5 The Facets of Place

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This chapter will outline one theory aimed at integrating aspects of environmental psychology with issues in architectural design. The theory to be reviewed is broad in those characteristics of theory that Moore (1987) called their 'form and scope'. This broad brush, top down approach is intended as a contrast with bottom up attempts to specify the behavioural effects of specific aspects of design, such as lighting levels or size of spaces. It also contrasts with models that seek to answer immediate design problems. However, in Moore's (1987) vocabulary, the theory to be outlined is more than an 'orientation', or 'framework'. It is an 'explanatory theory' that has been found to have considerable scope, open to direct empirical test.

At the heart of the theory to be presented is the struggle to create schematic models of the experience of places. These models are offered as general summaries that reflect many current explorations of the phenomenology of places (e.g., Stea and Turan, 1990; Fishwick and Vining, 1992), but have a statistical, empirical

basis rather different from the overtly anti-positivist proposals of earlier studies of place experience (most notably Relph,1976).

Although the length of the present chapter does not allow a full exploration of the issues, the premise of it is that in order for empirically sound environmental psychology theories to have the potential for being absorbed into the heartland of architectural decision making they must enrich our understanding of the experience of places. It is only in this way that they will connect with those aesthetic objectives that are such a dominant component of creative design.

In order to elaborate such a wide ranging theory of place, connections will be explored between the major facets of design (what it is that designers manipulate), and the paradigms for environment and behaviour research (what it is that researchers study). A framework will be sketched that links these two realms. In building these links it will be argued that many of the different areas of environment and behaviour research - such as building evaluation, environmental meaning and studies of space use may fruitfully be regarded as sub-sets of a larger matrix of related processes. They are particular combinations of a family of possible combinations of design issues and psychological issues. It is proposed that because they all come from the same family these issues have a basis in the same environmental psychology processes. It is therefore hypothesised that similar underlying structures will characterise results from these different areas of research.

In some senses then, the theory to be discussed can be classified as what Moore (1987) calls a 'structuralistic theory'. This chapter responds to his point that 'the tendency to date has been to argue the [structuralistic] position but show little supporting evidence' (p.1377). The present chapter will both argue the position and provide evidence in support of it.

The framework to be outlined is built upon the theory that place experience combines individual, social and cultural processes. Furthermore, the different paradigms of environment and behaviour research, rather than covering distinct, independent theories and processes, may be fruitfully regarded as exploring different aspects of the same process. It is hypothesised that these different aspects will be found to co-exist when studies of place experience are appropriately conducted. In other words, it is hypothesised that the appropriate analysis of studies of place meaning or use, or of building evaluations or cognitions, will reveal similar components of place experience. Results, to be presented from a variety of studies, support these central hypotheses.

The studies reported recognise that the theory makes special demands on research methodology. These demands are answered, in part at least, by the facet approach to research. This approach will therefore be briefly described. It will be shown that this does offer the possibility for the elaboration and test of hypotheses derived from the theory of place. Examples of such research will be presented as illustrations of the potential of studies of the facets of place for integrating many currently diverse issues in environment, behaviour and design.

Function, form and space

In order to develop detailed psychological theory that can be integrated into design a framework is needed for what it is that designers can have an influence over. What it is that designers actually manipulate has to be specified. Furthermore, if it is to be open to integration with psychological research, such a framework needs to have a real possibility of connecting with human experience. For example, a view of design as the manipulation of financial resources would be relevant to economic input. Conceptualising a building as the structuring of static and dynamic forces would be relevant to research in engineering. Neither of these, equally valid, perspectives would be helpful in building bridges to behavioural research.

What are the major components of the designer's task that are relevant to psychological considerations? One stimulating answer to this question has been offered by Markus (1982, 1987). He has presented a clear argument for there being three recognisable realms of architectural discourse that each reflect different aspects of what he calls 'primary experiences of buildings.' He referred to these as

a) the *function*, which is the experience of the explicit or implicit activities which a building houses,
b) the *form*, which are 'the geometric properties, the proportions, articulation, colour, ornamentation, and surface treatment .... summarised under the term 'style', and
c) the *space*, which embraces 'the number and location ... sequence and linkage of spaces'. (Markus, 1987, p. 469)

Markus' model is especially relevant for the integration of environment and behaviour research because he has argued that each of these architectural discourses, that are primary for the experience of a building, enshrine ways of classifying human action and experience. These classification process all derive from the same social milieu and therefore the discourses are expected to have common roots. He has argued, as a consequence, that although the discourses can be distinguished from each other there

> '... appear to be some basic, memorable, and *typical* conjunctions of form, function and space which seem more powerful, more appropriate and more dominant than others ... such conjunctions could ... be called "building types" and, further, classification could ... be the device which is the basis for the origin and development of building types'. (Markus, 1987, p. 484, his italics)

He thus has presented, as central to the main aspects of architecture, forces that coalesce to give conceptual structure to ways of thinking about buildings. Markus' three aspects therefore facilitate many considerations of how decisions relating to those aspects can be integrated with psychological research. However, before returning to these issues it is necessary to look at the research side of the equation.

Paradigms for E & B research

The range of approaches currently employed in environment and behaviour research is very wide indeed, but the recent review by Saegert and Winkel (1990) is helpful in mapping out the levels of complexity that need to be addressed. They have identified what they have called three 'paradigms' for research in person-environment studies. These are types of research question and associated modes of studying and answering those questions. Their argument is that each of these paradigms presents a virtually distinct realm of discourse, separate domains of activity.

The first of their paradigms is concerned with *environmental adaptation*: studies of the ways in which people cope with the pressures inherent in physical settings.

