

The Social Life of Public Space in Theory and Practice

Study of a small urban space in Wellington

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Current behaviour is something that has its origins in history, and yet design normally places emphasis on innovation rather than learning from what works. Often the design of an urban space fails because reviewing and evaluating designed past design has been forgotten. The same mistakes are repeated without considering similar unsuccessful examples. Over time theoretical and practical research in urban design has attempted to answer the question of what makes a successful public space. Approaches to the study of place have focussed on its different aspects. Theories interested in the meaning of place have focussed on the link between meaning and physical setting while designers mostly look at the link between physical setting and activity. However, studies have rarely linked these two approaches together. This paper describes research that aims to fill the gap between theory and practice by investigating the influence of natural design attributes on behaviour in a small urban space. It does this through two studies within the framework of place theory using facet theory and behavioural mapping as the methods. The suggested model is demonstrated in a study of a small urban park (Glover Park) in central Wellington, New Zealand. This park was the hangout for those sleeping rough, then redesigned in 2006, and is now working well. While results of these two studies confirm each other they show the relevance and need to use both theoretical and practical research when designing place. Theoretical research with reliable predictive power is appropriate for investigating the subjective quality of place, although when it comes to design and detail the results should be tested in practice. Results of practical study, because of their dependence on physical setting and specific context, are inferential and cannot be used for predicting the link between behaviour and meaning and hence they are not generalizable. However designers can incorporate such results when designing in the specific context. This also shows that behaviour

setting, which is shaped by the time, is a valuable resource for designer to learn from the past.

Keywords: Small urban space, design, behavioural mapping, Theory of Place.

Introduction

The distance between theory and practice can be seen in two different approaches to the Theory of Place. Those interested in theory want to understand why something is happening whereas design practice wants to know what is happening. While both approaches are reasonable and understandable in the given contexts, application of the Theory of Place in design practice research will be enhanced when the different interests of academic and practical researchers converge.

This research addresses the gap between theory and practice by investigating the influence of natural design attributes on behaviour in a small urban public space (Glover Park in central Wellington) from both a theoretical study of place theory and through practical observation of behaviour. Both sets of research were conducted in the same location to see if there is convergence of theory and practice. The relevance of theory to practice for the design of a successful small public space requires an integrated approach using appropriate research methods. This model is demonstrated through the two studies conducted in Glover Park. Study one tests the linkage between the three components of place by using facet theory and study two is an observation of behaviour in relation to physical setting. It thus becomes a historical study of how people have learnt behaviour in this space. In turn, this study tests the criteria for successful urban space in a given design by investigating current behaviour that has accumulated over time.

Links between the components of place

In the Theory of Place, physical setting, meaning, and activity are defined as the three components of place (Agnew, 1987; Canter, 1977a; Dovey, 2010; Massey, 1994; Montgomery, 1989; Relph, 1976). Theoreticians argue places with meaning generate activity and they emphasise the experiences of place, but how this relationship can generate activity has not been clearly described. Figure 1a shows the strong link between physical setting and meaning and the weak links these have with activity in the three components of place.

Practical research that is used to inform design practice indicates place must fulfil human needs through the use of a physical setting (Carr, Francis, Rivlin, & Stone, 1992; Marcus & Francis, 1998; Whyte, 1980). These studies define sociable places as places to which people go in groups and for social activity (Whyte, 1980), but the relationship between physical setting and meaning is rarely discussed. Figure 1b shows the strong link between physical setting and activity and the weak links both of these have with meaning.

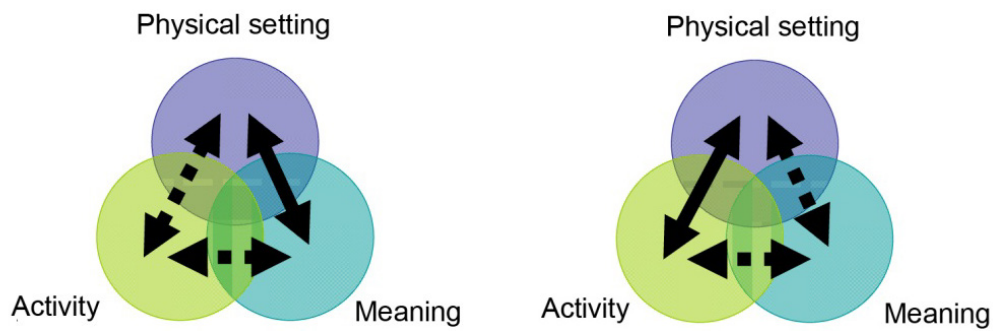


Figure 1a (theory research)

Figure 1b (practice research)

Figure 1: links between three components of place in research

While the components of place are similar in both approaches the interactions between these factors have not been adequately addressed in the design of urban public spaces. Designers are interested in tangible and objective properties of space (Mongomery, 1989; Whyte, 1980) while theoreticians dwell on the intangible properties of that same space, such as meaning and sense of place (Relph, 1976; Tuan, 1977,2001).

To enhance the design of space, the link between meaning, activity and physical setting, as emphasised in the theory, needs to be tested in practical research. The results of studies focused on meaning and activity should also be considered in the design process. However, studies have rarely linked these two approaches together.

