Can I Touch This?

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Abstract: Building knowledge economies seems synonymous with re-imaging urban fabrics. Cities producing vibrant public realms are believed to have better success in distinguishing themselves within a highly competitive market. Many governments are heavily investing in cultural enhancements burgeoning distinctive cosmopolitan centers of which public art is emerging as a significant stakeholder. Brisbane's goal to grow a knowledge-based economy similarly addresses public art. To stimulate engagement with public art Brisbane City Council has delivered an online public art catalogue and assembled three public art trails, with a fourth newly augmented. While many pieces along these trails are obviously public others question the term 'public' through an obscured milieu where a 'look but don't touch' policy is subtly implied. This study investigates the interactional relationship between publics and public art, and in doing so, explores the concept of accessibility. This paper recommends that installations of sculpture within an emerging city should be considered in terms of economic output measured through the degree in which the public engages.

Art in a contemporary city

Contemporary cities transitioning from product-reliant entities to places of ideas are seeking to develop distinctive milieus (Cooke, 2002; Landry, 2000; Lever, 2002; Malecki, 2007). In *The Rise of the Creative Class*, Florida (2002) discusses how this paradigm has produced a highly flexible workforce, readily migrating to cities with 'the best lifestyle amenities' (Florida, 2005). While Storper and Manville (2006) adamantly disagree with this concept, other authors such as Jacobs (1961), whose work well preceded Florida, advocated successful cities market assets, "especially amenities". Landry (2000), Deagon (2003), Glaeser and Shapiro (2003) are equally convinced of the merit in apportioning cultural assets.

Art is a major facet of contemporary economies (Americans for the Arts, 2012). Helsinki, Hong-Kong, Melbourne and Singapore, are but a few acclaimed knowledge-based cities promoting art and culture as an integral part of their economy (City of Melbourne, 2013a; Van den Berg *et al.*, 2004; Hong Kong Arts Development Council, 2005; Yigitcanlar, 2009). Helsinki's art strategy is stated as "crucial to attracting key professionals" (City of Helsinki, 2008, p.4). The City of Helsinki has 400 public sculptures of which 50% are the responsibility of Helsinki Art Museum, whose annual budget is US$8.8M (AUD$10M) (Albright-Knox Art Gallery, 2013; Helsinki Art Museum, 2012). Hong Kong's 2012-2013 budget is anticipated to exceed HK$3B (AUD$434M), with 3% allocated to public artworks and museums (Hong Kong Government, 2012). Singapore has set aside SGD$231M (AUD$204M) which includes SGD$94M (AUD$83) (FY12-FY16) for emerging artist (Government of Singapore, 2013; 2013a), all part of a strategy to "fuse arts, business and technology for a unique competitive advantage" (ERC, 2002, p. iii), one which aspires to rival New York's creative status (Wong *et al.*, 2006). The US National Endowment for the Arts recommends art, not only as a way to improve aesthetics, but to spurn job creativity, productivity and economic prosperity (NEA, 2011). This fuels an international competitive industry (NEA, 2011) and might possibly suggest a correlation between Singapore's 2nd and Helsinki 3rd place ranking on the global competitive index (World Economic Forum, 2012) and their arts investments.

Structure of study

With substantial investments to promote public-art, the cost-effectiveness of permanent public works could and should be considered in terms of public responsiveness or interaction. This paper will consider the economic contributions made nationally, state-wide and locally. The argument that significant art investment can be cost effective will be demonstrated through the role of 'public' art generating visitation. Additionally the paper contends that sculpture offers something more in terms of engagement, a more encompassing freedom of expression, namely touch, and that a sculptures situatedness will either facilitate or hinder this activity which in turn will either improve or limit city vibrancy. Using Brisbane as a case study, sculptural interactions have been measured using a cost effective analysis so as to validate the economical return.

