers federally over \$300 million; and to taxpayers internationally, \$6.8 billion (Callinan, 2002; Halsey and Young, 2006; WALGA, 2006).

The majority of these removal costs are spent removing tags (the graffitiist's individual or crew's stylized street name moniker). These 'ego fingerprints' constitute not only the fundamental unit of graffiti production but also the basic means through which young, predominantly male graffitiists become attracted to risk, rebel against their abjection, create a voice, construct social identities, display allegiances, mark turf boundaries, and generate fame (Ferrell, 1993; Kan, 2001; Taylor et al., forthcoming). In light of this, tagging has been described as a social contagion resulting in the formation of a graffiti sub-culture. A sub-culture that is governed by its own codes, norms and requirements, is imbued with deliberate intent and meaning, and functions as a social capital resource for its members (Aguilar, 2000; MacGillivray and Curwen, 2007). By adopting the sub-culture's 'language' and engaging in its tagging practices adolescents become apprenticed to the sub-culture's more experienced members.

These experienced graffers are the sub-culture's self-appointed arbiters of taste, deciding which tags are 'toy' (i.e. amateur scribble), and which tags are of sufficient quality that they demand the respect of being allowed to stay up without being written over. Over time, through constant practice, the ability to write a quality tag is honed and perfected and, in turn, leads to the production of more elaborate *throws-ups* (i.e. quickly executed large, two or more coloured bubble-style rendition of the writer's tag) and *pieces* (i.e. very large, highly stylized multi-coloured rendition of an individual's or a crew's tag name or thematic design).

In addition, to the countless hours and funds spent on removing tags, throw-ups and pieces considerable resources are also spent on a plethora of ad hoc reactive and proactive graffiti prevention measures¹. However, many of these measures have been adopted without a credible body of empirical evidence to either support or negate their effectiveness. In some instances, the initiators of these reactive and proactive measures draw support for their use from an associate body of literature pertaining to the prevention of other aspects of youth anti-social/criminal behaviour (e.g. zero tolerance policing: see Newburn and Jones, 2007; cooling city centre crime: see Wootton and Marselle, 2008; camera surveillance at bus stops: see Doyle, 2003).

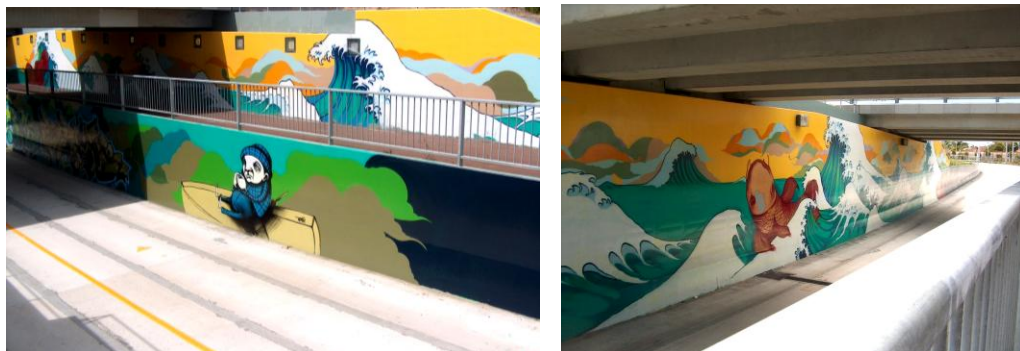
In Perth, Western Australia, the proactive graffiti deterrence measure of commissioning urban art murals in graffiti hotspots is gaining in popularity even though scant empirical evidence exists in regard to the practice's short and long term effectiveness. In 2006, in New Zealand, Craw and colleagues tried to address this research shortfall by conducting an evaluation of an urban artwork site (a wall 31.5 metres in length) which connected two major shopping streets. For the purpose of the study, the wall was sectioned into three, with Sections One and Two acting as controls for Section Three, the commissioned art-wall. Each section was monitored on alternate days over a two week baseline phase, and similarly across a two week intervention phase, then again once a month for three months in a follow-up monitoring phase. The results of the study showed that in Section 1, (an infrequently tagged 13.4 metre portion of the control wall) there was no significant difference in the amount of graffiti recorded across all three monitoring periods. It was hypothesized that the reason for the infrequency of tagging on this wall section was due to the increased risk taggers faced in being observed from the alley-way's main street entrance. Section Two, the 9.8 metre control wall section sandwiched between Section One and Section Three (the mural wall) became the main graffiti target, with a significant difference ($p < .0041$) occurring in the number of