Study one background: Theory of place

Canter (1997b) emphasised the need for a methodology for the study of Theory of Place in design research that stresses the need for understanding the complex linkage between activity, physical setting and meaning, rather than only looking for a link between any two of these components. He integrated aspects of behavioural environmental psychology with architectural issues by putting the same value on the components of place. He claimed

“The theory of place draws attention to the essentially multivariable nature of that experience. This is central because the personal, social and cultural aspects have to be studied together. Furthermore, the studies have to be carried out in such a way that it is possible to identify any existing dominated core of such experiences for any particular setting. Another demand of the theory is that comparison can be made, from one architectural discourse to another, between the patterns of relationships between components” (Canter, 1997b, p. 122).

In the study of place the relationship between constituents is tested and no prior assumption made about how they link together. To overcome this problem Canter also proposed facet theory as one methodology to study place theory. Facet theory, first introduced by Guttman in 1954 (Guttman & Greenbaum, 1998), is a systematic approach to constructing a theory, and then designing data collection and analysis methods to investigate the theory, especially in behavioural research dealing with complex issues. This approach can be used for testing the theory formulated or drawn from examination of previous research and is used when multiple variables need to be considered.

A particular facet theory is a hypothesis about the relationship between a defined system for observation and aspects of the empirical structure of these observations. In fact this theory is based on a defined framework for observation, empirical structures for observation, and the search for relationships between the defined framework and empirical structures. In short, a facet theory approach defines a relationship between an abstract theory and empirical research used to find evidence to support the theory. The device used to test and make the link between theory and empirical research is a mapping sentence. The mapping sentence defines the population of interest and their range of possible responses to a number of conceptually distinct facets reflecting the content of the hypotheses, with the elements in each facet being mutually exclusive.

Study one: Methods and results

In this investigation of small public parks in Wellington (Ghavampour, Vale & Del Aguila, under review 2013) facet theory was used to survey preferences for natural and artificial elements in small urban spaces in the centre of the city. The mapping sentence (Figure 2) was formed of 48 items: two materials (natural and artificial) x three design elements (features, furniture, surface); two types of behavioural affordance (alone, with friends); in combination with two affective affordances (relaxing, exciting) and two cognitive affordances (special character, clear structure). Responses to the 48 items were indicated on a seven-point scale ranging from (1) strongly disagree to (7) strongly agree.

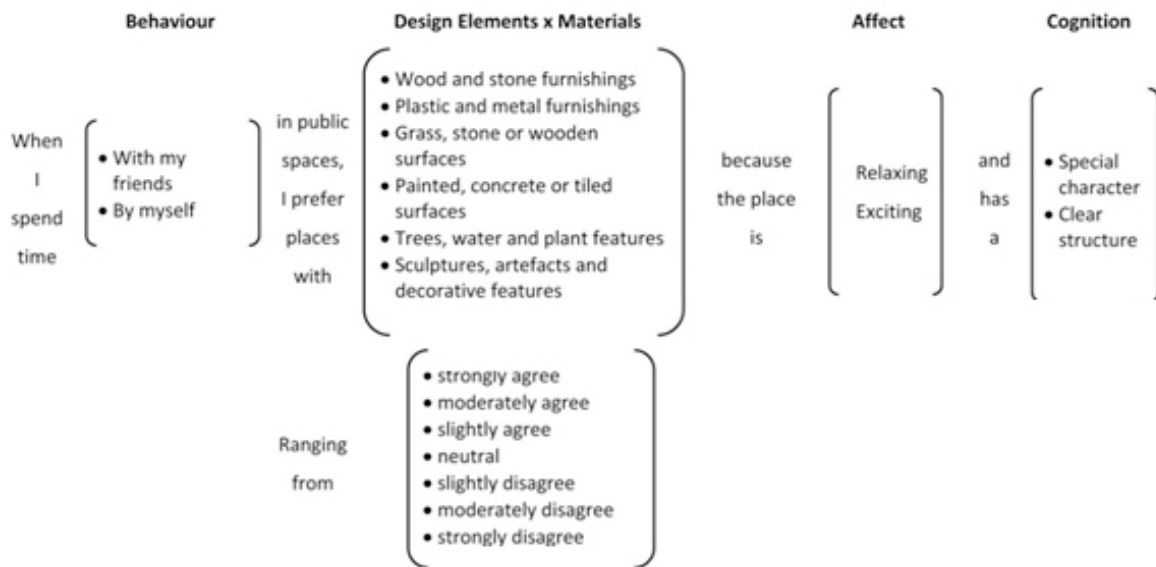


Figure 2: mapping sentence

The survey was conducted over five weeks in October 2012 in four small public parks by approaching users and asking them to complete a questionnaire. These four parks (Glover Park, Te Aro Park, Midland Park, Civic Square) are the data collection sites and all included natural and artificial design

features that enable preferences for those two types of element to be compared in one space. As comparison of how each of the four spaces is used is not the aim of this study.

The results of 160 questionnaires found:

- A preference for natural elements over artificial elements whether alone or with friends for both weekdays and weekends.
- Natural features and natural surface are the first two preferred elements, over natural furnishing and artificial elements.
- The preference for an artificial feature is considerably higher than other artificial elements, being close to the preference for natural elements.
- In descending order preferences are for: natural feature (trees, water), natural surface (grass, stone, wood), natural furnishing (wood and stone), artificial feature (sculpture, artefacts, decorative features), artificial surface (painted, concrete or tiled), and artificial furnishing (plastic, metal) (Table 1).
- Different preferences when people are alone and in groups show the link between type of activity and affective-cognitive affordance of place.
- When people are alone affective affects (relaxing, exciting) are preferred over cognitive affects, whereas people in groups pay more attention to the cognitive effect of elements. In other words, usability is important when people are alone.