Art at home

A report commissioned by the Cultural Ministers' Council (CMC) found Australia, between 1999-2003 attracted 19.5 million cultural visitors, who on average spent 70% more than their non-cultural counterparts (CMC, 2003). By 2020 cultural visitors are expected to contribute AUD$30B toward the national economy (DSITIA, 2013). Queensland's art body, art + place, invested AUD$12M between 2007-2010, reporting that 96% of metropolitan Queenslanders engage in the arts and 80% advocate art a necessity for city vibrancy (Arts Queensland, 2012). The Queensland Minister of Arts was bemused at the axing of the program, declaring art to be pivotal to Brisbane's future investment policy (ABC, 2013). Not surprising given the program enabled fifty permanent and temporary public sculptures among other cultural initiatives (Queensland Government, 2013a).

The historical development of Brisbane's 'art economics' could be labelled adventurous. Brisbane City Council (BCC) in collaboration with the 'Landry' consultancy firm, developed Australia's first vanguard arts program, the Creative *City: Cultural Strategy 2003-2008* (Atkinson and Easthope, 2009; BCC, 2003). This eventuated in the establishment of Gallery of Modern Art (GOMA), arguably Australia's finest public art gallery (Hyatt, 2008). More recently, the *Brisbane Economic Development Plan 2012-2031* has continued to recognise the role that art plays in supporting a strong knowledge economy (BCC, 2013). Brisbane's *Art in Public Places* (BCC, 2013a) has equally responded to global competition, endorsing a similar dynamism by pursuing "outstanding public spaces" in alignment with BCC's desire to become "one of the world's great public art cities (BCC, 2013a)." To this end, art works are acquired through public-private ventures, capital-work projects, donations, gifts and a 0.25% for public art works (for central business district (CBD) developments) (Searle, 2013). The present estimated value of Brisbane's public art is approximately AUD$23M (Martin, 2013). BCC's AUD$257K annual art maintenance budget covers miscellaneous items including the establishment of the trails and advertising (Searle, 2013). These investments are indicative of the BCC's ambition to make art more accessible to the public (BCC, 2013a).

This paper focuses on four sculptures from BCC's advertised art trails (Figure 1) within the Brisbane CBD (forthwith called the CBD) in an attempt to determine if accessibility can be defined through publicness by way of interaction.

Figure 1. BCC Public art trail advertisements

Public art economy

Public art, which successfully attract participation has been shown to generate investment. For example, New York City's *Waterfalls* is believed to have contributed US$69M (AUD$77M) to a US$28B (AUD$31B) art/ culture enterprise (City of New York, 2013a). Similarly, Kapoor's flagship installation, *Cloud Gate* in Millennium Park is said to have contributed in excess of US$1.4B (AUD$1.6B) (Mikulenka, 2011) towards Chicago's economy (Port of San Diego, 2013). Arguably, *Cloudgate*'s fabrication costs lay somewhere between US$11.5M (AUD$12.9M) and US$23M (AUD$25.8) (Artefaqs, 2013; Harris, 2005). Though substantial, the cost-effectiveness of the 'bean' is measurable in its ability to excite audience participation (Smith, 2008). Having received one million visitors during its initial six weeks and approximately four million annually, any assessment of its value needs to consider both monetary and interaction metrics (Goodman William Group, 2005). In light of this, Los Angeles, Civic Park has modeled an enlivenment strategy on Millennium Park's successful art applications by adopting higher quality public art to improve interactive capacity (Yom, 2007).

Despite Chicago's newfound marketability in the 'bean', an insidious privatization of the 'public' good arose through undisclosed costs, namely a 'no touch' policy and the financial regulating of photography (Hauck 2005). There is consensus that a marketable city is photogenic, meaning the attributes of the city such as its artwork are globally sort out (Hosper, 2009; Smith, 2007; Urry 1995).

Putting the 'public' in public art

The situatedndss of art is pivotal for public accessibility. The word 'public' stems from the Latin words *populous* or populicus, meaning 'mass population sharing commonalities'. It is in this context that this study defines public art. Foremost it is publicly accessible and is commissioned for public space (Hutchinson, 2002). This is in contrast to public art in privately owned space practiced in much urban regeneration (BCC, 2013a; DSITIA, 2013a). Cordes and Goldfarb's (1996) principle of accessibility expands the proposition for public art to the practice of social inclusion, which explains why the articulation of 'public' art may be problematic in quasi-public arenas. Similarly, Lloyd and Auld (2003) found this very same struggle between economic investment and the semiotic protection of social inclusion when such space is programmed with do's and do-not's regulating permissible behaviours.