¹ For example prompt removal, mobile CCTV cameras, protective wall coatings, planting vegetation in graffiti hotspots, caging spray-cans in stores, banning the sale of spray-cans and markers with a tip width greater than 6mm to minors, installing graffiti-report hotlines, awarding restitution orders, naming and shaming of adult offenders, designing out-crime in the built environment, commissioning urban art murals, providing mentorship programs for recidivist offenders, and enacting anti-graffiti publicity/educational campaigns

graffiti recorded between the baseline and follow-up monitoring periods. This Section Two increased graffiti count caused Craw and colleagues (2006) to suggest that a spread of grafter inhibition had occurred from the Section Three mural wall to the Section Two control wall. Finally, no graffiti were recorded on the 8.3 metre section of the mural wall during the intervention phase, and during the follow-up phase proportionally less (n=8 new graffiti) than at the baseline phase (n=14 new graffiti). The follow-up phase reoccurrence of graffiti on the mural wall caused Craw and colleagues to conclude that while wall murals do help to discourage graffiti attacks, they do not necessarily extinguish or prevent graffiti from occurring.

One of the limitations of the Craw et al. (2006) study was that it covered a restricted monitoring area. For instance, the opposing wall in the alley-way was not monitored even though “considerable graffiti was put on the opposite wall of the alley during the entire experiment” leading the research team to conclude “that the mural was shifting the focus of the writers’ attention barely meters away” (2006: 432). The present study addresses this monitoring limitation by not only reporting on a similar multiple baseline designed evaluation of an urban artwork site (i.e. two walls lining a bus entry/exit underpass at a commuter train station, and a cycle pathway-wall paralleling the underpass) (see Figures 1) but also reporting on the monitoring of a one square kilometre area surrounding the urban artwork site. The next portion of the paper details the research methodology used in this regard.

Figure 1: Zone 3 Bus-underpass and cycleway PTA commissioned artwork site



Method

Design

The one square kilometre urban art-site commissioned by the Public Transport Authority (PTA) of Western Australia was divided into eight zones. These zones were intermittently monitored over an 11 week period. The zones and monitoring periods are outlined below:

- Zone 1: incorporated a small convenience shopping/fast-food outlet centre, southwest of the urban art-site. The centre was located alongside the main traffic artery road from which side-roads exited into the surrounding residential areas.
- Zone 2: incorporated a footpath leading to and from the Zone 1 shopping/fast-food outlet centre to Zone 3, the urban art-wall bus underpass. The footpath, separated from the road by a continuous concrete barrier, was sandwiched between the main traffic artery road and a train track running parallel to the road.
- Zone 3: Incorporated the three art-walls constituting the urban artwork site.
- Zone 4: Incorporated both sides of a patterned brick wall separating the Zone 5 residential area from Zone 3.
- Zone 5: Incorporated a footpath leading eastwards to the crossroad which feeds traffic in and out of the commuter train-station. On one side of the pathway is verge-way and on the other side, houses.
- Zone 6: Commenced on the opposite side of the cross road to where Zone 5 ended and incorporated a second patterned brick-wall bordering a second residential area. The brick-wall, which was partially obliterated by shrubbery, ended at its intersection with the Zone 1 main traffic artery road.
- Zone 7: Commenced on the opposite side of the main traffic artery road to where Zone 6 ended and incorporated a mix of metal, asbestos and brick fencing that bordered a third residential area and ran westward to the northern most end of the train station which marked the beginning of Zone 8.
- Zone 8: Commenced at the end of Zone 7 and ran along the commuter train station's frontage and ended at the T-junction pathway intersection that marked the end of Zone 2 and the start of Zone 3.

