

# Theory of Place in Public Space

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## ABSTRACT

In urban environments where space is at a premium and compatibility of design attributes and activities pre-requisite, design increasingly relies on place-making to ensure public spaces are well used. While observations of person environment interactions and surveys of activity and functions associated with physical settings are important in place-making, neither place-making nor the theory of place upon which it is based describe how preferences are derived and applied. Place-making designs rely on explication of a process which remains uncrystallised in theory. Using the framework of the theory of place, this research examines public space preferences as a function of affective and cognitive processing of design elements. The results indicate that public spaces are evaluated for behaviour using an affective image of the space and a cognitive focus on elements within that space. The results indicate that use of public space is derived from an affective image and cognitive focus framed by anticipated behaviour. The relevance of this process are discussed for place-making, design, and recent planning initiatives to improve decision making and communication with users of public space.

Keywords: Theory of Place; Place-making; Nature; Public space; Design elements.

## INTRODUCTION

In urban environments where space is at a premium and compatibility of design attributes and activities pre-requisite, place-making is increasingly being used to ensure small urban public spaces are well used (Carmona, 2010; Cresswell, 2009; Dovey, 2010). Place-making is a person centred design methodology based on the theory of place (Canter, 1977; Relph, 1976), where people's association of activity and functions with physical spaces are used to design public space. However, while observations and recordings of person environment interactions are becoming increasingly detailed in the types of information they document, explication of the underlying interactive process between mental image, physical setting and behaviour remains uncrystallised (Lewicka, 2011).

### Theory of Place

The theory of place emerged from Barker's 1950's research on behaviour settings in the field of ecological psychology. Behaviour settings provided functional descriptions of everyday human activity based on observations of people in places. Recurrent behaviour of individuals or groups (football game, piano lesson) were described within physical milieu (football stadium, church) (Barker, 1968; Schoggen, 1989). By the 1970s, the description of behaviour settings expanded to include personal experience (Tuan, 1977) in what Relph (1976) and Canter (1977) referred to as identity of place.

*"While place meanings are rooted in the physical setting and its activities, they are not a property of them but a property of human interaction and experiences of those places"  
(Relph 1976:47).*

Canter referred to place meanings as conceptions, stressing the importance of experience and choice in identity of place.

*“We have not fully identified the place until we know a) what behaviour is associated with, or it is anticipated will be housed in, a given locus, b) what the physical parameters of that setting are, and c) the description, or conception, which people hold of that behaviour in that physical environment.” (Canter, 1977:58-59)*

Cresswell (2009) saw place as a combination of materiality, meaning and practice.

*“The material topography of place is made by people doing things according to the meaning they might wish a place to evoke. Meanings gain a measure of persistence when they are inscribed into the material landscape but are open to contestation by practices that do not conform to the expectations that come with place.” (Cresswell, 2009:170)*

In each model, place is a personal connection with activities and functions which are geographically located. It exists at the level of the individual and is at the same time shared to the extent that lived experiences relate. Collectively, a shared similarity of social, economic, and cultural surroundings will ensuring consistency in how physical settings are used or left unused.

Public spaces have been found to be consistently well used when they are “... responsive to needs of users, democratic in their accessibility, and meaningful for the larger community and society” (Francis, 2003:1). To achieve popularity with new designs, participatory place-making identifies elements of interest for the target user population and incorporates them into the design. User participation during the design process validates the design and ensures success of place-making in a competition to sell urban environments (Carmona, 2010; Strydom & Puren, 2013). However, the enduring success of place-making is constrained by the extent to which the snapshot used to define contexts of ongoing activity accommodates changing wants and needs of user populations and changing user populations. When they cease to afford opportunities in lived experience, once successful spaces become placeless (Beer, 1991; Carr et al., 1992; Francis, 2003).

Underlying this issue is that neither place-making nor theory of place describe how physical settings are defined and redefined by users. Place is not a bounded territory described by the intersection of three discrete entities at a point in time, but a niche of experiences including social and cultural aspects of occurring activities in ongoing contexts (Canter, 1997). Therefore, to understand why public spaces are well used or placeless, it is necessary to describe the inter-relationship between mental image and physical settings influence on behaviour (Canter, 2008; Motloch, 2000).

## **Affect and Cognition**

In *The Meaning of the Built Environment*, Rapoport (1982) describes initial perception of environments as an affective image and that this initial feeling frames subsequent analysis, evaluation and decisions about the space. While Kaplan's (1987; 1995) argues perception is related to mental representation, a gradual process comparing past experiences with the present, and Motloch (2000) describes a process of setting appraisal followed by a second inter-related process of evaluation, research indicates that affect is not preceded by a cognitive process but is precognitive and constitutes the initial level of response (Dixon, 1981). Results from preference, attitude, impression formation, and decision making research, and clinical phenomena indicate that "affective reactions to stimuli are often the very first

reactions of the organism ... can occur without extensive perceptual and cognitive encoding, are made with greater confidence than cognitive judgements, and can be made sooner" (Zajonc, 1980:151).