The right to 'freely participate …and enjoy art' (UN, 1948, article 27) obliges public space to provide a democratic milieu for liberal expression (Balkin 2004). However, Kwon (2004) questions the legitimacy of public art and its situatedness. Foote, Tóth and Árvay (2000) acquiesce that public art, especially monumental sculptures, have often been scrutinised with suspicion due to their situatedness. The public square ridiculed, as a rostrum by which political values are projected onto citizens (Hein, 1996). Sandercock (2006) concurs; that valorised values become unavoidable in such thematic constructs, yet proposes, that perhaps, the 'public', of public squares could be presumed an opportunity for public expression. Kohn (2004,) suggests that 'public commons' represent the only recognised places of democratic voice, which within a privatised context is lost. Hall and Robertson (2001) contradict both ideas, professing public art as a semantic narrative while other authors uphold contextual situatedness as a means to strengthen local identity and foster civic pride (McCarthy, 2006; Miles 1997).

Either way, Lefebvre (1991) advocates that space is decipherable, which Casey (1993) affirms when describing how individuals adumbrate space in terms of openness or 'play-space' gauging the measure of publicness before exploration. Kwon (2004) similarly concludes that publics read accessibility. Dutoit (2007), Hillier (1989) and Nasar (1997) also accede that legibility dictates the pattern of engagement, Zacharias (2001) concurs; detailing visual cues which moderate participation. Schmidt, Nemeth and Botsford (2011) refer to this as 'filtering' an audience. William H. Whyte's seminal work *The Social Life of Small Urban Spaces* makes reference to Dubuffet's 'Four Trees ' in Chase Manhattan Plaza, noting that people "stand under it; beside it; touch it; [and] talk about it", its situatedness Whyte claimed was the driving factor spurning interaction (Whyte, 1980, p.96). Smith (1995) however, introduces an argument as to the quality of art, which questions not just the location. According to Moughtin *et al.* (1995, p. 1), "all public art should be judged as an attempt to adorn the city", but without an interchange art remains purely decorative (Habermas, 1929).

The art of touch

For art therefore to be accessibility it should beacon participation. Sculpture has an advantage in offering the sensation of touch (Hutchinson, 2002). It has been inferred than all humans have a prehensile desire for interaction and a proclivity for touch (Pantzar, 2000). The Johns Hopkins Brain Science Institute in partnership with the Walter Art Museum has invested years into understanding tactile engagement (Lunday, 2013). In addition to providing therapeutic and psychological benefits (Kilcoyn, 1991) tactility can evoke the imagination and fulfil curiosity (Joy, 2003).

Writing in *The book of Touch,* Classen (2005), reasons that the eschewal shrouding 'no touch' policies in galleries reflect indoctrinated values of 'enlightened' notoriety, attributable to Darwin and Freud, who built on Plato's and Aristotle's cardinal views of touch (Johnson, 2002). Stigmas associated with touch seem ingrained in societal etiquettes and therefore may similarly be reflected in outdoor behaviours. 'No touch' policies exist today usually for purely pragmatic reasons, fragility and spoil (Todd and Lawson, 2001), however, such ailments extend beyond gallery walls, highlighting the need for public artworks to be robust enough to handle a molestation of hands. Often flagship art, due to its fabrication, such as the 'bean' is especially susceptible to damage (ACC, 2009; Basillo, Briggs and Griffith, 2008).

Studies by Candlin (2004) and Classen (2005) both reported a sense of exhilaration and ownership where participant's tactilely engaged with art. Although these studies observed visually impaired participants, the principle holds true, that the removal of distance between the object and subject is 'paramount' to forming intimate dialogue (Classen, 2012). Benedetto Varchi (1502-1565), a sixteenth-century historian (cited in Cranston 2003, pp.238-239), similarly contended that to truly appreciate sculpture you must be able to touch it, as did Robert Hooke (1635-1703), a seventeen century philosopher, who argued that "manual handing" was no mere compliment to "ocular inspection", rather it was the fundament to understand the object (cited in Arnold, 2003, p.76). Lorenzo Ghiberti (cited in Smith and Wilde, 2002, p.64) a fifteenth century sculptor, exclaimed of the hidden intricacies which the

"eyes would not have discovered, had not the hand sought it out". Authors advocate touch as the compelling evidence of truth and the way in which to understand ones environment (Fitts and Posner, 1976; Summers, 1987).