Table 1: break down of preferences by mean scores for natural/artificial material by behavioural affordance

	Alone				With Friends			
	Natural		Artificial		Natural		Artificial	
	Workdays	Weekends	Workdays	Weekends	Workdays	Weekends	Workdays	Weekends
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

Study two background: Urban design and behavioural research

Since separation between people and their environments has been recognised in urban studies, urban designers have turned to sociology and environmental psychology to discover more about the link between people and physical setting, including use of environmental behavioural based studies (Vernez Moudon, 2013). However, the need to incorporate the results of these studies into the design process is still being stressed (Golicnik & Thompson, 2010). The fact such an approach is primarily positivistic has also become an area for criticism, especially from theoreticians in place studies (Vernez Moudon, 2013).

Two different methods have been developed using the psychological viewpoint. The first focuses on visual perception and second on usage patterns of space. The former uses simulation to investigate the cognitive-affective influence of the environment on people's behaviour. Through use of film, modelling, or photographs the responses of research participants exposed to images of various

landscapes under evaluation are gauged (Daniel & Meitner, 2001; Kaplan, Kaplan, & Brown, 1989; Karjalainen & Tyrväinen, 2002; Thompson & Travlou, 2009). However this method has been criticised for its focus on visual character and also for being laboratory based (Gibson, 1979). Being in the laboratory is claimed to put an artificial limit on individuals because they are not in a space and have no chance to engage in activity and see other people. Gibson (1979) also looked at perception of the environment and used the word affordance. In this view the person – environment relationship is immediate and based on practical activity rather than the analytical: “The affordance of the environment are what it offers the animal, what it provide or furnishes, either for good or ill” (Gibson, 1979, p. 127). In his ecological perceptual psychology activity and perception are not separate. This approach is objective because its existence does not depend on the actor’s existence, values, interpretation, experience, or mental state, but is also subjective because specifying affordances needs an actor as a frame of reference. Affordances are real ecological entities with the potential to be used.

Barker (2005) introduced the second method, which is the concept of behaviour setting in the field of ecological psychology, formed based on a behavioural circuit. It is similar to Gibson’s approach. This approach sees that the effective way of understanding human needs and preferences is by observing them empirically. Behavioural mapping was developed by Ittelson et al. (1970) and shaped based on behavioural setting and the affordance approach (Cosco, Moore, & Islam, 2010). This concept is focused on everyday human activity in relation to physical settings. Behaviour setting includes the particular layout of the environment (the milieu), a standing pattern (a recurrent behaviour of a group, such as a football game or a piano lesson), and the congruent relationship between behaviour and physical setting. This is a study of behaviour occurring in the same space regularly which indirectly shows how people use the space over the time. As stated above, affordance is a property of a physical setting supporting the activities of people (Gibson, 1979). Study of affordance can help in understanding how physical setting attracts people. These two supporting approaches make behavioural mapping a valuable method for gaining insight into the problem of how space is used.

Behavioural mapping has been used in place studies to investigate the simultaneous link between physical setting and activity (Bechtel & Zeisel, 1987, p. 23). It uses context defined codes to record human activity in a physical space and is a valuable method for gaining insight into how spaces are used. Designers can also use this type of observation when they want to know how their designs work (Bechtel & Zeisel, 1987). This method is used for post occupancy evaluation which reviews what has been designed in the past to see how well it works as an important part of any design. Marcus & Francis (1998) noted this type of mapping as a method for gaining accurate information in minimum time. Behavioural mapping is mostly used at the micro scale and applied to indoor and outdoor space (Bechtel & Zeisel, 1987). Different observation techniques have been used based on the aim of the particular study, including verbal description, a pre-coded checklist, still photographs, floor plan table (a table of elements on a particular floor plan), drawn behavioural maps, marking up a printed map, and film or video tapes (Zeisel, 1984) and digital techniques like GIS. Golicnik and Marusic (2012) and Van Andel (1984) used paper-based methods and GIS. Rostami (2013) and Joardar (1977) mixed photographs and paper based maps.

Study two: Method and results

Behavioural mapping was selected for Study two, using still photographs for collecting data and GIS as the tool for representation and analysis. In addition direct observation and written descriptions were used to capture the context of the case studies, initial understanding of patterns of behaviours and type of activities in the space.

Procedure

Glover Park is a small urban park in the Wellington CBD. It was selected for the previous preference survey and forms the focus for behavioural mapping in this paper. This park was once a hangout spot for those sleeping rough. The park was neither safe nor attractive except to homeless people without any accommodation. This park was upgraded and now is mostly used by teenagers.