The primacy of affect is consistent with experimental research which has demonstrated that stimuli are preferred if they have previously been experienced, even though the individual may not be consciously aware of that experience. Furthermore, the greater the frequency of previous exposure, the stronger the preference and, if the exposure is related to salient prior experience, then subsequent interaction will reflect this (Zajonc, 2001). This is evident in Sonnenfeld's (1966) cross-cultural comparison of Delaware and North Alaska residents' landscape preferences with the population living in Alaska generally preferring landscape spaces which were consistent with their home environments.

*... there are cultural differences, sex differences, and age differences apparent in the kinds of landscapes that various populations prefer. For a mixed population in a given area there are native/non-native differences in landscape preferences based on environmental experience, occupational orientation, and hypothesized personality contrasts (Sonnenfeld, 1966: 72).*

Although group preference is concordant with their respective spatial experiences, the variety of preferences within each group reflects individual differences in experience and "... tended to diminish with increased experience outside the home area" (Taylor, et al., 1987: 377). Overlapping histories of similar experience underlie similar preferences for familiar landscapes with differences related to different histories of experience. In addressing this connection between preferences and physical settings within the framework of the theory of place, this research is focused on behavioural preferences as a function of the affective and cognitive processing of design elements in public spaces.

## METHOD

The participants in this study were 160 stationary users of public spaces in the city center of Wellington, New Zealand (Ghavampour, 2014). Four representative public spaces in the city center were selected by their proportion of soft landscape and macro scale factors related to use of space: accessibility, active edge, occurrence of structured social events and visual permeability (Carmona, 2010; Carr, et al., 1992; Marcus & Francis, 1998; Whyte, 1980). Stationary users were interviewed to control the influence of experience on preferences. If preferences are a function of individual experience, participant's choice of the public spaces indicates a within-group similarity in preferences. This enables a group average response to be analyzed.

Two participants were excluded with incomplete data. The 158 included respondents comprised 77 male, 78 female and 3 unspecified, aged between 14-64 years with a mean age of 31.8 years. The sample was 61.4% NZ European, 13.9% European, 8.9% Asian, 3.8% Maori, 2.5% American/African, 1.9% Middle Eastern/Latin and 2.5% other ethnicity. The average length of time living in Wellington was 10 years. 67.7% had tertiary education, 6.3% trade qualifications and 23.4% secondary qualifications. 53.8 % work in the city center and 65% use the public space more than 2 or 3 days a week. Times of data collection was spread evenly across the four locations and represented different times of the day (morning, lunchtime, afternoon) split between workdays and weekends.

## Questionnaire Design

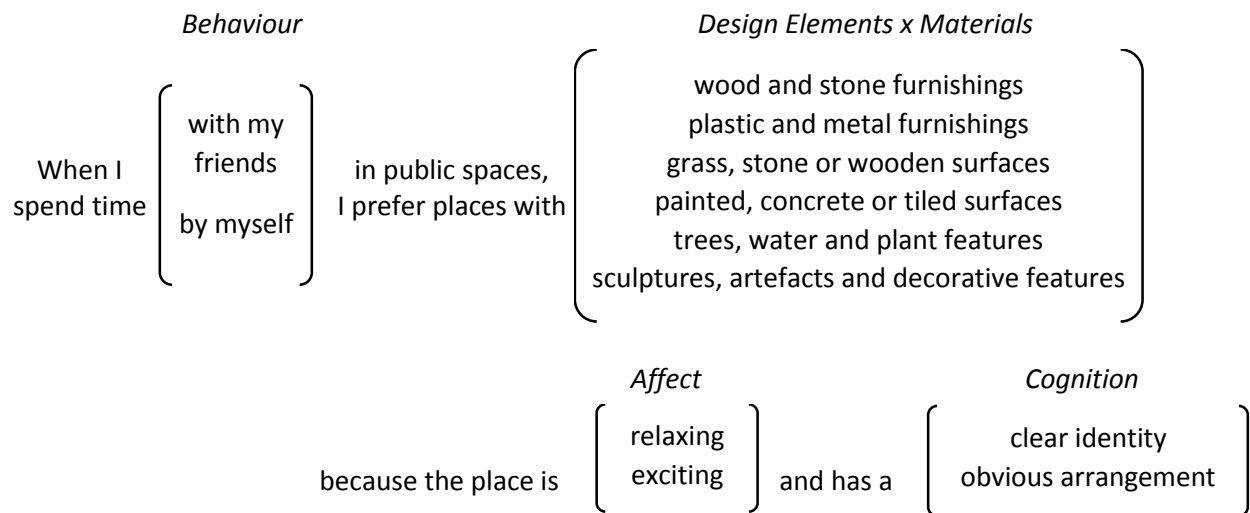
The questionnaire was designed using a facet theory (Guttman, 1954, 1968) which has been previously used to examine components of place (Canter, 1997). In a facet theory questionnaire, the link between theoretically derived hypotheses and empirical research is established through a mapping sentence. This sentence links the theoretically defined facets and specifies the range of response for the population of interest (Borg & Shye, 1995; Hackett, 2014). Four facets are identified in the research question: Physical setting, affect, cognition, and behavior. Each of these facets and the elements within each facets is defined as follows:

- Physical Setting (2 x 3 = 6 elements): Incorporating natural design elements like grass, trees and water, contributes to activity in small urban public spaces to which people go individually or in groups (Ghavampour, et al., 2015). The physical setting is defined by combining material type (natural or artificial) with three representative design elements of public space (furniture, surfaces and features) (Motloch, 2000). This combination of material and design elements defines six elements in the physical setting facet for the mapping sentence.
- Affect (2 elements): Affect is described on two primary dimensions – pleasantness and arousal (Russell & Pratt, 1980). The combination of pleasantness and arousal gives rise to feeling of excitement while pleasant and low arousal is relaxing. An unpleasant arousal brings distress, and unpleasant low arousal is gloomy (Yik, et al., 2011). In public space, relaxing spaces are pleasant, peaceful and tranquil and exciting spaces are interesting and energizing. Based on the work of Russell and Pratt (1980) and Yik, Russell and Steiger (2011), relaxing and exciting were used to represent the positive activation of affect with negative deactivations indicated by participant ratings on the response scale.
- Cognition (2 elements): In defining urban cognition Nasar (1989) refers to Lynch's (1960) concept of imageability through which people build knowledge in public space. The two important cognitive components of imageability are legibility and meaningfulness (Montgomery, 1998; Nasar, 1994, Gifford, 2014). A space is legible when it has an obvious arrangement and clear structure, and meaningful when its identity holds a special character for the person.
- Behaviour (2 elements): Gehl (1987) and Lennard and Lennard (1995) categorized activity in in public space, with being alone or being with friends and family the two extended types of activity. Gehl (1987) sorted activities in terms of intensity, from simple non-communal contacts (being alone and seeing and hearing people) to complex and emotionally involved connections (being with friends and family). Similarly, Lennard and Lennard (1995) grouped social life in public place through connections to others without speech and being in public in a group. For the behaviour facet, behavior is divided into two types, whether the behavior is undertaken alone, or with a group.

Specific examples of design elements or behaviour are excluded from the facets to reduce the influence of individual differences in preferences. For example, if natural is tropical for one person and a manicured garden to another, inclusion of specific examples would confound the results. The first would prefer small urban public spaces with lush tropical vegetation and not be interested in meeting friends or going alone to a space with organized gardens. The decision making process of each user would be the same, but the outcome of the process in a specific context would be different. A positive affect in one context would frame the cognitive appraisal and preference for the space while a negative affect in

another space would result in a lower preference for that space. This pattern would reverse for the second respondent. The process would be consistent, but the outcome of process different. By using sparse descriptions, respondents filled in the blanks and the group average results are indicative of a consistent process used by each participant.

The second step in the questionnaire design is construction of a mapping sentence to link theory with empirical research. The inter-relationships between behaviour, mental image and physical setting is defined for the population of interest, users of small urban public spaces. Affect and cognition are represented by separate facets, a distinction is made between naturalness and artificiality of design elements, and between solo and group activity.



The mapping sentence specifies  $2 \times (2 \times 3) \times 2 \times 2 = 48$  questions from the combination of facets. A typical question is: “When I spend time with my friends in public spaces, I prefer places with wood and stone furnishings because the place is relaxing and has a special character”. The 48 items were presented in two sections of 24 items in the questionnaire as specified by the behaviour facet (being alone or with friends). Written instructions explaining this division were provided. The range of possible responses to each of the 48 items was indicated on a seven-point likert scale ranging from (1) strongly disagree to (7) strongly agree.