Two noted sculptors of the 20th century, the first being Dame Barbara Hepworth, advocated tactility, believing touch to be "a fundamental sensibility" (The Independent, 24 October, 1998). The other, Henry Moore, believed tactility allowed the only physical detachment from constraints (Getsby, 2008). Read's buttress of Moore's sculpture was that it "gives satisfaction in the touching" (Read cited in Getsby, 2008, p.80).

Sculpture may also expound the term 'public' by inducing play (Huizinga, 1970). Play in this study does not cover the array of actions as Stevens (2007) defines play; rather this study narrowly defines a behaviour, which extends beyond a passing touch and is playful in action. Play represents freedom to engage, which Biesta (2012) argues is a measure of ones capacity for action.

Methods

A personal survey of BCC's three art trails was conducted in March 2013 (before the inclusion of *Expo 88,* the fourth trail). To determine a manageable comparative selection for observation a categorisation of scale and surrounding characteristics was established. Both the *Contemporary* and the *Cultural Heritage* trails were deemed to offer propinquity opportunities. The *Art and River* trail was felt ineligible for study inclusion. It lay outside the CBD area, with a leniency toward 'end destination encounters' having artworks localised to a 'park' setting'. The scope of this analysis pertains to four sculptures (Figure 2), two from each of the selected trail, which responded to the p rofile of 'touchable'.

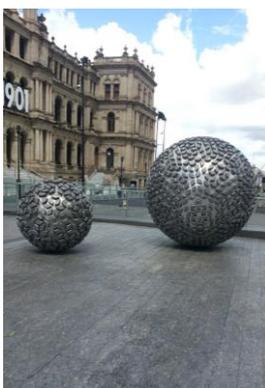**Figure 2.** Subject art trail sculptures in the CBD Source: Google Maps

Figure 3. *Steam*, Brisbane Square

Figure 4. *Kernel,* Anne Street entry

Figure 5. *Lions*, looking toward City Hall

Figure 6. *Petrie Tableau: Kangaroos*, looking north

Selected from the *Contemporary* trail, '*Steam'* (Figure 3), commissioned in 2006 is located in the Brisbane Square. Its current estimated value according to the BCC is AUD$400K (Searl, 2013). *Steam* is a composite installation of aluminium sphere-shaped sculptures scattered across the square enforcing a degree of pedestrian navigation, thereby provoking interaction. A provision of casual public seating invites audience as do the variety of food outlets (Gehl, 2011). Each sculpture is affixed directly to the material of the square and are of human scale with the largest being approximately two meters in diameter. *Steam* is clearly public with accessibility advocated through its situatedness.

The second sculpture from this trail, *Kernel* (Figure 4), was selected from the three-staged series '*Falling From Above – Husk, Kernel and Returning*' commissioned in 2009 with a current estimated value of AUD$475K (Searle, 2013). The timber installation being five metres in height sits within the cross-link between the dual Telstra buildings. The link enhances permeability and has a good sense of enclosure (Carmona *et al.,* 2003). Internal activities are limited to a post office, and two upmarket cafés at the eastern end. In anticipation of lunch usage, eleven fixed and formally distributed tables ranging in distance from two and twenty metres from the sculpture. However, the closeness of these tables has the potential to influence a degree of interaction. The presence of surveillance, and Telstra's expansive glass foyer creates a 'fish bowl' extension of the building into the plaza, which may also affect the legibility of the space and consequently, the 'publicness' of the sculpture. In addition the change in tile where the sculpture is affixed may equally signal a feeling of 'no, can't touch this'. This piece was selected in preference to *Trickle*, which is situated within a foyer rather than outdoors.