To identify preferred design attributes a second survey using the facet theory approach was conducted as the preliminary stage. The results helped to identify different subspaces in the park, which can then be used as a base for the analysis of behaviours in relation to natural artificial design attributes. The survey was based on eight natural and artificial design attributes and their contribution to sense of place, in combination with two activities that occur in the place (having people around and having a café nearby) to test the effect of these on three types of social activity (spending time with family, chance contact, spending time alone). The results show:

- A preference for natural design attributes over artificial, whether with friends and family, or chance contact with new people, or being alone.
- A place with well-maintained grass with shade of trees which has well-kept surfaces, with seats around public art, all in combination, are the preferred spaces.
- Seats around trees or a fountain, native plants, small spaces defined by natural design elements, places with trees around their edge, entrances, and places which provide different benches, all received similar preferences.
- Places with shelter, with buildings around the edge and with specific building style around, and small spaces defined with steps and low walls, received the lowest preferences.

Using the results of survey two and after several observations during weekdays and weekends, the site was divided into a number of subspaces within four categories (Table 2). Note that the behavioural study of Glover Park is part of research with a focus on four data collection sites, so some categories (code 5 and code 8) do not exist in Glover Park. (Seating excludes sitting wall by grass and seating situated in other subspaces.

The park was investigated to select the best points for taking photographs. These should be taken from a distance in order to have less effect on the users. They should cover spaces from different angles to record all the data. The chosen points are shown in Figure 3.

One sunny weekday was chosen for photography, with photographs taken from 08.00 to 17.00 at 10 minutes interval from each selected point.

Table 2: categories and subspaces

Category	Code
A) natural/artificial seating	A-code1-1, 1-2: Grass and sitting wall by grass A-code 2: Benches
B) natural/artificial edge	B- code3: Outside edge B-code4: Edge passage way
C) seating around natural/artificial focal point	C-code6: Seating by sculpture
D) natural/artificial entrance	D-code7: Entrance with natural elements

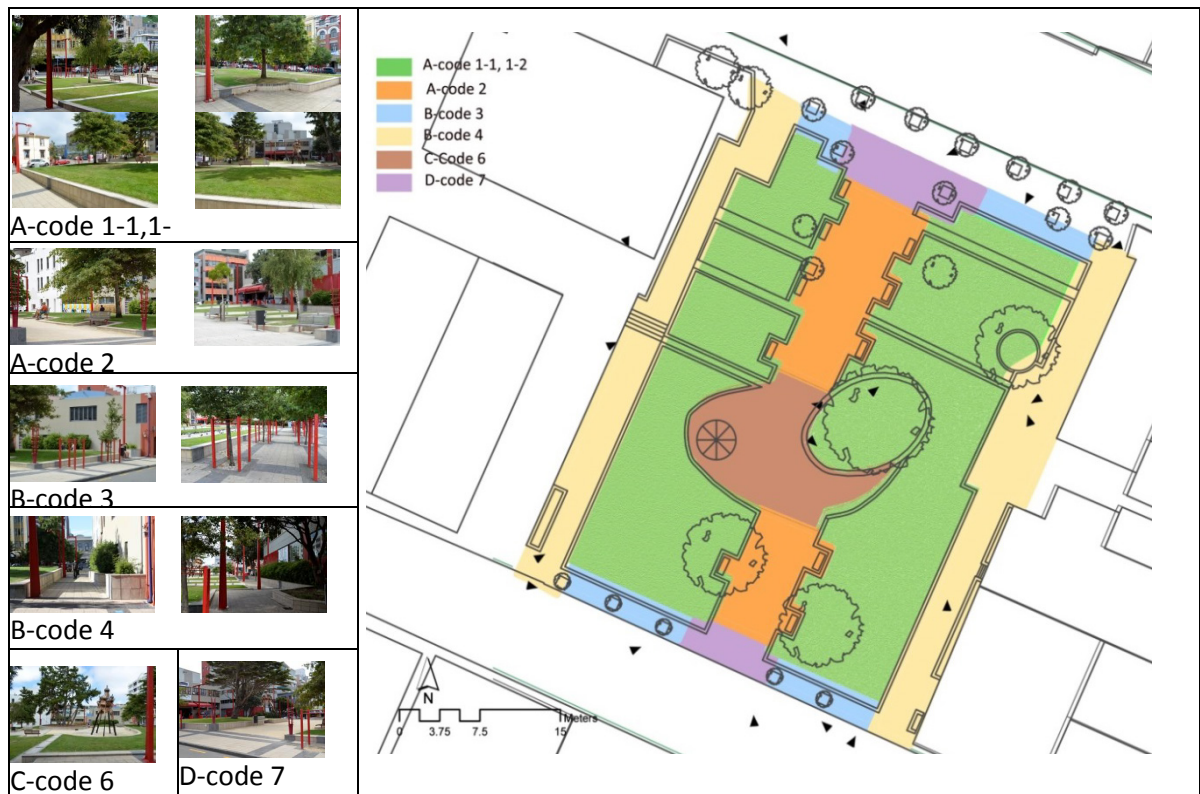


Figure 3: map of subspaces and photography points

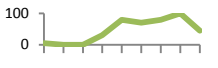
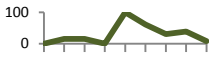

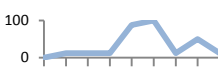

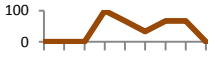

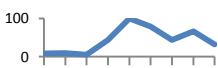
Analysis

Each person is represented by one dot in the Arc map 10.1. The contribution of mapped natural design elements in the sustained use of space was measured by looking at: length of stay, number of users, size of groups, type of activity (diversity in activity shows affordance), and gender and estimated age (diversity in user groups). In addition to these quantitative analyses, preferred space and order of occupancy and effect of quality of design on users is discussed.