Monitoring periods:

- *Week One: Pre-artwork monitoring period.* Three baseline frequency counts were conducted of graffiti images located in each of the site's eight zones.
- *Week Two: Site preparation and artwork completion.* Site preparation and commissioned artists' completion of Zone 3 urban artwork.
- *Weeks Three and Four: First post-art intervention monitoring period.* Three frequency counts were conducted of graffiti images located in each of the site's eight zones.

- *Week Five: Monitoring break.* A one week post-artwork monitoring break period.
- *Weeks Six and Seven: Second post-art intervention monitoring period.* Three frequency counts were conducted of graffiti images located in each of the site's eight zones.
- *Weeks Eight and Nine: Monitoring break.* A two week post-artwork monitoring break period.
- *Weeks Ten and Eleven: Third post-art follow-up monitoring period.* Three frequency counts were conducted of graffiti images located in each of the site's eight zones.

Data collection

Each individual graffiti image (tag, throw-up or piece) found in each of the eight zones during each of the four monitoring periods was photographed in situ (see e.g. Figure 2). Each image was recorded as a separate entity. As the intended analysis was based on a frequency count no distinction or allowance was made with regard to the size (big, small), type (tag, throw-up, piece) or style (wide, bubble, block, 3-D) of the recorded image. All the recorded frequency data were subsequently coded and entered into the SPSS statistical analysis program.

Figure 2: Examples of graffiti recorded in situ on the Zone 3 artwalls during the post monitoring phases

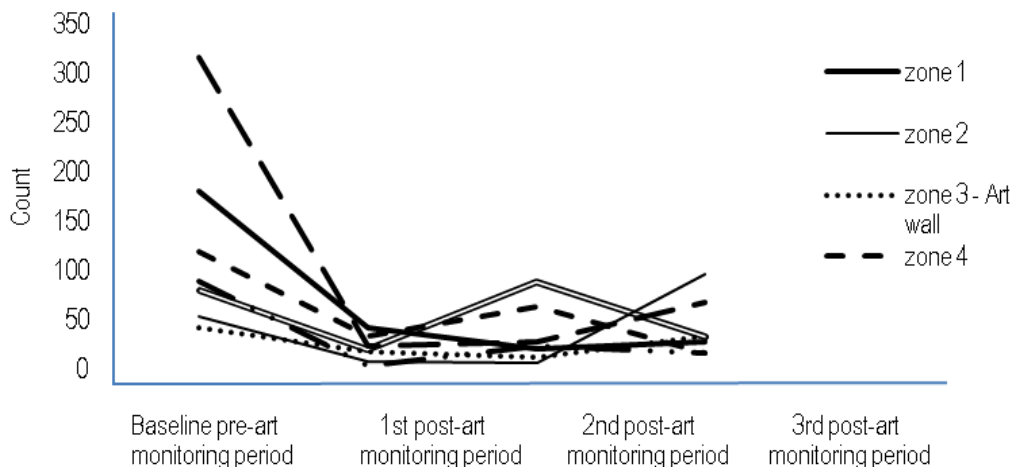


Data analysis

After an initial visual inspection of the graffiti count data, a decision was made to exclude Zone 8 from the analysis as the zone had a very low graffiti frequency count across all four monitoring periods² and represented only 1.2 percent of the total graffiti count. The reason for the low Zone 8 count is thought to be related to the fact that Zone 8 extends along the train station’s frontage and is comprehensively monitored by CCTV cameras and is also regularly patrolled by transit personnel, thus, making it a high capture risk area for graffiti.