The next two sculptures selected from the *Cultural Heritage* trail are situated within a high movement corridor, King George Square, a 'dominant square' with City Hall serving as the focal point (Zucker, 1959) having informal seating orientated towards the Hall. The first, being *Lions* (Figure 5), was commissioned in 1938 and is presently valued at AUD$300K (Searle, 2013). At life-scale, the pair rest upon 500mm marble topped podiums gracing the entrance of the Hall. Their bronze casts are smooth indicating 'formality' and their positioning alludes to expectations of behaviour (Burke, 1950).

The second of these two sculptures, *Petrie Tableau* (Figure 6) was commissioned in 1990 and consists of two separate elements (Searle, 2013). An early settler family rests upon a two-metre podium and are thus excluded from observation. However, the pair of life-scale kangaroos is affixed directly onto the material of the square, and for the purposes of this study will be referred to as *Kangaroos.* Their current estimated value is AUD$450K (Searle, 2013). As iconic symbols of Australiana, they represent novelty Australian tourism at its most obvious (Hill, Arthurson, and Chalip, 2001), and are contextual in relation to universal audiences (Hoffie, 2010) suggesting their situating is purposefully inclusive. *Kangaroos* was selected over *Speakers* (also in the square), as the latter were not in the pedestrian flow or street view.

Study measures
As public interaction with art can manifest itself by a number of activities, the research was framed to investigate three levels of interaction intensity. These levels were deemed to be the primary outcomes of interest. The levels were termed: low level interaction intensity, medium level interaction intensity and high level interaction intensity. The activities of touching or playing on the sculpture were considered examples of high intensity, while medium intensity was solely equated to photographing the sculpture. Stopping momentarily (>2sec) or reading plaques were defined as being of low intensity.

The independent variable of interest was '*perceived as public'* (unclear accessibility vs clear accessibility) and denoted by PAP. As a belief or feeling, it does not translate into a definition with universal acknowledgement; its description is reliant on personal interpretation. However, similar scaling of contact has been used (Gehl 2011). Public squares by their nature are widely perceived as 'public', therefore are preferable milieus for subject selection (Gehl, 2011). Foyers or spaces directly adjoining architecture that present particular 'status' symbology, formalities or highly articulated spatial qualities imply certain qualifies for access (Carmona *et al.,* 2003; Davis, 1990), and thus are not readily perceived as 'public'.

Other covariate measures included: public holiday (no vs yes), rain (no vs yes), temperature (^{o}C), time of day (AM vs PM) and weekday (no vs yes). Cost data was also collected for the purposes of an economic evaluation by way of a cost-effectiveness analysis. As annual cost data was aggregated for BCC's complete public art portfolio, costs specifically associated with each of the four sculptures were estimated on a pro-rata basis using current market valuations. The research perspective was solely institutional (i.e. BCC), and no cost data was sourced from the public or from any third-party entity.

Sample recruitment
Data was collected by observing public interaction with the four sculptures. The observation protocol involved a systematic walk through the CBD. During these walks, five minute snapshots of public interaction with each sculpture were conducted and recorded. To negate selection bias, a random sampling procedure for potential snapshots between March 2013 and July 2013 was performed using a Google Search Random and Time Generator (FYI, 2013). Power calculations were subsequently

undertaken in order to identify the required number of observations such that the statistical analyses would have 80% power at the 5% level of significance.

Statistical and cost-effectiveness analyses

Summary statistics were computed using frequencies and percentages for categorical variables and means, standard deviations, medians, and interquartile ranges (IQRs) for continuous variables. For each level of interaction intensity, linear regression was used to identify and measure associations. Firstly, univariable linear regression modelling was undertaken to identify covariates statistically significant at the 10% level. Covariates reaching significance were then incorporated into the multivariable modelling. In addition PAP was forced into each of these models, due to it being independent variable of interest. Potential effect modification was also tested at the 10% level. Regression coefficients (β) and their accompanying 95% CIs were then calculated. All reported *P*-values are 2-sided, and P<0.05 was considered statistically significant in the multivariable modelling. For comparative assessment of sculpture cost-effectiveness, current values of each sculpture were divided by interaction frequencies estimated to occur in a random 24-hour interval. Each cost-effective estimate (per 100 interactions) was subjected to a sensitivity analysis, where interaction frequencies were increased and decreased by 50% from their baseline values. All statistical analyses were performed using Stata version 12.1 (StataCorp, College Station, Texas).