> '... In the adaptation paradigm the goal of biological and psychological survival motivates behaviour. The biological and psychological individual attempts to cope with threats, to meet basic biological needs and to restore and expand capacities for coping and flourishing'. (p. 446)

Saegert and Winkel did not describe these adaptation processes as passive assimilation by people of the world around them but as active managing of environmental transactions. This requires the utilisation of environmental knowledge in ways that helps to reduce stress and strengthen survival possibilities. The individual's cognitive processing of environmental experiences in order to survive or live more comfortably is therefore central to this paradigm.

The second, *opportunity structure* paradigm, embraces all those studies that deal with the opportunities the environment provides for the achievement of goals.

> ' ... the relationships between the behavioural requirements of the active and goal-directed person and the qualities of the environment ... selecting the best options within a system of socio-physical constraints and opportunities'. p. 452

Here the focus is on the options for action that the environment makes available and how people can select or manipulate settings to make possible patterns of behaviour, or styles of life, to which they aspire. An important distinction between the adaptation paradigm and the options paradigm is that the former is couched in individualistic terms, emphasising a person's own distinct reactions to their surroundings, whereas the latter carries strong implications about the social milieu in which a person is operating. Therefore, rather than being distinct and unconnected paradigms, it is worth considering the possibility that these two realms of study are different perspectives on a common system of experiences. One focuses on the individual, complemented by the second focus on the social.

The third paradigm recognised by Saegert and Winkel is the *socio-cultural* one.

> '... The person as a social agent seeks and creates meanings in the

environment'. (p. 452)

'... The paradigm ... explicitly recognises that environmental meanings and actions are not solely individual constructions. The individual both defines and is defined by the groups in which he/she participates'. (p. 465)

Here studies explore the ways in which the environment is a part of processes that define and enhance group and cultural identities. The symbolic and representational qualities of physical settings are the locus of attention for researchers operating within this paradigm. It also encompasses examinations of the historical processes by which the environmental images gained their significance. Research of this third type therefore elaborates the individualistic and social perspectives by adding a dimension that goes beyond the immediate person or group, giving special emphasis to the shared meanings of environments. By recognising that environmental meanings and symbols have an existence beyond the direct experience of individuals, Saegert and Winkel are drawing attention to those environmental psychology studies that explore *cultural* processes.

Saegert and Winkel present three distinct paradigms for research, arguing that more emphasis should be given to the third than is currently the case. However, there is logic to proposing a more closely integrated model. This integration is implicit in the account given by Saegert and Winkel because they present all three paradigms as capturing essentially dynamic transactions between people and their settings. The adaptation paradigm explores how people strive to cope with actual and potential threats; the options paradigm has people creating and selecting opportunities, and the socio-cultural paradigm sees people searching for significance and meaning. The dynamic interplay between these three different aspects of person/environment transactions is a logical assumption.

It is proposed that these three perspectives rather than being merely research paradigms are, in effect, three features of person-environment transaction, from the individualistic through the social and on to the cultural. Consequently, all three aspects are an important element in environmental transactions. A reasonable hypothesis is therefore that these three coalesce in our experience of places, although they are different aspects of it. We adapt, seek to enact opportunities and draw personal significance from the environment, all at one time. Our environmental experience is essentially multi-faceted.

A theory of place

The integration of paradigms

For the theory being developed in the present chapter 'Place', will be used in a slightly different sense from the ways in which Seamon and Mugerauer (1985), Relph (1976) and others have used it. It is proposed as a technical term for describing the system of experience that incorporates the personal, social and

culturally significant aspects of situated activities.

The reason, then, for using 'place' as a neutral, technical term rather than implying a quality of a location is to make available a unit of study that encapsulates the mixture of processes that create our experience of our socio-physical surroundings. There are some senses in which this is a development of Barker's (1968) concept of the 'behaviour setting'. It differs from that conceptualisation by including much more directly the understanding and expectations that participants have of the place in which they find themselves, together with the qualities that the physical shape and perceptual properties of that location have. Indeed Barker's ecological psychology tends to focus on the social aspects of the Saegert and Winkel model at the expense of both psychological and cultural processes.

In essence then, a theory of place is being proposed. The following points summarise the main hypotheses of the theory that have been presented so far:

1. There are focused units of environmental experience, 'places'.
2. These aspects of experience incorporate personal, social and cultural constituents of person-place transactions.
3. Each of the constituents will be reflected in the functional, spatial and formal aspects of a place.
4. For any given place there will be structural similarities in the ways in which psychological constituents are reflected in the aspects of a place.

Place as a focus

The first hypothesis implies that there will be core aspects of places. In general, there will be some coherence, or consistency, in the overall goals that a place is seen to serve for a particular group at a particular point in time. This central hypothesis proposes that a place will have a focus that helps to define its characteristic nature. A subsidiary hypothesis is that such core aspects of places will be consistent across places which house similar sets of objectives.

Conflicting goals for place use

Perhaps the strongest challenge to the theory of place outlined here is the recognition that many places will be required to house conflicting goals. Different groups of people may wish to use the same location for competing activities, as when fishermen and watersports enthusiasts wish to enjoy the same area of water. Or the same person or group may have opposing conceptualisations or uses for the same place as when a study bedroom must be used for semi-public entertainment or private sleep or study. The theory of place prediction is that any such conflict or competition is inherently unstable. Processes will be set in motion that will tend towards one or other usage becoming the dominant one. Indeed in his earliest writings Alexander (1964) argued that a central objective of the design process was to help resolve such conflicts. But, it is hypothesised that, even without direct

design intervention other modifications will occur in how the place is construed or used so that the setting ends up being one type of place.

The evolution of places

The move to a clear definition of a place implies a constant evolution in those places that already exist. As a consequence one of the strongest tests of the central hypothesis of a theory of place, i.e., that places tend to change towards a focus of experience, may be derived from historical examination of the evolution of places. The argument here is that if distinct places, with identifiable foci exist then there should be historical evidence of the continuing emergence and refinement of places, an evolution of places that is analogous to the evolution of species. One early, amorphous, all encompassing place would be proposed which then evolved into ever more specific places, each place taking on a significance of its own out of which new types of place would emerge.