## RESULTS

The data was analyzed using non-metric Multi-Dimensional Scaling (MDS) with each item represented as a point in a multidimensional Euclidean space. The data points are located according to similarity with items that have similar response patterns grouped closer together (Guttman, 1968). The relative location of each item in the group space provides a graphical representation of similarity or dissimilarity of the item to all other items. Items with similar questionnaire response patterns define a region within the spatial representation (Groves & Wilson, 1993). This visual description of data structure is further informed using the average preference ratings for each item and non-parametric statistical tests (Friedman’s  $\chi^2$ ) to assess differences between regions.

The two dimensional spatial representation of the 48 questionnaire items separates into two regions described by naturalness or artificiality of design elements (Figure 1). Within the artificial region, the 24

items depict three sub-groupings consisting of artificial furnishings (plastic, metal), artificial surfaces (painted, concrete or tiled) and artificial features (sculpture, artefacts and decorative). For both artificial furnishings and surfaces, there is a separation between being alone and with friends. The eight items relating to artificial features are close to the 24 natural items. Within the natural region, the separation is not as distinct with natural surfaces (grass, stone, wood) and features (trees, water, plants) inter-related.

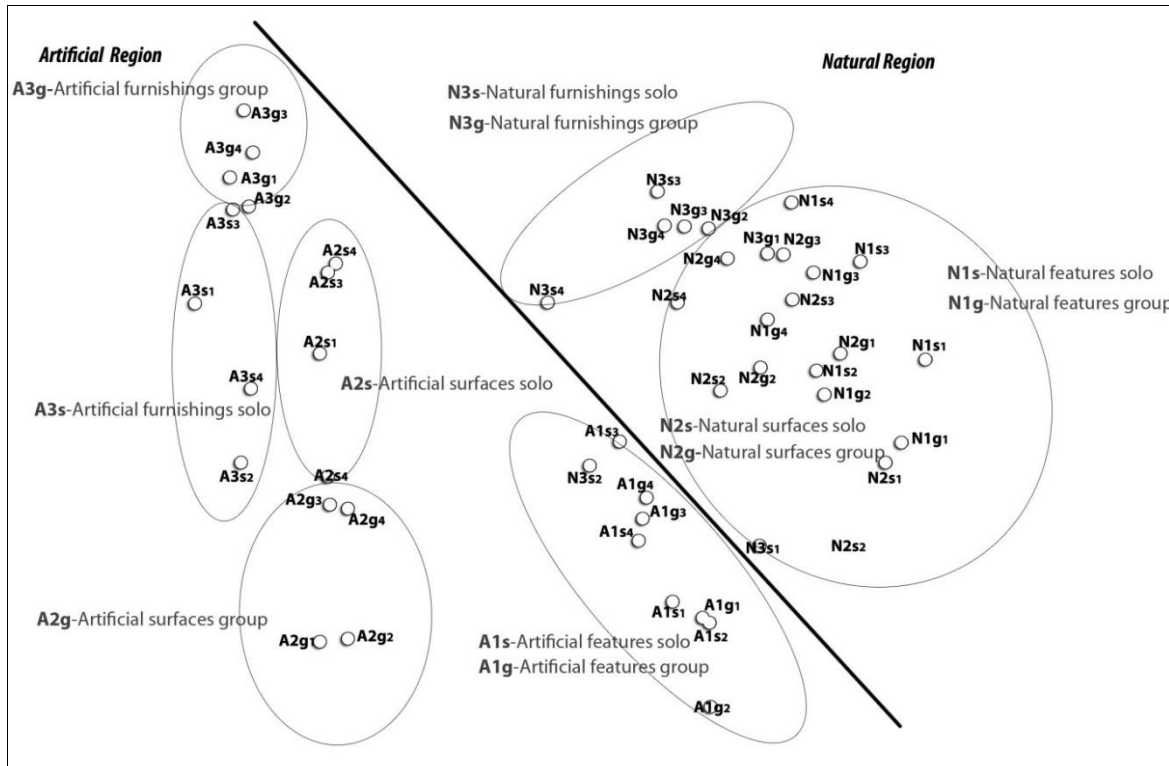


Figure 1. Two dimensional spatial representation of 48 items (stress=0.07, N=158)

The mean preference ratings of natural and artificial design elements (Table 1), broken down by behaviour and site indicated:

- A preference for natural design elements over artificial design elements whether alone or with friends, on weekdays and weekends across the four data collection sites. A Friedman test ( $df = 1$ ,  $N = 158$ ) of the differences between natural (median = 130.5) and artificial (median = 96) was significant ( $\chi^2 = 131.9$ ,  $p < 0.000$ ) indicating a preference for design elements constructed with natural materials. This preference is significant ( $p < 0.000$ ) on weekdays ( $\chi^2 = 72.053$ ) and weekends ( $\chi^2 = 60.266$ ), whether alone ( $\chi^2 = 134.427$ ) or with friends ( $\chi^2 = 120.695$ ).
- Artificial surfaces and artificial furnishings received negative preference ratings (i.e., means < four).
- A higher preference for natural furnishings when with friends than when alone ( $\chi^2 = 6.877$ ,  $df = 1$ ,  $N = 158$ ,  $p < 0.009$ ).
- For both natural and artificial design elements, features receive the highest preference, followed by surfaces, with furnishings given the lowest rating. This result is observed overall and in 30 of the 32 ratings on workdays and weekends for each site. A significant difference was found between

natural features (median = 48), surfaces (median = 44), and furnishings (median = 40) ( $\chi^2 = 122.015$ ,  $df = 2$ ,  $N = 158$ ,  $p < 0.000$ ). Post-hoc pairwise comparisons using Wilcoxon found the median preference for natural features was significantly greater than the median preferences natural surfaces ( $p < 0.000$ ) and furnishings ( $p < 0.000$ ), and the median preference for natural surface significantly greater than the median preference for natural furnishing ( $p < 0.000$ ). With the artificial design elements, a significant difference was found between artificial features (median = 40), surfaces (median = 31.5), and furnishings (median = 28) ( $\chi^2 = 149.247$ ,  $df = 2$ ,  $N = 158$ ,  $p < 0.000$ ). Post-hoc pairwise comparisons using Wilcoxon found the median preference for artificial feature was significantly greater than the median preference for surface ( $p < 0.000$ ) and furnishing ( $p < 0.000$ ), and the median preference for surface significantly greater than the median preference for furnishing ( $p < 0.000$ ).

Table 1. Mean preference of natural and artificial design elements.

	Alone				With Friends			
	Natural		Artificial		Natural		Artificial	
	Workdays	Weekends	Workdays	Weekends	Workdays	Weekends	Workdays	Weekends
Midland Park								
Furnishings	4.86	4.93	3.76	2.76	5.35	5.60	3.76	2.81
Surfaces	5.49	5.56	4.10	3.39	5.63	5.85	3.96	2.95
Features	5.99	6.30	5.19	4.96	5.96	6.23	5.11	5.06
	5.45	5.60	4.35	3.70	5.65	5.89	4.28	3.61
Glover Park								
Furnishings	4.86	4.74	3.32	2.34	5.21	4.77	3.34	2.46
Surfaces	5.42	5.41	3.53	2.83	5.34	5.35	3.93	3.40
Features	5.68	6.06	4.80	5.08	5.86	5.40	4.87	5.06
	5.32	5.40	3.88	3.41	5.47	5.17	4.05	3.64
Civic Square								
Furnishings	5.01	4.91	3.63	3.23	5.00	5.05	3.49	3.04
Surfaces	5.50	5.29	3.54	3.87	5.43	5.49	3.70	3.89
Features	5.87	6.03	5.08	4.61	5.82	5.50	5.34	4.71
	5.46	5.41	4.08	3.90	5.42	5.35	4.18	3.88
Te Aro Park								
Furnishings	4.76	4.79	3.33	3.33	4.96	5.06	3.06	3.61
Surfaces	5.56	5.60	3.92	3.59	5.60	5.43	3.95	3.75
Features	5.79	5.48	5.00	4.87	6.00	5.66	5.19	5.09
	5.37	5.29	4.08	3.93	5.52	5.38	4.07	4.15
Overall								
Furnishings	4.87	4.84	3.51	2.91	5.13	5.12	3.41	2.98
Surfaces	5.49	5.47	3.78	3.42	5.50	5.53	3.89	3.50
Features	5.83	5.97	5.02	4.88	5.91	5.70	4.96	4.98
	5.40	5.42	4.10	3.74	5.51	5.45	4.14	3.82

Based on the spatial separation of design elements according to type of material and the overall preference for natural materials over artificial materials, separate analyses were conducted for natural and artificial design elements. In the two dimensional spatial representation of the 24 natural design elements (Figure 2), behaviour is described by the combination of affect and cognition, and type of design element. In the spatial representation, the arrangement of data points from upper left to lower right reflects the overall preferences with natural features the most preferred, followed by natural surfaces and natural furnishings (Table 1). Within this overall order of preferences, design elements are distinguished by mental image. Three regions are described. Natural design elements that have a relaxing special character (lower left), an intertwined middle group of relaxing clear structure and exciting special character, and a third grouping of exciting clear structure (upper right). Although preferences for natural features, surfaces and furnishings are different, natural design elements with relaxing character are preferred for solo and group activity. Natural design elements with an exciting clear structure, though still receiving a positive rating, are less preferred than natural design elements that have an exciting character or relaxing structure (Table 2). Nested within this two dimensional affective-cognitive structure of natural design features, the separation between the four affective-cognitive combinations for solo activity is greater than that for group activity.