Results

Data used in this study was collected between the 30th of March 2013 and the 1st of May 2013. Each of the four sculptures was observed on 13 separate occasions during this period. Each observation was of five minutes duration, thus providing 65 minutes of observance time for each sculpture. The date and time of each observance was randomly selected to occur between 8am and 8pm, irrespective of climatic conditions (rain event or temperature), day of the week and holiday occurrence. The majority of these observation periods occurred: in the afternoon (n=9; 69.2%), on a weekday (n=10; 76.9%), and outside of public holidays (n=11; 84.6%). From a climatic perspective, the vast majority of observances occurred on non-rain event days (n=12; 92.3%), while temperatures ranged between 20°C and 24°C (average=22°C; standard deviation=1.2°C)

Table 1 shows total observed interactions (n=2484) during the study period for each sculpture. *Lions* (n=1007; 40.5%) had the highest number of interactions while the *Kernel* (n=236; 9.5%) had the least. Other than the *Kernel,* distributions for each sculpture exhibited a high degree of dispersion as measured by their IQRs. The number of interactions between sculptures perceived to have clear accessibility, such as the *Kangaroos* and *Steam,* were comparable (1241 vs.1243) to those perceived to have unclear accessibility (i.e. *Lions* and *Kernel).*

Table 1: Combined interactions (low, medium and high intensity) with sculptures in the Brisbane CBD from March 2013 to May 2013

Sculpture	N (%)	Minimum	Maximum	Median	Interquartile range
Perceived as public: clear accessibility					
Kangaroos	465 (18.7)	3	126	15.5	12 - 96
Steam	776 (31.2)	0	141	71	4 - 99
	1241				
Perceived as public: unclear accessibility					
Lions	1007 (40.5)	0	156	89	3 - 128
Kernel	236 (9.5)	1	38	14	12 - 27
	1243				
Combined	2484 (100)	33	313	176	128 - 280

Note: All observation periods were of 5 minutes duration

As shown in Table 2, the most common level of interaction intensity was low (n=2158; 86.9%). The number of medium (n=170; 6.8%) and high (n=156; 6.3%) level intensity interactions were seen to be comparable. This comparability was reflected in their distribution characteristics, with medians being 12 and 13 respectively, while corresponding IQRs were 5 and 7. However, the distribution of low intensity interaction was vastly different, having an IQR of 157 and a median of 148.

Table 2: Intensity of interaction with sculptures in the Brisbane Central Business district from March 2013 to May 2013

Interaction intensity	N (%)	Minimum	Maximum	Median	Interquartile Range
Low level	2158 (86.9)	12	294	148	102 - 269
Medium level	170 (6.8)	6	32	13	9 - 14
High level	156 (6.3)	3	34	12	7 - 14
All levels	2484 (100)	33	313	176	128 - 280

Note: Each observation totalled 20 minutes as each of the 4 sculptures were observed for 5 minutes on each occasion

Table 3 shows results from the multivariable analysis, with low intensity interaction, medium intensity interaction and high intensity interaction being modelled as primary outcomes of interest in Models 1 - 3 respectively. The covariates: temperature, weekday and rain were retained in the final modelling as a consequence of reaching statistical significance in the univariable modelling. Conversely, time of day and public holidays were not retained as they failed to reach significance. No interaction effect was found to be significant. After adjustment for other model covariates, PAP was found to be significantly related to both medium intensity interaction (β: 1.40; 95% CI: 0.82 to 1.97) and high intensity interaction (β: 2.54; 95% CI: 1.68 to 3.40). No significant association however was found to exist between PAP and low intensity interaction (β: 31.54: 95% CI: -2.17 to 65.26). Post-hoc power analyses performed across the three models indicated sufficient sample size, as average power was in excess of 80% (i.e. 85%). Adjusted R^2 ranged from a low of 0.06 (Model 1) to a high of 0.26 (Model 3), thus identifying model 3 as having the highest predictive power.