The essentially dynamic, changing experiences of places inherent in this Theory of Place has already been briefly outlined (Canter, 1985), but evidence for these evolutionary processes in the creation of places has been long recognised, most notably by the social architectural historian Girouard (1978, 1985, 1990). He has presented numerous examples of how places evolve into ever more specific forms.

As is so often the case in science it is difficult to specify the details of research without some understanding of the methodology by which the research is to be conducted. The theory of place puts special demands upon the methodology. So, before detailed empirical studies can be reviewed it is necessary to summarise one approach to research that does appear to respond to many of the demands of the theory.

The facet approach

Demands on methodology

The theory of place draws attention to the essentially multi-variate 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 dominant core of such experiences for any particular setting. Another demand of the theory is that comparisons can be made, from one architectural discourse to another, between the patterns of relationships between components. This is a comparison of what Seamon (1987) called 'structures'.

The theory of place is also sympathetic to the phenomenological objective of establishing '... the actual nature of everyday environmental experiences...' (Seamon, 1987, p. 6). This is taken to mean that the *methodologies* employed do not make any prior assumptions about the structures that will become apparent. The constituents discussed are hypothesised to be naturally present, underlying place

experience. No strong prior assumptions are made about how they relate to each other, i.e., their structure. Thus, although the theory of place discussed here does share with the phenomenologists a desire to describe experiences as they exist, it does eschew '... the main vehicle ...' of '... *intuitive insight* directed towards the phenomenon studied ...' (Seamon, 1987, p. 7, his italics), because of the arbitrary nature of the driving of such a vehicle. Application of such insights without any firm basis on which to draw are difficult to evaluate or to incorporate into archival scholarship (Sixsmith, 1983). However, as will be demonstrated, such intuitive insights can be harnessed with profit to the appropriate empirical analyses.

Facet theory

One approach to research that has some potential for responding to these demands is known as *facet theory* (Canter, 1985). This approach can be used to *test* hypotheses about place experiences as in much conventional experimental science. In these circumstances the theory to be tested will have already been formulated, say from previous research or logical examination of the environmental literature. More importantly for the theory of place the approach can be harnessed to the *generation* of hypotheses, i.e., the discovery of naturally occurring systems of place experience, in which loosely formulated 'intuitive insights' can be explored, elaborated and tested through replication. It is in this latter mode that the approach shares some common ground with other strategies, for the *description* of existing systems of action and experience.

Although the term 'theory' is quite accurate in referring to facet theory, in the sense that hypotheses can be derived and tested from it, the term is a little misleading because the theory being espoused is about how theories may be best formulated and tested. In other words it is a *meta-theory*. As such it specifies with some degree of rigour the constituents of theories and ways in which the hypotheses derived from those constituents may be tested. In summary, it can be seen to combine:

a) a rationalist scientific epistemology, in which the scientist is seen as the creator of accounts of the world rather than the discoverer of platonic truths, together with,
b) formal ways of specifying the constituents of a theory with,
c) strategies for deriving and testing hypotheses about the relationships between those constituents, and
d) modes of data analysis.

Such a mixture of procedures and techniques, in effect, provide a whole approach to research so that the term 'facet approach' whilst being looser is more readily understandable.

Central to the facet approach is the proposition that the building blocks of any theory are ways of categorising phenomena. Such categories may be qualitative as

when categorising activities into rest, recreation and work, or they may be quantitative, e.g., frequency of place use. These categorisations are known as 'facets'. The specification of facets is the central, formal process for developing any facet theory. The only limitations on what may be regarded as a 'facet' are:

a) facets exhaustively cover all the phenomena under consideration, i.e., every example being considered is covered by one sub-category of the categorisation scheme, e.g., a facet of twentieth century architectural styles would need to include sub-categories covering both modern and post-modern styles,
b) each of the sub-categories is mutually exclusive of all the others in that categorisation, e.g., every design would have to find a place in only one style sub-category, but
c) all the phenomena under study can be categorised into as many facets as the researcher wishes, so for example, buildings could be categorised into primary functions, such as dwellings, offices, shops etc as well as styles. Indeed the values of facet theory derive from the fact that all studies are inherently of multi-faceted phenomena.

Following usage in mathematical set-theory, the sub-categories of a category scheme (the facet) are referred to as the *elements* of that facet.

The approach is profoundly multi-variate because it is based upon the principle that every entity under study, and thus every associated observation, will be classifiable on every facet the researcher identifies. The metaphor of different perspectives on the phenomena being examined, looking at different faces, or facets, of them is central to the whole theory. Science is seen as the bringing together of particular ways of looking at the world and showing how these different perspectives form an integrated structure. A theory is a related set of such facets together with empirical evidence for their existence and relationships.

The facets of place

Having:

a) summarised the central thesis of the theory of place by drawing attention to the ways in which Saegert and Winkel's (1990) review and Markus' (1982, 1987) reviews can be seen to suggest hypothesised constituents of places and the importance of identifying their focus, and
b) sketched out the facet approach as a way of formally specifying those constituents of place experience in a way that is open to empirical elaboration and test,

it is now possible to provide a more precise account of the constituents of places. These constituents are defined as facets. The specification of facets is therefore a first step in producing a testable theory of place. In a nutshell, the theory of place

therefore can be seen as the proposition that the following facets of place commonly exist and have consistent relationships with each other i.e., 'invariant structures.'