Results¹

Data were collected from the 765 photographs taken on 27th March 2013. The number of photographss shows a total 276 people in 193 groups² used the park. The three busiest hours were 12.00-13.00, 13.00-14.00, and 15.00-16.00, with least users from 08.00-11.00 (Table 2). Comparison between subspaces indicates that except for grass use of all subspaces follow the pattern of total users, and have their own maximum occupancy between 12.00-13.00 or 13.00-14.00, with a dramatic decrease by 15.00 followed by a slight increase to reach a second peak around 16.00. Unlike this pattern, use of the grass area starts from 08.00 and gradually increases to reach its maximum use during 15.00-16.00.

Table 3: number of users during one day of observation, Glover Park

Subspace use as percentage of MO over one day		08.00-09.00	09.00-10.00	10.00-11.00	11.00-12.00	12.00-13.00	13.00-14.00	14.00-15.00	15.00-16.00	16.00-17.00	Total
 A-code 1-1	N	1	0	0	6	16	14	16	20	9	82
	P	5%	0%	0%	30%	80%	70%	80%	100%	45%	
 No A-code 1-2	N	0	2	2	0	13	8	4	3	1	35
	p	0%	15.38	15.38	0%	100%	61.54%	30.77%	38.46	7.69%	
 A-code 2	N	2	4	1	13	22	21	6	13	10	92
	P	9.09%	18.18%	4.55%	59.09%	100%	95.45%	27.27%	59.09%	45.45%	
 B-code 3	N	0	1	1	1	7	8	1	4	1	24
	P	0	12.5%	12.5%	12.5%	87.5%	100%	12.5%	50%	12.5%	
 B-code 4	N	2	0	0	8	8	4	1	3	2	28
	P	25%	0%	0%	100%	100%	50%	12.5%	37.5%	25%	
 C-code 6	N	0	0	0	3	2	1	2	2	0	10
	p	0%	0%	0%	100%	66.67%	33.33%	66.67%	66.67%	0%	
 D-code 7	N	1	0	0	0	3	0	1	0	0	5
	P	33.33%	0	0	0	100	0	33.33	0	0	
 Total Park	N	6	7	4	31	71	56	31	47	23	276
	P	8.45%	9.86%	5.63%	43.66%	100%	78.87%	43.66%	66.20%	32.39%	
MO: Maximum occupancy MO N: Number of users P: Percentage of MO			100 %	100-80%	80-60%	60-40%	40-20%	20-0%	0%		

Diagrams on the left of Table 3 represent subspace use as a percentage of its maximum occupancy (MO) in one hour over the whole day. For example grass had its maximum occupancy at 15.00-16.00 with 20 persons. The percentage between 12.00-13.00 is calculated as (number of people in space between 12.00-13.00*100/maximum occupancy over a day), $(16*100/20)$. The diagrams illustrate that while grass, sitting wall by grass, seating in paved area and seating by sculpture were used over the day, entrances, edge passage way and outside edge were left vacant after the two busy periods (Table 3).

Occupancy and preferences

Overall out of the 276 total uses, 92 people occupied benches at some point and 82, the next biggest single group, used the grass. There is then a big drop to the next biggest user group of 35 who used the sitting walls.

Early use of space shows seating in a paved area was preferred. From 11.00-12.00 benches and sitting wall under the shade of trees were occupied and around midday grass and outside edges started to be used. The preferred grass areas and entrances are close to trees and borders. At midday almost all grass areas were in sun and the grass to the east side with more trees was well used. From 13.00 onward grass areas at the west side had more users and maximum occupancy was reached from 15.00-16.00, which corresponds with the second peak occupancy for the whole park.