Table 4 shows the results from cost-effectiveness and sensitivity analyses. Though combined annual costs for the two sculptures considered to have clear accessibility were greater than those considered to have unclear accessibility (AUD$9,495 vs AUD$8,657), this difference was more than offset by the higher number of interactions. In the base-case, the number of medium and high level intensity interactions for the sculptures perceived to have clear accessibility was nearly 7-fold those of the sculptures perceived to have unclear accessibility (1,148,234 vs 168,809). Consequently, sculptures perceived having clear accessibility were found to be more cost-effective than those to the contrary (AUD$0.83 vs. AUD$5.10). Furthermore, this result was seen to be robust to interaction variability by a sensitivity analysis, as the result remained unchanged even when the number of interactions were decreased by 50% (AUD$1.65 vs AUD$10.20) or increased by 50% (AUD$0.55 vs AUD$3.40).

Table 4: Annual costs[a], interactions (medium and high-intensity) and costs per 100 interactions for sculpture perceived as having clear accessibility and those having unclear accessibility

	Sculpture perceived as having clear accessibility (*Kangaroos* and *Steam*)	Sculpture perceived as having unclear accessibility (*Kernel* and *Lions*)
Base-case		
Costs[b]	$9,495	$8,657
Interactions[c]	1,148,234	169,809
Cost per 100 interactions	$0.83	$5.10
Low estimate[d]		
Costs[b]	$9,495	$8,657
Interactions[c]	574,117	84,905
Cost per 100 interactions	$1.65	$10.20
High estimate[e]		
Costs[b]	$9,495	$8,657
Interactions[c]	1,722,351	254,714
Cost per 100 interactions	$0.55	$3.40

[a] Australian dollars

[b] Based on a pro-rata basis, given that: 2013 valuation of BCC's portfolio of public art=AUD$23M which includes Kangaroos (AUD$450,000), Steam (AUD$400,000), Kernel (AUD$475,000), and Lions (AUD$300,000) ; and BCC's operating expense budget for 2012/13 being AUD$257,000

[c] Based on annual projections with actual medium and low intensity interactions being extrapolated by a multiplying factor, Kangaroos (AUD$450,000); Steam (AUD$400,000); Kernel (AUD$475,000); and Lions (AUD$300,000)minutes (i.e. total study observance time) to a period of one year

[d] Number of base-case interactions – 50% [e] Number of base-case interactions + 50%

Table 3: Multivariable analyses for low, medium and high intensity interactions (N=2484) with sculptures in the Brisbane CBD between March and May 2013

		Interaction intensity level							
		Model 1 **Low level**			**Model 2** **Medium level**			**Model 3** **High level**	
Variable	**β**	**95% CI**	**P-value**	**β**	**95% CI**	**P-value**	**β**	**95% CI**	**P-value**
Perceived as public									
Unclear accessibility	Ref.			Ref.			Ref.		
Clear accessibility	31.54	-2.17 to 65.26	0.07	1.40	0.82 to 1.97	<0.01	2.54	1.68 to 3.40	<0.01
Temperature	-7.55	-21.90 to 6.57	0.28	-0.18	-0.44 to 0.08	0.17	-0.27	-0.66 to 0.12	0.17
Weekday									
No	Ref.			Ref.			Ref.		
Yes	33.79	-8.47 to 76.06	0.11	-0.70	-1.50 to 0.10	0.08	-0.94	-2.14 to 0.27	0.13
Rain									
No	Ref.			Ref.			Ref.		
Yes	-3.71	-53.50 to 46.08	0.88	-0.26	-1.34 to 0.82	0.64	-1.06	-2.69 to 0.57	0.20
Model diagnostics		F(4,29)=1.56 *P*-value=0.21 Adjusted R-squared = 0.06			F(4,149)=7.16 *P*-value<0.01 Adjusted R-squared = 0.14			F(4,99)=10.17 *P*-value<0.01 Adjusted R-squared=0.26	