Facet A: functional differentiation. This first facet derives from the central proposition that places will tend to have a distinct character, what was called earlier a 'focus'. For instance, in studying the use of space in houses, looking say at what happens in each room in the home, it is hypothesised that there will be some activities that will typically take place anywhere in the home. These are the activities that are characteristic of the homes in general. These are the *central* or core elements of activities in the home. Exactly what they are depends upon the particular place and is therefore a descriptive question of some interest. The hypothesis is a structural one. It proposes that when a range of components of any particular type of place are considered some of those components will share common features. Another example can be drawn from evaluation of the functioning of houses, what is often called residential satisfaction. Here the hypothesis is that there will be some general aspects of satisfaction that relate highly to all the others. These general issues will go some way to help define what it is that gives satisfaction with a home of distinct qualities, distinguishing it from satisfaction with other types of place such as offices or hospitals.

If a central hypothesis is that some aspects of a place will be typical of all aspects of such places (conceptually central) then it follows that there will be other aspects of the place that are not typical of all aspects, being conceptually *peripheral*. Two types of 'peripherality' are possible. One is a random, unstructured collection of possible constituents of the different components of places. To take the activities in the home example again. The first type of peripherality would, therefore, predict that beyond the core activities that take place in most locations there are other activities that tend to happen in few locations, but where those locations are varies arbitrarily from one home to the next. The second possibility is a structured sets of constituents, each sub-set being associated with one sub-set of components. This second type of peripherality would predict that there would be groupings of activities associated with each room in the home.

The theory of place is much more comfortable with the second type of peripherality because this implies a structure for the whole pattern of activities that make up the home. It also implies that each room could be treated as a type of place with central activities that could take place anywhere in that room and other activities associated with different parts of it.

The elements of centrality and peripherality have been described, for simplicity, as a dichotomy, but it is logical to assume that they are conceptually distinct poles with various gradations between these two extremes. The degree of precision with which the different gradations can be identified will depend upon the clarity of the data.

One further point of clarification is also important to understand. Because Facet A is an hypothesis about the structure of relationships between components of places the content of the facet, i.e., what it is that is central or peripheral, will be defined by other facets under consideration. This relationship between facets serves

to emphasise that any theory derived using the facet approach is a systems theory, it is a theory about the structure of constituent components. In the context of places this structure is seen as derived from the consistent *process* that lead to the differentiation of places.

Facet B: place objectives. This second facet can be identified from the earlier considerations of Saegert and Winkel's (1990) review of research paradigms. In considering those paradigms it was proposed that they were distinct because they studied different aspects of a coherent system of place experience. It was argued that, in essence, each paradigm dealt with different types of objectives for considering the effectiveness of places. In other words, different aspects of the *goals* that a person has in a place. The distinct constituents each lead to a proposed distinct element i.e., *individual, social* and *cultural.*

Thus, for example, when considering the forms of buildings they may be hypothesised to reflect either a concern with individual comfort, or with opportunities for social contact, or with the cultural significance of the building. Of course, because these are all co-occurring aspects of the same system it is expected that they are all operative at the same time. The hypothesis is therefore that different emphases will be given to them for different buildings. It is these differences in emphasis that are hypothesised to underly, for example, different building forms.

Just as there were possible gradations between central and peripheral elements of the first facet, so gradations may be identified between these three elements. Psycho-social and socio-cultural emphases for example each combine two elements. The third possibility of psycho-cultural objectives in places illustrates an important aspect of this and all facets. If such a third possibility had a logical and empirical existence it would mean that this was not a simply ordered, essentially quantitative facet. If elements could be found that had a logical location between psychological issues and cultural issues then the simple sequence from the individual to the social and then on to the culture would be untenable. In a sense the sequence would have to double back on itself to provide a position for an element between the supposed two extremes.

The question about whether psycho-cultural aspects of places do exist helps to demonstrate that the logic of the facet approach implies hypotheses not only about the existence of facets but also about the structure of the elements within those facets.

To clarify this crucial idea further, it may be hypothesised that there are aspects of people's personal experience of places which are more directly related to their cultural context than to their social, interpersonal context. Any data dealing with such psycho-cultural matters, as for instance personal identity, would therefore be expected to relate more closely to psychological and cultural data than to social, interpersonal data. A simple order of relationships from psychological through social to cultural would not be found in such a case. This contrasts with the logic of the first, functional differentiation, facet. What elements could logically exist part way between highly differentiated and low on differentiation except those that

were between low and high differentiation? In other words the very logic of the differentiation facet leads to hypotheses of it being simply ordered, i.e., being essentially quantitative.

But what of the relationship between these two facets? A system is being described so all the component parts must have distinct inter-relationships. The logic would seem to be that the degree of differentiation must interact with the objectives facet. The more differentiated the aspects of a place are the more clearly that they should reveal particular objectives. A simple example would be that if the possibilities of certain levels of comfort was a crucial differentiator between the qualities of rooms, but the options it provides for social interaction had less of an impact, then satisfaction with the space in a kitchen would be predicted to have less relationship to satisfaction with space in a bedroom of any given house than would the comfort (satisfaction) levels of heating and lighting levels. But the general mood of a house would be hypothesised to reflect the space for social contact rather than lighting and heating provision. In other words facets A and B are not expected to operate like either two independent dimensions or distinct clusters.They are hypothesised to be part of a set of related processes. Indeed, the second main facet gives content (e.g., focus on individual comfort, social contact, or culturally related meanings) to the place differentiation of the first, by interacting with it.

Facet C: scale of interaction. The third facet is so fundamental that it is often ignored in theory building, although typically used in organising the contents of text books. Put simply this is the issue of environmental scale. It is generally accepted that there is a difference between use of space in the home and in the city. The experience of rooms is usually discussed very differently from the experience of buildings, or neighbourhoods, or regions of a city. Researchers usually decide to ask different questions, or record different behaviour when considering a playground in contrast, say, to a national park. But it is rare to question what the fundamental psychological differences are between these different scales and whether there are any parallels from one scale to the other, or even how these different scales, which are elements of a common facet, relate to one another.