A frequency count of graffiti recorded at the other seven monitored zones (i.e. Zones, 1-7) across each of the monitoring periods is provided in Figure 3. In addition, Table 1 details the graffiti counts and the count as a percentage of the total count overall.

Figure 3: The graffiti frequency counts for each of the monitoring period for each monitored zone



² i.e., baseline n=17; first post-art intervention monitoring period n=1; second post-art intervention monitoring period n=1; and third post-art follow-up monitoring period n=0

Table 1. Graffiti frequency counts (%) and chi-square values for each monitoring period for each zone

		Baseline pre-art monitoring period	1 st post-art monitoring period	2 nd post-art monitoring period	3 rd post-art monitoring period	Total	Component χ^2
Zone 1	Count	180	42	20	28	270	
	%	11.6%	2.7%	1.3%	1.8%	17.4%	
	χ^2	4.87	11.21	11.29	9.95		37.32*
Zone 2	Count	53	7	6	96	162	
	%	3.4%	0.5%	0.4%	6.2%	10.4%	
	χ^2	16.29	4.36	14.46	143.08		178.18*
Zone 3 –Art wall	Count	42	17	12	34	105	
	%	2.7%	1.1%	0.8%	2.2%	6.8%	
	χ^2	5.09	5.30	1.10	10.59		22.07*
Zone 4	Count	119	33	63	16	231	
	%	7.7%	2.1%	4.1%	1.0%	14.9%	
	χ^2	1.04	6.08	20.93	17.05		45.09*
Zone 5	Count	316	23	28	67	434	
	%	20.3%	1.5%	1.8%	4.3%	27.9%	
	χ^2	20.25	7.56	22.72	2.42		52.95*
Zone 6	Count	89	3	23	16	131	
	%	5.7%	0.2%	1.5%	1.0%	8.4%	
	χ^2	3.00	6.96	0.38	2.92		13.25*
Zone 7	Count	80	20	88	33	221	
	%	5.1%	1.3%	5.7%	2.1%	14.2%	
	χ^2	16.20	0.02	85.02	1.65		102.89*
Total		879	145	240	290	1554	
% of Total		56.6%	9.3%	15.4%	18.7%	100.0%	
Component χ^2		66.75*	41.48*	155.90*	187.64*		451.77*

*= $p < .01$

It can clearly be seen from Figure 1 and Table 1 that Zone 5 is the zone with the highest percentage count out of all the zones (i.e. 27.9 percent of the total graffiti count), with its baseline count of 20.3 percent contributing most to this high percentage. One explanation for this high count is that many of the graffiti recorded in this zone were written on private property or non-PTA public assets, and as such, were not cleared off as vigilantly as graffiti written on PTA assets. The swiftness of the PTA's removal, in particular of graffiti written on the Zone 3 art walls, could similarly account to some degree for the comparative lowness of the Zone 3 total graffiti count (i.e. 6.8 percent of the total graffiti count).

From Figure 1 and Table 1 it is also clear that the pre-art baseline monitoring period had a higher frequency count overall compared with

each of the subsequent post-art monitoring periods. The baseline count of graffiti was 56.6 percent of the total graffiti count. The count at the first post-art intervention monitoring period was 9.3 percent of the total, the count at the second post-art intervention monitoring period was 15.4 percent of the total and the count at the third post-art follow-up monitoring period was 18.7 percent of the total. In fact, the pre-art baseline monitoring period had a higher frequency count overall compared with all three post-art monitoring periods summed together. As previously alluded to, the most likely explanation for this anomaly is the slow removal of graffiti written on private property and non-PTA assets, particularly in Zone 5.

A chi-square test for independence was used to examine the relationship between the monitored zones' and the monitoring periods' graffiti counts. A non-significant chi-square test would indicate that the relative frequency distribution, that is the proportion of graffiti over the monitoring periods, is the same for all of the zones. On the contrary, a significant chi-square test would indicate that the frequency distribution of graffiti over the monitoring periods is different among the zones.