Abbreviations: β, regression coefficient; CI: confidence interval

Discussion and conclusion

The findings support the hypothesis that sculptures within a clearly public milieu are more accessible. It can also be claimed that accessibility has a positive association with interaction, specifically medium or high-intensity interactions. Due to low precision, however, these findings were not replicated for low-intensity interaction. While not statistically significant, the effect was nevertheless positive. Interaction, irrespective of intensity level was uninfluenced by any other factor. In essence, the detected relationship between sculptures such as *Steam* and *Kangaroos* and interaction emphasis the benefits of overt 'public' arenas

Comparatively, the reduced amount of high-intensity interaction with the *Lions* and the *Kernel* appears to support Carmona *et al.* (2003) explanation of unclear readability; if the space is not directly perceived as public consequential questioning 'can I touch this?' most probably will ensue. Subtle signals identified by Knox (cited in Carmona *et al.,* 2003, pp.93-94) assert that visual cues are woven into architecture and material finish. A sense of familiarity may provide clues as to why only one high-intensity interaction occurred with the *Kernel*; a male in a security uniform ran his fingers along the sculpture as he moved by. Additionally all but one photo was taken without entering the cross-link.

A security desk directly behind *Steam* within Telstra's glassed foyer signals monitored space, which Fluster (cited in Carmona *et al.,* 2003, p.127) labels 'jittery' because it disturbs free participation. Subtle controls, lack of public amenities, limited food outlets (upmarket only) likewise may discourage 'public' participation by signalling particular clientele (Carmona *et al.,* 2003).

The lack of high-intensity interaction directed at the *Lions* seems to support architectural cues and situatedness signalling behavioural expectations (Allen, 2006). The only high-intensity interaction prior to King George Square's besetment by a touring show was an adult seen to sit on the lion's back, but with considerable cautiousness. However, when temporarily cordoning occurred around the *Kangaroos* (events) as well as *Steam* (i.e. market days) the adjacent sculptures, namely elements of *Steam* not cordoned and the *Lions* became regular leaning posts and make-do tables. The change in the situatedness of the sculpture introduced a new reading of the space. Nash's (1981) study of changes in social norms aligned to climatic changes could be extrapolated to explain why 'don'ts' are perceived as 'dos'.

Some limitations warrant acknowledgement, in particularly generalizability. The data comparison was restrictive with only four sculptures. Whilst the study was adequately powered, some covariate data did not fully capture the full range of possible values (e.g. participant type, perception of art quality (argued by Smith (1995)), and full seasonal adjustment). Additionally, considering this study was based on the BCC's art trail initiative the study was unable to determine whether participants were aware of the advertisements or art trails. Interestingly, no contact was recorded for a group of art trailers at *Steam* during a July observation. This provision alone may not necessarily publicise tactile accessibility, possibly indicating that touch requires permission by way of encouragement or example.

It is envisaged that further research could investigate the reading of 'publicness' with familiarity of place by distinguishing local or visitor interactions and the concept of 'sense of place' through a continuum of dialogue (Carmona *et al.*, 2003). The argument may be that the initial experience of touch is strengthened by subsequent passive engagement (Lynch, 1960). This theory would more than likely increase the cost-effectiveness of a sculpture, if additional benefits such as quality of life and sense of place resulted. Conversely, serendipitous discoveries (Lynch, 1960) may endure as meaningful memories; highlighting the potential thoughtfully situated artworks have in creating city vibrancy.

The economic evaluation of this study found highly accessible sculpture to be more cost effective than sculpture which legibility is unclear. This finding not only means that BCC can direct art expenditure to capture a wider audience but that sculpture can be utilised for the effective marketability of Brisbane, thus helping Brisbane achieve its desired art status.

'If people can they will'. The perceived publicness of a milieu has been found to have a clear association with the degree to which publics interact with sculpture. Namely, accessible sculptures illicit touch, with their greatest expression of freedom exercised through play. This evidence therefore advocates 'public' placement of sculpture. By doing so, municipalities can potentially create "outstanding" participatory public realms, vibrant and engaging to the maximum degree possible. If one was to cannibalize popular culture – "if you build it, make sure it is accessible!"

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