This facet is an ordered facet like facet A, place differentiation. Places can be categorised from the smallest to the largest in a quantitative sequence of scales. However, it differs from facet A in that there is an empirical question as to how facet C relates to the other two facets. As has been argued, it is logically necessary for place differentiation to interact with place objectives, but how might it be expected that the scale of a place interacts with facets A and B ? There are at least two hypotheses that can be developed for the possible relationships between different facets.

One hypothesis for example, would be that the experience of the large scale, a town or an area of countryside, is a direct combination of the experiences of smaller scale constituents, streets, buildings, fields, streams. This hypothesis would predict that it was possible to predict the satisfaction an area of countryside from knowledge of satisfaction with each of its constituents, the trees, streams and so on. Another example would be that it would be possible to build up models of the

significance of a building from analysis of each of its components isolation. A contrasting hypothesis would be that people experience a place in a more holistic, molar way, whatever its scale. This would mean that it would be more difficult to predict the qualities of that experience from knowledge of the experience of the sub places it contains, say predicting the overall use of a building from the use of individual rooms. However, it would imply that no matter what the scale of the place the personal, social and cultural elements would be identifiable in much the same way.

The two contrasting hypotheses about the relationships between the experience of one scale of place to larger or smaller scales are, in facet terms, actually hypotheses about the interpendence of the scale facet with the others.The first hypotheses proposes that facet C will interact with Facets A and B. It suggests that experience at any scale, i.e., the quality of places and how differentiated they are, will interact with experiences of the smaller scale components. The second hypothesis suggests that facet C will be independent of the other two facets. The same relationships between the components of place experience will be found at each scale. As will be shown, it is possible to carry out direct empirical tests to establish which of these two structural hypotheses has the most support.

Facet D: aspects of design. Markus' three-fold constituents of design; function, form and space are also a major facet of places. This facet draws attention to the different aspects of the design of places that need to be considered when exploring the other three facets. Facet D therefore gives rise to a whole basket of hypotheses about how the structure of place experience may take on different forms in relation to the aspects of design that are being considered. For example personal comfort at the immediate scale, say in a room, may be most clearly revealed by examining the functions of a particular space and how readily these are achieved. This is probably what most building *evaluations* seek to do. To take another example, the form (or style) of a place may be examined to see whether it reveals emphases at the personal, social or cultural level of differentiation.

This complex range of hypotheses will take considerable elaboration. Given the limits of the present chapter a few examples will be given, in the presentation of example studies, of some of these hypotheses being tested. A more detailed review of all the hypotheses and their relationship to each other will have to await a lengthier publication. However, it is worth noting that the combinations of elements from facet D with those of other facets do appear to provide a framework that might well incorporate most types of environment and behaviour study. Building evaluations, studies of environmental cognition, explorations of personal space use, and so on, may all be analysed as focusing on particular combinations of the elements of facet D and the other facets.

A general mapping sentence

The network of facets that have been summarised is quite complex. Four have been presented above, but many others could be proposed. This is typical of most facet

theories. Guttman (see Shye, 1978, for details), who formulated the facet approach, therefore proposed a summarising device for presenting the main points in any facet theory. The essence of this device has three constituents.

a) To identify what it is that all the facets have in common.This will be another superordinate facet that indicates the range over which the observations can vary. This *common range* is typically frequency, accuracy or value.

b) To specify the population to which the facets are seen to apply, with any facets that might describe that population. This may be the population from which the people whose views are being solicited is drawn, or the types of places that the places being studied are taken to represent.

c) To summarise in ordinary language the relationships between the facets.

This summarising device, then, shows how the facets map together into the common range facet, encapsulating all the possible descriptions of the variables being mapped. For this reason it is known as a *mapping sentence*. It has the distinct advantage of making explicit many of the aspects of a theory that are often kept implicit. The algebraic ideas behind it are discussed most fully in Borg (1978).

For the Theory of Place a preliminary mapping sentence is proposed, in *Table 1*, summarising the key points of the earlier discussion.

The major hypothesis that is encapsulated in the mapping sentence in Table 1 is that there will be distinctions between the individual, social and cultural effectiveness of any place when that effectiveness is examined in terms of the functions of the place, its spatial qualities or its form. The mapping sentence, as such, does not propose details of the relationships between the hypothesised facets, although their interconnections are indicated by connecting words. Logical discussion and presentation, as in all scientific discourse, is required to elaborate the details of the facet structure. A number of hypotheses about the relationships between the elements of a facet and the relationships between facets, all of which are more detailed hypotheses about the facet structure, were summarised in the earlier presentation of the facets.

As has been mentioned, the purpose of the mapping sentence is to summarise a variety of hypotheses, all of which are open to empirical test, as will be illustrated in the following sections. The range of types of hypothesis are so many, though, that it is useful to list the *types* of hypothesis that are inherent in any mapping sentence. There are three broad types of hypothesis.

1. Existence of the facets.
   These are hypotheses that the elements indicated in the facets will be empirically distinct within the domain under study.
2. Internal structure of the facets.
   If the facets do exist then the structure of each facet, i.e. the relationships between its elements, is open to consideration. Whether it is ordered or not. If it is ordered what the actual order is.

3. Relationships between the facets
   Once facets can be seen to have a structure to them it is possible to hypothesise relationships between them. The consideration of these relationships reveal the processes that underly the system being examined.