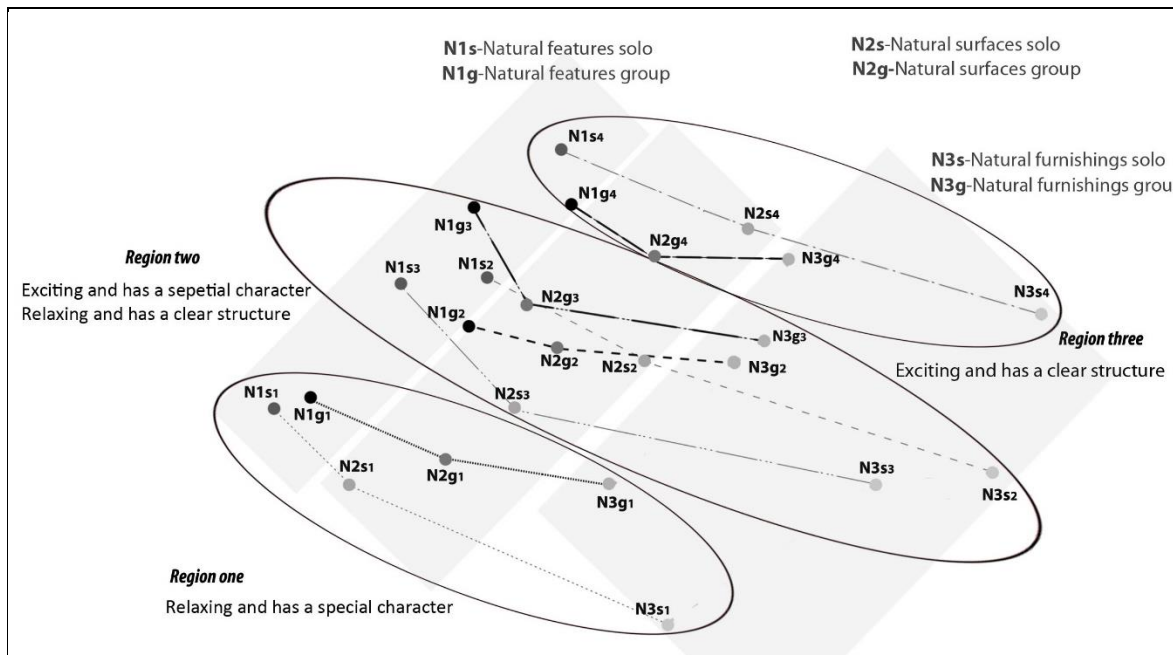


Figure 2. Two dimensional spatial representation of 24 natural design elements classified by design feature, behaviour and cognitive-affective affordance (stress=0.14, N=158)

With the 24 artificial design elements, the differences between features, surfaces and furnishings are greater than their affective or cognitive image for solo or group activity (Figure 3). With artificial features, which received positive preference ratings similar to that of natural design elements (Table 2) and were closer to the natural design elements in the overall analysis (Figure 1), artificial features with a special character are preferred to those with a clear structure. The mean preference ratings decrease from left to right and there is no separation within artificial furnishings and artificial surfaces based on their affective-cognitive evaluations.



Table 2. Mental image of design elements.

	Alone				With Friends			
	Relaxing		Exciting		Relaxing		Exciting	
	Special Character	Clear Structure	Special Character	Clear Structure	Special Character	Clear Structure	Special Character	Clear Structure
Natural Furnishings	5.39	4.97	4.64	4.42	5.46	5.01	5.14	4.90
Natural Surfaces	6.10	5.59	5.25	4.97	5.84	5.53	5.44	5.25
Natural Features	6.40	5.97	5.77	5.47	6.20	5.72	5.81	5.48
	5.96	5.51	5.22	4.95	5.83	5.42	5.46	5.21
Artificial Furnishings	2.96	3.25	3.30	3.32	3.10	3.20	3.24	3.23
Artificial Surfaces	3.57	3.59	3.66	3.56	3.64	3.61	3.75	3.75
Artificial Features	5.04	4.73	5.21	4.82	5.18	4.85	5.26	4.92
	3.86	3.85	4.06	3.90	3.97	3.89	4.08	3.97