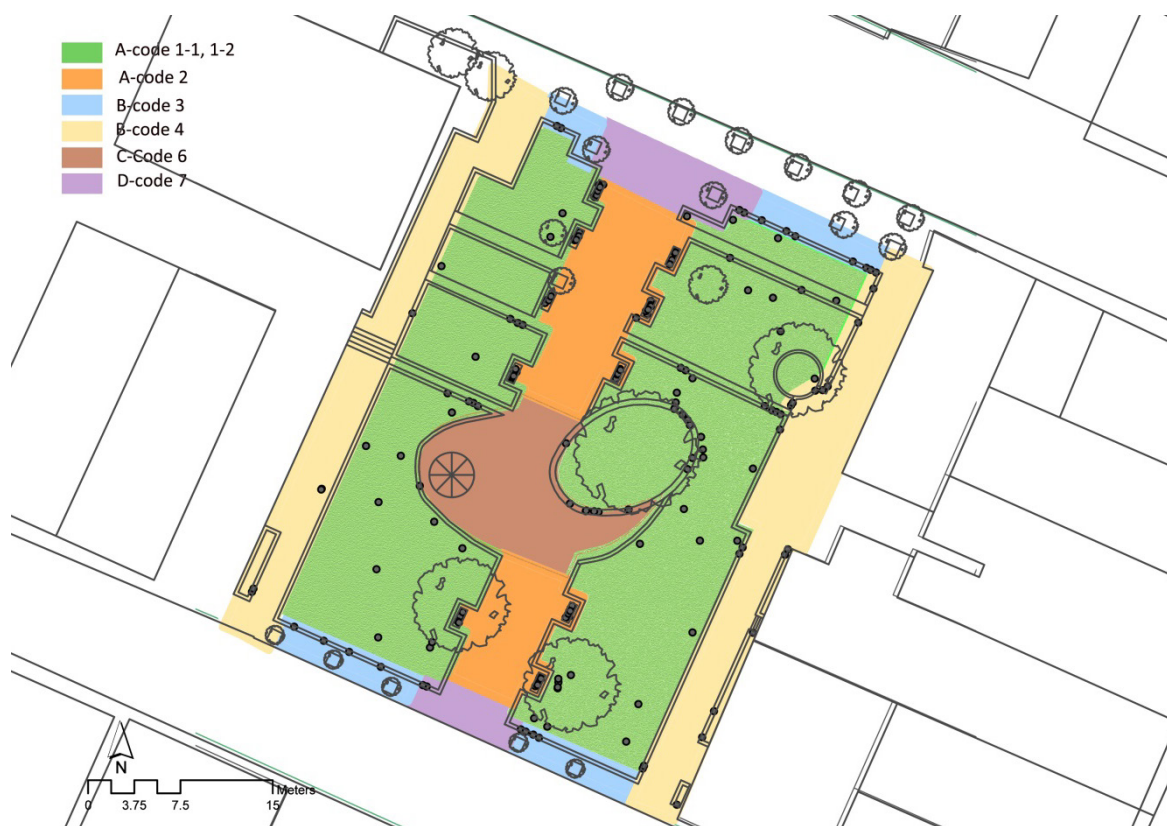


Figure 4: occupancy in one day.

The map of the last hour of observation shows benches not under shade and sitting wall close to trees were still preferred but benches under shade were not occupied. The grass area in the NW corner that is shaded by the adjacent building was rarely used, which suggests a preference for natural shade over artificial.

The occupancy map also shows that in all subspaces people used places which are close to trees and have a degree of enclosure, or that receive natural shade created by trees. A combination of natural shade, benches, sitting wall and grass seem to be the favourite subspaces (Figure 4).

Size of group

The percentage of people alone (group of one) as part of total occupancy ($T \cdot 100/A$) for each subspace during the day demonstrates the preferred subspaces for people alone are seating, seating around sculpture, entrance, and sitting wall by grass, at 65.22%, 60%, 60%, and 60% respectively. While the number of people alone (group of one) and in groups using the outside edge are equal, there is a preference for groups to use edge passage way and grass more than people alone (Table 4).

	Group of one	Group of two	Group of three	Group of four	Group of five	Total
A-code 1-1: Grass	15	36	15	16	0	82
Percentage of total (82)	18.29%	43.90%	18.29%	19.51%	0%	
A-code 1-2: Sitting wall	21	14	0	0	0	35
Percentage of total (35)	60%	40%	0%	0%	0%	
A-code 2: Benches	60	32	0	0	0	92
Percentage of total (92)	65.22%	34.78%	0%	0%	0%	
B-code 3: Outside edge	12	8	0	4	0	24
Percentage of total (24)	50%	33.33%	0%	16.67%	0%	
B-code 4: Edge passage way	13	4	6	0	5	28
Percentage of total (28)	46.43%	14.29%	21.43%	0.00%	17.86%	
C-code 6: Benches around sculpture	6	4	0	0	0	10
Percentage of total (10)	60%	40%	0%	0%	0%	
D-code 7: Entrance with natural elements	3	2	0	0	0	5
Percentage of total (5)	60%	40%	0%	0%	0%	
Total	130	100	21	20	5	276
Percentage of total (276)	47.1%	36.23%	7.61%	7.25%	1.81%	

Separate occupancy maps for people alone (group of one) and people in groups (Figure 5) show people alone used seats and sitting walls close to the pedestrian passage while grass area and sitting wall by trees was the favourite place for groups. In fact people alone used space that is situated by ways through, which enable them to observe others. Inspection of the maps also shows most use was made of sitting walls under trees. It seems trees are being used not just for the shade they give,

since the grass shaded by the building was not very used. At the same time people sit by trees even in the early morning or late afternoon when it might be more pleasant to sit in the direct sun. This suggests trees are valued for other reasons.