Table 1 A summary mapping sentence for the theory of place

facet D

The extent to which Aspects of Design of Place (p) achieves

[1.Function]
[2.Space]
[3.Form]

facet A	*facet B*		*facet C*
Differentiated	Place		Scale of
	Objectives	at	Interaction
[1.Central]	[1.Personal]		[1.Immediate]
[2.Peripheral]	[2.Social]		[2.Local]
	[3.Cultural]		[3.Distant]

common range

[Effective]
will be to achievement of objectives
[Ineffective] through design aspects

Where place (p) is one of a Population (P) of places that are experienced by people and open to empirical study.

The facet approach is therefore also fruitful in providing a strategic structure for considering many different types of environment and behaviour study. Three examples of this will be presented and empirical study of them reviewed later in the chapter:

1. The consideration at the immediate level (element 1 of facet C) of social aspects (element 2 of facet B) of space (element 3 of facet D) can be regarded the study of 'territorial' and related uses of space, as for example reviewed by Altman (1975).
2. Personal objectives (element 1 of facet B) at the immediate scale (element 1 of facet C) may be most clearly revealed by examining the functions (element 1 of facet D) of a particular space and how readily these are achieved. This is probably what most building *evaluations* seek to do (e.g., Marans and Spreckelmeyer, 1981).
3. Studies of environmental meaning can be seen as explorations of how the

form (or style) of a place reveals personal, social or cultural significations (Rapoport, 1982). Typically such studies are at the immediate or local level of interaction. Lynch's great contribution (shown so fully in Banerjee and Southworth, 1990) was to point out that such studies are also very valuable if conducted at the distant level of interaction.

Testing facet models of place experience

In order to elaborate the research implications of the facet theory of place, summaries of three sets of empirical studies will be presented. Each illustrated the application of different aspects of the theory to the consideration of a number of studies. The three areas of research have been chosen to provide one example for each of the elements of facet D, aspects of design. The first example deals with space use (element 2) and the second with functional matters as revealed through evaluations (element 1). The third facet considers a study of architectural form (element 3). It will be argued that all three studies reveal analogous empirical structures, thereby supporting some of the key hypotheses of the general mapping sentence of the theory of place.

Actions and space

One starting point for the theory of place is the hypothesis that particular patterns of activity are associated with particular places. This is an hypothesis that has been accepted by many architectural theorists, most notably Alexander (1964 and subsequently Alexander et al, 1977). However, few of these theorists have explored the processes that may generate such patterns or the empirical evidence for the system of interrelationships which maintains them. A development of these ideas can be derived from the facet framework above. Facets A and B and C would be hypothesised to be reflected in all three of the facet D elements. Here, however we are concentrating on facet D, the spatial environment, at the immediate level of space use.

In other words, the facet model of place use leads to three hypotheses. The first is that there will be differentiation of places in terms of the uses to which they are put, as discussed earlier when describing facet A. The second is that there will be three distinguishable types of place use. One, linking to element 1 of facet B, (Saegert and Winkel's first paradigm), would be hypothesised to emphasise the physical adaptations that are necessary for the actions associated with the places. Another, derived from element 2 of facet B, would be hypothesised that emphasise relationships between people. The third (B3) would deal with the socio-cultural structure, reflecting connections with the broader culture and, for example, power and status.

The third hypothesis, discussed earlier, is that the two facets of place use will interact with each other.

This three-fold framework can be seen as an hypothesis that there are three broad classes of behavioural setting (Barker 1968). These three classes, however, are

expected to interrelate to form a system of space uses for any given type of place. Somewhat paradoxically, then, this set of hypotheses is more 'ecological' than Barker's original (1986) behaviour setting theory. Barker wrote little about how one setting influenced the existence of others. His primary task was to identify distinct settings. The present model, however, presupposes a set of interrelationships between settings. They form a system, each defining the other.

Physical layout is seen, in this regard, as a manifestation of the rule structures that exist across a set of social processes. These rules are a product of the co-existence of a number of related activity expectations, shaped by processes of social control, such as privacy (Altman, 1977). Facet analysis leads to the hypothesis that there will be underlying structures for activities associated with places.

A number of studies have been carried out in which the actions typical of particular locations are recorded, usually through an interview, e.g., studies of the use of different rooms in the home (Canter, 1983). Studies of societies in which space use is not obviously fixed, or difficult for a foreign observer to take for granted, are particularly helpful in revealing patterns which might otherwise be obscure. An early study of Japanese apartments (Canter and Lee, 1975) or more recent studies of Polygynous households (Omotayo, 1987) are interesting examples of these type of study.

In these studies a matrix is derived in which the columns are different activities and each row is a different room. In studies of space in the home a number of different homes are studied and the activity that takes place in each room noted in the appropriate cell of the row and column. By adding up the frequencies across all the homes studied and putting those values into the cells of the matrix a summary matrix is created that indicates the frequency with which each room is used for each particular activity. Other aspects of the rule structure, such as who is responsible for the room or has control over it can also be incorporated. This matrix therefore encapsulates the similarities and differences between the rooms in a house in terms of the uses to which they are put.

The theory of place predicts that there will be a facet structure underlying the co-occurrence of activities. Activities that have similar defining facets, for example being highly functionally differentiated (element 2 of facet A), and also social in orientation (element 2 of facet B), e.g., having a formal meal, would be hypothesised to be more likely to occur in the same range of places as other similar activities e.g., holding an important family meeting, and not to occur in other locations that typically housed activities with very different facet profiles. In other words, an empirical correspondence between the facet definitional structure and the empirical structure is taken as support for the original facet hypotheses.

This is known as the facet *principle of correspondence*. Conceptual, *theoretical* relationships, implied by a similar combination of facet elements, are tested by looking for corresponding relationships in the observations. In other words, each activity that might occur in the home (e.g., sleeping, eating, studying etc) is classified in terms of the two facets of interest here (facets A and B). This means that a number of activities will have a similar *facet profile*. For example, having a meal together 'dining', would be classified as similar to having a casual snack with

other 'snacking'. Similarly, studying and practising a musical instrument would be deemed to have the same facet profile and therefore be hypothesised to take place in the same locations.