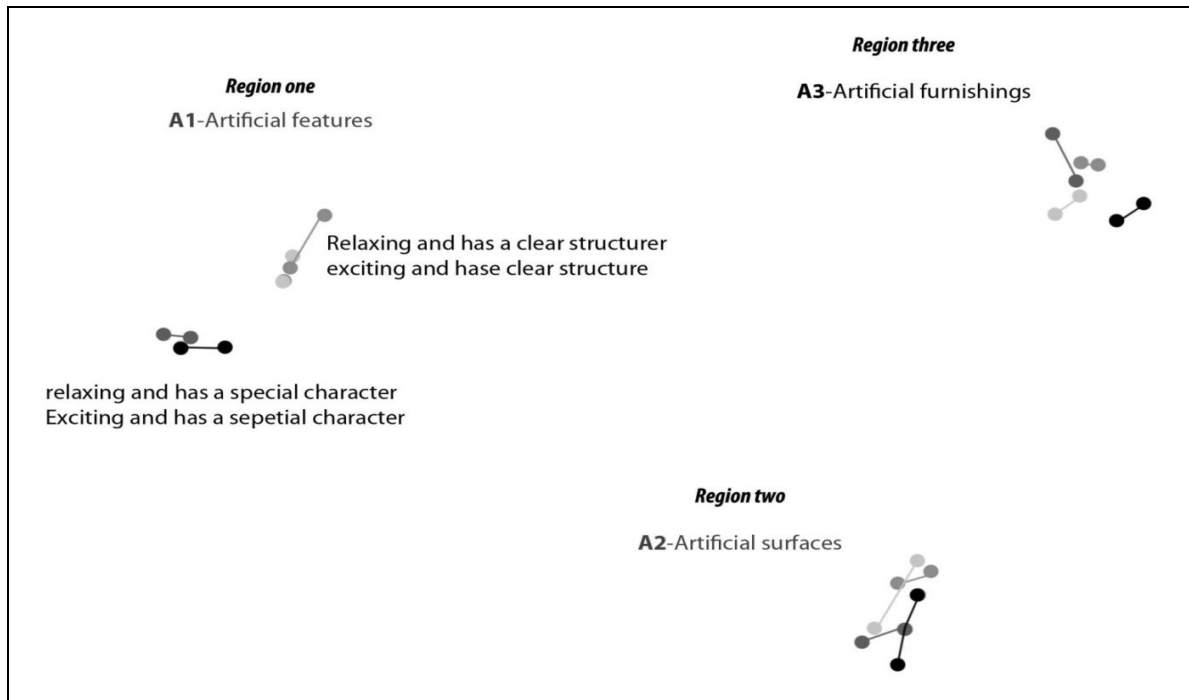


Figure 3: Two dimensional spatial representation of 24 artificial items classified according to mental image (stress= 0.05, N=158).

## DISCUSSION

In this research, the affective and cognitive processing of design elements was used to describe the suitability public spaces for solo and group behaviour. For anticipated behaviour, preferences were found to be a function of the affective and cognitive processing of design elements incorporated into features, surfaces and furnishings of public space. Relaxing spaces are preferred if alone or with friends, with character more important than structure when alone, and furnishings more important when with friends. Artificial design features with a special character are a positive focus for individuals and groups,

with artificial surfaces and furnishings negatively evaluated. If alone, a relaxing space with exciting features is preferred. With friends, a relaxing space and furnishings are important. This is consistent with Rapoport's (1982) argument in that both affect and cognitive process are involved, with activation of positive affect a pre-requisite. Be it relaxing or exciting, the affective appraisal is followed by a cognitive evaluation framed by anticipated behaviour. To expand Mortlock (2000), the mental image connecting physical setting and behaviour is a sequence of affective appraisal followed by cognitive focus on physical spatial elements influenced by anticipated behaviour.

A preference for natural design elements and lower preference for artificial design elements for solo and group activity is consistent with previous observations of behaviour in public space (Ghavampour, et al., 2015). The present indication that physical setting and behaviour are matched through affective and cognitive processes could also explain the non-use of some natural design elements in this previous research. Grass areas with artificial shade from adjacent buildings were left vacant while grassed areas with shade from trees were used by larger groups. This observed behaviour is an outcome of affective and cognitive processes which consider design elements within a larger context. Further work is needed to establish whether the artificial shade or the possibility of being observed from the building deactivates relaxing affect or is a negative cognitive appraisal for the anticipated behaviour.