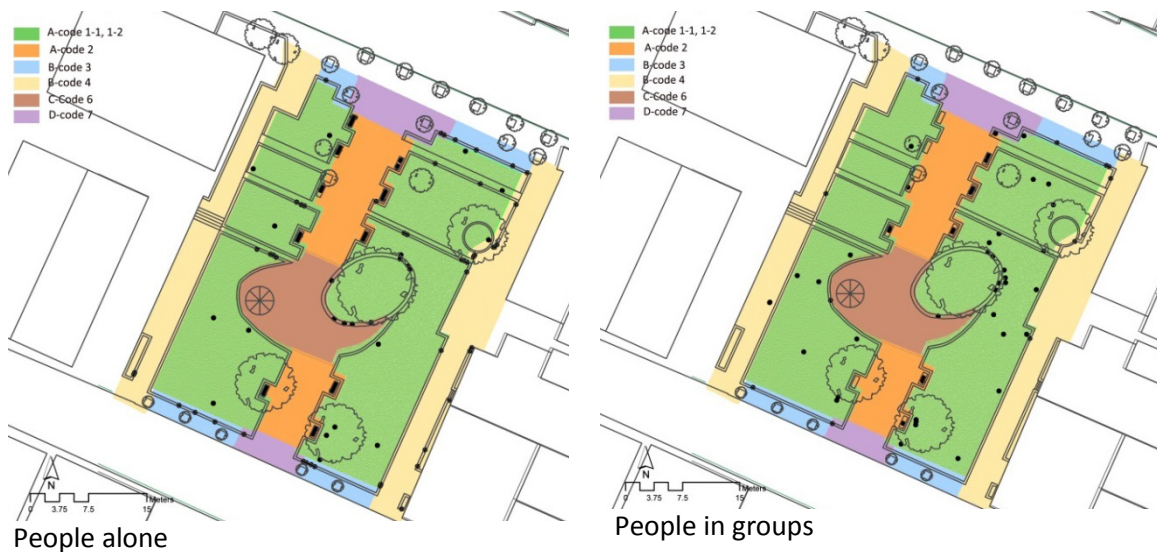


Figure 5: use of space by people alone (group of one) and people in groups (more than one)

Uses of space by different ages and gender

Analysis of photographs shows teenagers and young adults make up 79.72% of users, while adults and the retired account for 19.2%. Females were observed more than males. Grass and edge passage way are mostly used by teenagers and young adults. Seating and sitting wall are used most by young adults, then teenagers, followed by adults. Teenagers also used the edge passage twice as much as adults and young adults.

Activity

Activities recorded for each group show Glover Park is mostly used for sitting, eating, and reading. Standing and short time activity like smoking were observed in a few cases. Vigorous activity and other activity, like sleeping, are also represented suggesting Glover Park provides a relaxed and flexible environment.

Length of stay

To an extent the time people spend in a place reflects the quality of the place. Although calculating the accurate length of stay is not possible using snap shots, it is possible to observe the number of times a person appears in a series of photographs and use this for measuring sustained use of place. People used the entrance, edge passage way, and outside edges for a short stay. Users of sitting walls and benches were observed mostly in one or two photographs, and grass attracted people for a longer time (Table 5).

Table 5: length of stay

Number of time group ³ observed		One	Two	Three	Four	Five	Six	Seven
A-code 1-1	N	18	13	3	5	1	1	1
	P	42.86%	30.95%	7.14%	11.90%	2.38%	2.38%	2.38%
A-code 1-2	N	21.00	4.00	2.00	1.00	1.00	0.00	0.00
	P	75.00%	14.29%	7.14%	3.57%	3.57%	0%	0%
A-code 2	N	48.00	18.00	6.00	2.00	2.00	0.00	0.00
	P	63.16%	23.68%	7.89%	2.63%	2.63%	0%	0%
B-code 3	N	15.00	2.00	0.00	0.00	0.00	0.00	0.00
	P	88.24%	11.76%	0%	0%	0%	0%	0%
B-code 4	N	13.00	5.00	0.00	0.00	0.00	0.00	0.00
	P	72.22%	27.78%	0%	0%	0%	0%	0%
C-code 6	N	5.00	2.00	1.00	0.00	0.00	0.00	0.00
	P	62.50%	25%	12.5%	0%	0%	0%	0%
D-code 7	N	4.00	0.00	0.00	0.00	0.00	0.00	0.00
	P	100%	0%	0%	0%	0%	0%	0%

Occupancy maps also indicate places occupied longer are close to trees.

Discussion

Results of behavioural mapping show that after using benches there is a preference for grass. Figure shows that use of grass in Glover Park is associated with the shade from trees. Observing that the grass may be damp early in the day could explain why benches and sitting walls are initially preferred over grass which begins to be used after 11 am. These preferences for natural elements are in line with the preferences found in study one for natural feature and surfaces. Use of seating around sculpture also indicates a preference for artificial features, and for closeness to natural materials as found in study one. Bigger groups also used grass more than benches, and again are another finding showing preference for natural surfaces over artificial. Use of spaces close to trees with a level of enclosure ensures the affective and cognitive affordance of natural features. Preference was seen by groups for places close to natural and artificial features, confirming the finding about the importance of legibility for groups. Preference for seats by people alone shows the importance of usability for them. Use of the grass for a long time and for different activities is another indicator for the affective-cognitive affordance of natural elements.

Less preference for entrances, edge passage way and outside edge compared with grass, sitting wall by grass, shady areas with natural elements and seats around sculpture also confirms the results of the second (preliminary) survey.

A combination of natural shade, benches, sitting wall and grass seem the favourite subspaces in the behavioural mapping of Glover Park. However, the results of the second survey show less preference for benches compared with grass and natural shade. Seats around sculpture received more preference than benches in the surveys, but the behavioural mapping shows a preference for

benches over seats around sculpture. This shows the abstract question might not always receive the right answer and the combination of design attributes in a real context affects behaviours in ways which are not reflected in surveys.

Conclusion

The two approaches to research on the theory of the place focus on different aspects of place. Results of the two studies using theoretical and practical methods emphasise the necessity of using both approaches in an investigation of place. Investigation of the link between meaning and activity through observation is an inferential interpretation which gives rise to the need to use complementary theoretical research with reliable predictive power. A preference for natural elements over artificial as found in the survey research (study one) based on the theory indicates the link between meaning and activity emphasised in place theory. The intense use of places close to natural elements as observed in behavioural mapping is further evidence for this finding.