The facet framework is essentially multivariate. All possible relationships between variables are of potential relevance to the hypotheses because every observation (variable) can be classified on every facet. However, no assumptions have been made about the statistical structure underlying these relationships, furthermore because a system of relationships is being explored it is to be expected that some facets will relate to each other. Orthogonal, distinct linear dimensions can therefore not be assumed. Indeed, as discussed earlier, some of the facets are theoretically posited to be non-ordered, so that a linear dimension may be a very inappropriate model around which to search for any evidence to support or challenge facet hypotheses.

These considerations of the importance of not using models that make strong statistical assumptions has taken the people who use the facet perspective away from the use of multiple regression and factor analytic approaches and encouraged them to use multi-dimensional scaling (MDS) procedures, especially non-metric procedures (Shye, 1982, 1989; Canter, 1985). These procedures represent relationships between variables as distances in an abstract 'Euclidian' space, i.e., an area or volume that has no predetermined axes. Typically each variable is represented as a point such that the further apart any two point are the lower the relationships between them. Points can represent people, places, actions, drawings or any of the possible populations of entities that may be studied.

MDS procedures, then, typically start with an association matrix. In the example of place use this would be a matrix that is derived from the original summary matrix of the frequency of room use. It is derived by correlating the frequencies of every activity with every other across the rooms. Put simply, the more likely any two activities are to occur in the same rooms the more highly correlated they will be. One of a number of possible algorithms is then used to produce a spatial configuration of activities that represents the correlations as closely as possible. So, the closer together any two points in the space, representing two activities, the more likely are those activities to occur in the same rooms.

The interpretation of these MDS configurations is not limited to the search for dimensions or any other particular structure. Instead a *regional hypothesis* is used. This is the hypothesis that the elements of a facet will be reflected in distinct regions of the MDS space. If no regions can be identified that relate to the elements then there is no support in that analysis for the particular facet. As illustrated in *Figure 1*, the relationships between elements, whether they are ordered or non-ordered, and between facets are tested by examining the topographical relationship between the regions.

Of course, the MDS procedures can be used to generate hypotheses about facets and their relationships as well as testing such hypotheses. As in all science the replication of results is the key to establishing the robustness of hypotheses.

For the study of space use in the home, the facet approach leads to the examination of the relationship that every activity has to every other activity. The

activities are represented as points in a space, the nearness of the points to each other representing the similarity in their patterns of occurrence across rooms. A summary of such analyses is given by Canter (1983) and reproduced in Figure 1.

This configuration provides some interesting perspectives on the theory of place framework. First, the overall structure does point to a system of interrelating places within the home. Strongly distinct places, or those ordered say along one continuum

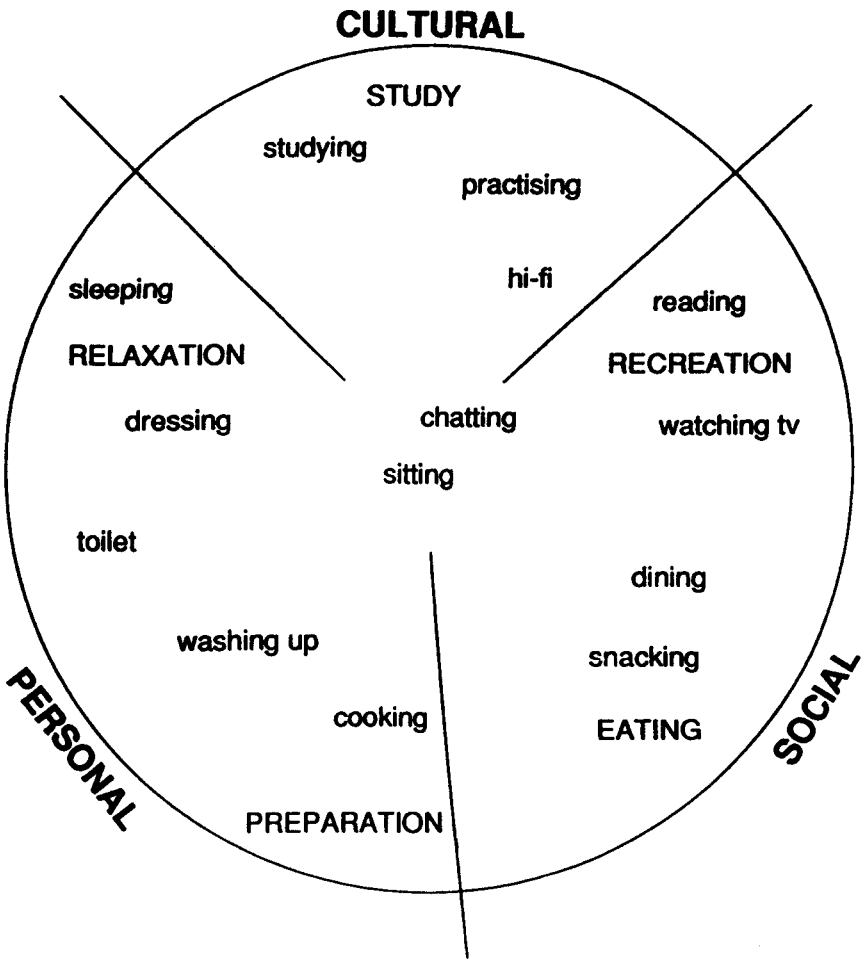

Figure 1 Schematic representation of domestic activities.

from public to private, are not demonstrated by this analysis, although for some households there may be clear discontinuities, e.g., where a husband has a number of wives living with him in the same compound (Omotayo, 1989). In general, then, Figure 1 shows a picture of some activities being more central to the plot and therefore likely to occur in most rooms. Others activities are much more

differentiated. This is taken as support for the existence of facet A, place differentiation.