Measurement tasks contain a multitude of differentiating influences. Although these influences are interactive in their effect, it is assumed that as the location of data collection, the task and response method remain constant, differences between individuals will be reflected in the data. When the data is analysed, evaluations which are consistent across individuals and systematically different between tasks are observed (Ward & Russell, 1981). Small differences are treated as errors of measurement and the average response presented as indicative of population preferences. However, task constraints focus respondent's attention on shared aspects of prior experience. The salient characteristics of non-verbal scaling tasks (Groves & Thorne, 1988) and verbal scaling techniques "consistently reproduce their own a priori semantic structure" (Daniel & Ittelson, 1981: 153). That is, the internally consistent result observed in each evaluation task are an artefact of task constraints. If group average data is reanalysed using comparisons between individual respondents, the within task consistency in non-verbal and verbal scaling techniques is again evidenced, but with one notable exception. Individual differences are observed in affect evaluations (Groves & Clutton, 1990; Groves, 1992). It is argued that top-down constraints of cognitive rating scales and bottom up perceptual constraints of non-verbal sorting tasks direct respondents to specific aspects of previous experience. The within group consistency is an artifact of the verbal rating scales meaning are common definitions learnt across individuals. With non-verbal tasks, shared prior experiences define the perceptual matches. Individual differences emerge with affect evaluations because the verbal constraints are non-constraints which enable respondents to draw on their entire history of experience relevant to the setting.

In the present research, individual differences were not analysed as participants indicated similar preferences through their choice to use the public spaces. The appraisal of settings as relaxing, exciting, etc., reflects preferences defined from similarity in urban experience. The extension that different experiences can generate idiosyncratic preferences is the recognition of a distinction between the process of preference formation and preferences that are manifestations of that process. These preferences predispose residents to use or not use public space, or choose similar or different settings for similar or different behaviour. The preferences and choices are idiosyncratic. Although any overlap is an artifact of similar histories, in the process that precipitates the diversity, a similarity exists. A lifetime

spent defining and re-defining preferences within the dynamic of ongoing experiences which are evidence through interactions with physical settings.

This distinction between process of preference formation and preferences which are a manifestation of this process, has important implications for understanding use of public space and placemaking design of public space. A design based on preference at a particular point in time will align with shared preferences at that time, but the process which generates these shared preferences will also generate individual differences and change over time. Successful spaces can evolve into placeless spaces and placeless spaces can become popular. From the designer's perspective, their training in structures, people, creativity, history, art, etc., are pre-requisite experiences for professional participation. But it is also a process that individually and collectively can develop a design aesthetic divergent from population preferences. Design outcomes may not be shared by users of public space. Therefore, it is necessary to expand the focus of place-making design beyond the build of person-environment fit, to the creation of possibility. Dynamic spaces within which individual opportunities evolve.

The description of experiential knowledge is also a topic of interest in planning. To improve communication with users of public space, the GIS (Geographic Information Systems) digital maps of public space are being softened with descriptions of the spaces and the activities and functions users associate with the spaces (Goodchild, 2011; Jordan et-al, 1998; Kyttä et-al., 2013; Rantanen & Kahila, 2009). ElGindy and Abdelomty (2014) suggested capture of place semantics by adding qualities that make places different, including vernacular place names, place types and activities people participate in, events, as well as personal opinions. Scheider and Janowicz (2014) proposing "a formal theory about relevant types of activities and their involved participants" (page 97). In participatory planning information is being added in GIS to improve communication between planners and users of public space that results in improved decision making Carver et al., 2001, McCall, 2003).

Similar to the use of place theory in design, planners draw on affordance theory (Gibson, 1966; 1977; 1979) to describe interactions between physical setting, mental image (perceived opportunities for action) and behaviour (actualized affordances). The difference being, affordances are defined as properties of the setting identified by the individual, "... a pairing of an organism (and by extension, its potential or realized behaviour) with specific environmental features, embedded in a situation or context" (Jenkins, 2008:44). An interaction with motivation and capacity, and social and cultural factors prerequisite for actualization (Greeno, 1994; Heft, 2003; Kyttä, 2004; Stroffregen, 2003; Zebrowitz & Collins, 1997). Since the theory defines opportunities as afforded by the physical setting, participatory and soft GIS are mapping experiential knowledge in digital space. Capturing a snapshot of an evolving experiential knowledge. This knowledge is not geographically referenced, it is used within geographic references. For GIS to be an effective tool for planning and communication, an interactive dynamic of individual map overlay is required.

## POSTSCRIPT ON RESEARCH & MEASUREMENT

Place and the affordance of place, affect and cognition, are measured as if they exist and behaviour is observed as if it is (at least partially) afforded by design. However, these observations and measurements are an interpretation of the person's configuration. At any point in time, the observations and measurements reflect the individual's accumulated interactions with physical settings and interactions within/between their mental processes. This process is dynamic in the sense that

ongoing activations result in modifications or formation of possibly new positions. A framework within which on-going experience is experienced, interpretations delineated, and itself influenced with on-going experience. A system which behaves as if schemas, prototypes, categories, variable classifications, scripts, exemplars, etc., exist. However, in reality these concepts are "... the theorist's interpretation of the system configuration" (Norman, 1986: 537).

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