A chi-square test revealed that the frequency distribution of graffiti over the monitoring periods is different among the zones (χ^2 (21, n=1554) = 451.77, $p < .01$). This means that the pattern for at least one zone does not reflect the total pattern evident in Table 1³. This test result, however, does not give an indication as to which zone or zones are different from the overall pattern. For example, if there was a reduction in the amount of graffiti in Zone 3, the urban art-wall, after completion of the art-work, the frequency distribution for this zone would differ from the distributions of the other zones, and would result in a significant chi-square test. However, the significant result could also indicate that the frequency distribution of one of the other zones differed from the overall pattern.

Since this test result does not give an indication as to which of the zone or zones differ most from the others, we investigated the data in Table 1 more closely in the following way: For each cell of the contingency table, the cell chi-square value was calculated. This value reflects the difference between the count of graffiti for that cell and the expected value for that cell. The larger the value the more that cell count deviates from what is expected. Then, component chi-square values for each row and column, which are simply the sum of all chi-square values in the row or column, were calculated. The approximate significance of these component chi-square values was then determined. All these chi-square values are also shown in Table 1 and give an indication as to which cells contributed most to the significant chi-square test result.

This analysis revealed that the component chi-square values for each monitoring period as well as for each zone were all statistically significant. This means that the frequency distribution for all the zones

³ That is, 56.6 percent for the pre-art baseline monitoring period, 9.3 percent for the first post-art intervention monitoring period, 15.4 percent for the second post-art intervention monitoring period, and 18.7 percent for the third post-art follow-up monitoring period.

differed significantly from the overall pattern. Also, that the frequency distribution for each monitoring period differed significantly from the overall pattern. A closer inspection of the magnitude of the chi-square values for each cell in Table 1 reveals that the value for the third post-art follow-up monitoring period of Zone 2, 143.08, was especially high compared to the other values. This contributed to the high component chi-square value for this zone, 178.18. Similarly, the value for the second post-art intervention monitoring period of Zone 7, 85.02, was especially high compared to the other values. This contributed to the high component chi-square value for this zone, 102.89.

It is hypothesized that these two spikes are indicative of the highly impromptu nature of graffiti-writing. Given the variance in the data, it would seem that most graffiti renditions (i.e. tags) do not follow a set appearance pattern but are spontaneous (i.e. reflective of an impulsive urge or chance opportunity) rather than pre-meditated habitual occurrences. From Figure 1 and Table 1 it is clear these two zonal incidences were the only ones where the baseline count was not the highest for the zone. For all the other zones, the graffiti count was highest at baseline. The graffiti count was also highest at baseline for Zone 3, the art-wall. The component chi-square value for this zone, 22.07, even though significant, does not have a high magnitude. This suggests that the pattern over the four monitoring periods for this zone differs from the overall pattern, but not as much as Zones 2 and 7, for example, differ from the overall pattern.

Discussion and Conclusions

Unblemished public surfaces and structural assets are perceived by many adult tax-payers to be harbingers of public order and safety (Halsey and Young, 2006). However, graffiti writers rupture this adult orthodox sense of order and cleanliness by leaving physical evidence of their presence in and around public spaces in the form of graffiti tags, throw-ups, pieces, stencils, and paste-ups. In turn, many adults view graffers' tags (their ego-fingerprints) and other graffiti forms as being irrational wanton acts of vandalism (Halsey, 2002; Halsey and Young, 2006). However, Garner et al. (2006) maintain that graffiti tagging is a reflection of the society in which graffitiists live. Furthermore, Halsey and Young (2006) contend that society's predominantly youthful graffitiists do not view their writings as vandalism but rather an entirely rational acts that enliven otherwise boring public spaces. Indeed, rather than being perturbed about officialdom's prompt removal strategy which constantly eradicates their writings, they welcome the cleaning procedure as it provides them with a continuous supply of pristine canvases on which to practice their endless writing.