However, results of survey one indicate preferences for use of natural material but some differences in preferences for design attributes and detail were found between the second (preliminary) survey and behavioural mapping, showing the role of design layout and physical setting in uses of space, which indicates a need for behavioural study focused on context of place. While designers should consider theory in design they should also be aware of the importance of creating a good combination of design attributes, as vacant grass in building shade is an unsuccessful example compared to similar grass areas shaded by trees.

Although facet theory is good for having a theoretical understanding of place when it comes to design for people, research based in experience is essential, as is learning from history about what works in making successful small public spaces.

Acknowledgements: I would like to thank Dr Mark del Aguila (markdelaguila@gmail.com) for his helpful advice on the structure of this paper.

¹ Ethic approval for both study provided

² Group here means group of one, two, three or more persons.

³ Group here means one person or group of two or more people

References

Agnew, J. A. (1987). *Place and politics: the geographical mediation of state and society*. Boston: Allen & Unwin.

Bechtel, R. B., & Zeisel, J. (1987). "Observation : The world under a glass." In R. B. Bechtel, R. W. Marans & W. M. Michelson (Eds.), *Methods in environmental and behavioral research* (pp. 11-40). New York: Van Nostrand.

Canter, D. (1977a). *The psychology of place*. London: Architectural Press.

- Canter, D. (1997b). "The facets of place." In G. T. Moore & R. W. Marans (Eds.), *Toward the integration of theory, methods, research and utilization* (Vol. 4, pp. 110-145). New York: Plenum Press.
- Carr, S., Francis, M., Rivlin, L., & Stone, A. (1992). *Public space*. Cambridge, U.K.: Cambridge University Press.
- Cosco, N. G., Moore, R. C., & Islam, M. Z. (2010). "Behavior mapping: a method for linking preschool physical activity and outdoor design." *Medicine & Science in Sports & Exercise*, 42(3), 513-519.
- Daniel, T. C., & Meitner, M. M. (2001). "Representational validity of landscape visualizations: the effects of graphical realism on perceived scenic beauty of forest vistas." *Journal of Environmental Psychology*, 21(1), 61-72.
- Dovey, K. (2010). *Becoming places: urbanism/architecture/identity/power*. London; New York: Routledge.
- Ghavampour, E. & Vale, B., Del Aguila, M. (under review 2013) "The Affordance of Natural Design Elements in Small Urban Public Spaces." *Journal of Architectural and Planning Research*.
- Gibson, J. J. (1979). *The ecological approach to visual perception*. Boston: Houghton Mifflin.
- Golicnik, B., & Marusic, D. (2012). Behavioural maps and GIS in place evaluation and design.
- Golicnik, B., & Thompson, C. W. (2010). "Emerging relationships between design and use of urban park spaces." *Landscape and Urban Planning*, 94(1), 38-53.
- Guttman, R., & Greenbaum, C. W. (1998). "Facet Theory: Its Development and Current Status." *European Psychologist*, 3(1), 13-36.
- Hovgesen, H. H., Nielsen, T. A. S., Lassen, C., & Godtved, S. (2005). The potential for the exploration of activity patterns in the urban landscape with GPS-positioning and electronic activity diaries.
- Ittelson, W. H., Rivlin, L. G., & Proshansky, H. M. (1970). "The use of behavioral maps in environmental psychology." *Environmental psychology: Man and his physical setting*, 658-668.
- Joardar, S. D. (1977). Emotional and behavioral responses of people to urban plazas: a case study of downtown Vancouver. PHD, British Columbia
- Kaplan, R., Kaplan, S., & Brown, T. (1989). "Environmental Preference." *Environment and Behavior*, 21(5), 509-530.
- Karjalainen, E., & Tyrväinen, L. (2002). "Visualization in forest landscape preference research: a Finnish perspective." *Landscape and Urban Planning*, 59(1), 13-28.
- Marcus, C. C., & Francis, C. A. (1998). *People places: design guidelines for urban open space* (2nd ed.). New York: Van Nostrand Reinhold.

Massey, D. B. (1994). *Space, place, and gender*. Cambridge [England]: Polity Press.

Mongomery, R. (1989). *Architecture Invents New People*. New York: Oxford University Press.

Relph, E. C. (1976). *Place and placelessness*. London: Pion.

Rostami Bookani, S. (2013). Exploring the Effect of Changing Public Transit on Users' Behaviour in Saint George's Square.

Thompson, C. W., & Travlou, P. (2009). A critical review of research in landscape and woodland perception, aesthetics, affordances and experience. Prepared for the Forestry Commission: the research centre for inclusive access to outdoor environments.

Tuan, Y. F. (1977,2001). *Space and place: The perspective of experience*: University of Minnesota Press.

Van Andel, J. (1984). "Effects on children's behavior of physical changes in a Leiden neighborhood." *Children's Environments Quarterly*, 1(4), 46-54.

Vernez Moudon, A. (2013). "A catholic approach to organizing what urban designers should know." In M. Larice & E. Macdonald (Eds.), *The urban design reader* (second ed.). New York: Routledge.

Whyte, W. H. (1980). *The social life of small urban spaces*. Washington, D.C.: Conservation Foundation.

Zeisel, J. (1984). *Inquiry by design: Tools for environment-behavior research* (Vol. 5): Cambridge University Press.