Given this youthful perspective, it is small wonder then that many Western Australian tax-payers support officialdom's introduction of a wide range of reactive anti-graffiti measures to control the escalating tax dollar amount being spent on graffiti removal, and also, support the

implementation of measures that punish graffitists. Despite this reactive and largely punitive approach, a growing number of Western Australians additionally support the introduction of proactive measures, such as the commissioning of urban art murals, which offer the potential for redirecting youth away from their graffiti writing activities. The Public Transport Authority (PTA) of Western Australia (who spend \$6,850 per day [approximately, \$2.5 million annually] removing graffiti and window scratching from their assets⁴) is one local authority that has spearheaded this approach over the last two years by embarking on an extensive programme of commissioning urban artworks in known graffiti hot-spots. However, little empirical evidence currently exists to support or negate their approach. Aware of this deficit, the PTA commissioned the present study to provide them with an understanding of the effectiveness of using urban art-walls as graffiti deterrence. In this regard, an evaluation was conducted of one of the PTA's 2008 commissioned urban artwork sites.

The results of the PTA commissioned evaluation actually mirror the results of an earlier New Zealand study conducted by Craw and colleagues (2006) insofar as both studies recorded the highest count of graffiti on their respective urban artwork sites during the baseline monitoring period, a sizeable decline in the frequency count of graffiti recorded in the monitoring periods immediately following the artwork's completion, and a significant increase in the amount of graffiti recorded at the urban artwork site during the final post-art follow-up monitoring period. Collectively, the findings of both these studies suggest that in the short term urban artworks do deter graffiti writers from writing on them. However, the results would also suggest that urban artworks do not in the longer term totally prevent the reappearance of graffiti. This, in turn, would further suggest the need for additional research to tease out the motives writers give for defacing urban artwork sites. For instance, it would be insightful to determine whether defacers of urban artworks are local graffitists staking a territorial claim to the site? Are taggers of urban artworks opportunistic local youth uninvolved in the urban art commissioning process? Are the tags written on artwork sites left by graffitists residing outside of the neighbourhood area as an acknowledgement of the skills of the commissioned artist(s)? Are the defacing tags of local taggers (or crews) left as a disrespecting rebuff either to the artist(s) for profiteering from the graffiti art-form, or to the commissioning entity for bringing external artists in to paint their turf? The answers to these types of questions will provide bodies seeking to use urban artworks as graffiti deterrence with meaningful insights into the graffiti culture which, in turn, would assist them in the planning of future urban artwork projects.

In conclusion, while the study failed to evidence a long term total cessation of graffiti on the studied urban artwork site, it did highlight the existence of graffiti spikes both on the artwork site and in the surrounding

⁴ R. Cochrane, Corporate Communications Officer, Public Transport Authority, August 12, 2009

areas. Moreover, these sporadic graffiti-writing spikes occurred in areas that were distinctly different from each other (i.e. shopping centres, pedestrian paths, residential areas etc). Therefore, while murals can be effective when the graffiti sub-culture's membership respect the skills of the mural artist(s) (Allen, 2007), the authors conclude that the commissioning of urban art murals (socially constructed artefacts) are not a general panacea for solving the graffiti proliferation problem. It may well be, as Frost (2003) suggests, that what is needed is a more holistic approach where different elements of the proposed artwork's overarching *social value* (i.e. its relatedness) are considered and negotiated between viewers and graffers to facilitate inclusionary rather than exclusionary avenues for youth. Such an approach would have long term benefits for society. Specifically, consideration is required of the artwork's *environmental value* (i.e. ensuring that it is written in mediums which do not jeopardise either the environment or the graffer); *economic value* (i.e. the reduction in taxpayer monies to be gained on cleaning and policing costs of the site; the creation of designs that enhance rather than detract from property values; and the provision of job opportunities for graffers); and the *aesthetic value* (i.e. colour form and composition of artwork). Indeed, Halsey (2002), and Halsey and Young (2006), conclude that what is needed is a non-homogenous solution because the present response to the costly problem of graffiti proliferation is largely ungovernable.

References

- Allen, D. (2007) *Fighting Graffiti: An Investigation of Causes and Solutions. A Report*, (NPCR 1252), compiled for the Standish Ericsson Neighbourhood Association, Available at: www.cura.umn.edu/search/index.php
- Alvi, S., Schwartz, M.D., DeKeeserdy, W.S. and Maume, M.O. (2001) 'Women's fear of crime in Canadian public housing', *Violence Against Women*, 7(6) 638-661.
- Aguilar, J. (2000) Chicano street signs: Graffiti as public literacy practice, ERIC document reproduction service #ED441891, Available at: www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=ED441891
- Callinan, R. (2002) *Dealing With Graffiti in New South Wales*, Briefing Paper 8, Canberra: Parliament House.
- Craw, J.P., Leland, L.S., Bussell, M.G., Munday, S.J. and Walsh, K. (2006) 'The mural as graffiti deterrence', *Environment and Behaviour*, 38(3) 422-434.
- Cohen, S. (1973) 'Property destruction: Motives and meanings', in C. Ward (ed.), *Vandalism*, London: Architectural Press.

- Docuyanana, F. (2000) 'Governing graffiti in contested urban spaces', *Political and Legal Anthropology Review*, 1(23) 103-121.
- Doyle, A. (2003) *Arresting Images: Crime and Policing in Front of the Television Camera*, Toronto: Toronto University Press.
- Ferrell, J. (1993) *Crimes of Style: Urban Graffiti and the Politics of Criminality*, New York: Garland.
- Frost, A. (2003) *Graffiti and public art*, Paper presented at the Graffiti and Disorder Conference, August, Brisbane, Australia.
- Garner, P., Rashid, O., Coulton, P. and Edwards, R. (2006) *The mobile phone as a digital spray can*, Available at:
<http://blogs.forum.nokia.com/index.php?op=ViewArticle&blogId=20409&articleId=89>
- Grant, C.M. (1996) 'Graffiti take a closer look', *The FBI Law Enforcement Bulletin*, 65, 11-15.
- Halsey, M. (2002) 'The meaning of graffiti and municipal administration', *The Australian and New Zealand Journal of Criminology*, 35(2) 165-186.
- Halsey, M. and Young, A. (2006) 'Our desires are ungovernable: Writing graffiti in urban space', *Theoretical Criminology*, 10(3) 275-306.
- Kan, K-H. (2001) 'Adolescents and graffiti', *Art education*, 54(1) 18-23.
- King, P. and Setter, M. (2003) Young people, graffiti and the community, Paper presented at the Graffiti and Disorder Conference, August, Brisbane, Australia.
- Lachmann, R. (1988) 'Graffiti as career and ideology', *American Journal of Sociology*, 94(2) 229-250.
- MacGillivray, L. and Curwen, M.S. (2007) 'Tagging as a social literacy practice', *Journal of Adolescent and Adult Literacy*, 50(5) 354-389.
- Newburn, T. and Jones, T. (2007) 'Symbolizing crime control: Reflections on zero tolerance', *Theoretical Criminology*, 11(2) 221-243.
- Schaeffer, P. (1996) 'Mural programs open ways for teens to paint their way out of inner cities', *Christian Science Monitor*, 88(204) 3-6.
- Taylor, M.F., Houghton, S. and Bednall, J. (forthcoming) 'Friendship and peer socialization practices among skateboarders and graffiti writers', in F. Columbus (ed.), *Friendships: Types, Cultural Variations and Psychological and Social Aspects*, New York: Nova Science Publishers Inc.

Western Australian Local Government Association (WALGA) (2006) *Call for levy on computer game sales*, January, Available at: www.walga.asn.au/news/mediaJanuary%202006/MR110106.

Wootton, A.B. and Marselle, M. (2008) 'City Centre Crime: Cooling crime hotspots by design', *Papers from the British Criminology Conference*, 8, 187-204.

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