With concrete instantiation it is possible to say something about the nature of this place differentiation in the home. The general activities are those that are the essence of domestic existence having some of the qualities of the more differentiated activities, brief moments of relaxation, casual reading, chatting to others, eating snacks. The analysis also reveals that there are more developed, distinct forms of these general activities that tend to have spaces particularly associated with them, sleeping, studying, family gatherings, eating meals, preparing meals and so on.

The original paper (Canter, 1983) proposed a five-fold segmentation of activities in the home. These five elements were derived post-hoc as ways of describing consistencies in a number of studies, including studies of Japanese furniture arrangements (Canter and Lee, 1975) and the use of bed-sitting rooms by students (Tagg, 1974). What speculations are fruitful about the relationships that relaxation, study, recreation, eating and preparation may have to our hypothesised elements of place objectives (derived from the original categorisation by Saegert and Winkel of research paradigms)? Is it possible to see personal, social and cultural emphases in the structure of activities in the home?

To take personal objectives first, these are postulated to be individualistic activities that are physically oriented towards the servicing of an environment and the possibilities in particular of physiological adaptation. So although all activities will have some of this adaptive component it is proposed that there will be an identifiable set for which this is predominant. It is proposed that bedroom and kitchen related actions most readily reflect this orientation. This proposal does give a rather different bias to adaptation goals for activities in the home, suggesting that for sleeping, cleaning and food preparation a dominant functional issue will typically be the service provision and fundamental physical environmental provisions. A kitchen or bedroom that is used for other activities beyond say food preparation or sleeping, for instance for meals in a kitchen dining room, or for studying in a study bedroom would take on environmental demands that are related to other objectives.

The social, interpersonal objectives, the second element of our facet, are obviously related to living room and dining activities. This draws attention to the essentially social nature of dining. Most societies have detailed rituals for the interpersonal transactions that take place around eating. For many people the room in which communal meals are eaten and the room for social gatherings are one and the same. Any distinctions grow out of the degree of formality with which meals are eaten. Regarding eating and lounge areas of a home as the ones that make possible various social opportunities, does help in understanding the significance that is typically given to these places in many households. The detailed studies of how the use and décor of these rooms carry social significance (Giuliani et al, 1988) is one important way of developing the exploration of these issues.

If the two elements are interpreted as indicated, the resulting hypothesis is that the cultural identity objectives (the third element of facet B, derived from Saegert

and Winkel's socio-cultural paradigm) are most dominant in what was called the 'study' activities of the 'workroom/den'. Clearly, as with both the other elements, there is an aspect of achieving some culturally related meaning with all the activities. Even sleeping is done in different ways in Japan, for instance, when compared with Western countries. Yet it does not seem so plausible that the location chosen to sleep has major implications for cultural identity. By contrast, it might be expected that it is in the social and recreational activities that significance as a member of a society is most emphasised. For example, the music people listen to often appears to define the particular sub-group to which they belong. However, to define an activity as strongly cultural in its emphasis it is necessary to be clear as to whether this is seen as at the far extreme from it being a personal activity, with social activities sitting somewhere between the two. Empirically no analyses have revealed such a linear ordering from the most individualistic, through the social and on to the cultural. Instead, the results suggest that cultural emphases sit *between* the individual and the social. This raises the question of what an extreme, *purely* cultural activity could be? An example that comes to mind is of religious actions, like praying. But are these not also personal as well and often conducted in groups? Their emphasis may be to strengthen an individual's identity within a particular cultural context but this does not put them at the end of a continuum.

In daily usage, as non-technical term, 'cultural' activities would be taken to include listening to music or other forms of participation in the arts. Most commentators argue that in the modern home the television provides the focus for such cultural activities and that in a more anthropological sense the mass media are the culture of our age. But this view reveals that the contact which a person has with their culture often takes place at a personal, individual level. The objectives facet should not be taken to imply, necessarily, that they will be reflected in increasing sizes of group contact. In fact since at least the early writings of G.H. Mead it has been clear that one of the most culturally determined aspects of experience is a person's concept of self. Is it far-fetched to suggest, therefore, that the activities that coalesce around recreation, study and relaxation may be usefully thought of as having a dominant objective of enhancing a person's own identity through socio-cultural transactions?

More detailed hypotheses for future test emerge from these considerations. For example the design qualities that are important for the study/recreation areas would be hypothesised to carry considerable symbolic significance especially in regard to how they reflect the user's view of themselves as portrayed through known cultural artifacts. By contrast the design qualities of a kitchen or bedroom would be expected to have roots in the services it is wished to reveal that they supply.

Purposive evaluation

The studies to be summarised in this section deal with the effectiveness of the functioning of a place (element 1 of facet D). In essence studies of the strengths and weaknesses of a particular design are dealt with under the heading of 'evaluation'.

Evaluations of places are the products of assessing how the components of places combine to help people achieve a variety of objectives. This perspective puts environmental evaluations centre stage. They enable us to examine the satisfactions that reveal how effectively a place supports a person's objectives. Evaluations are seen as an important part of the experience of places, of value to study in their own right.

The 'purposive evaluation' approach complements other approaches to evaluation such as that of Marans and Spreckelmeyer (1981) in that it hypothesises that evaluations will consist of a system of interrelated components that centre on dominant purposes for any given place. Part of the task of research, then, is to establish whether the core of purposes is identifiable for classes of place.

If a place has some sort of 'core' it would be expected that a place evaluation would reveal some common theme in any particular setting. This theme would be an aspect of the place that was crucial to its evaluation. For example, the acoustics of a concert hall might be hypothesised as being the best predictor of the evaluation of most other aspects of the place. The physical comfort of a bedroom, or the spiritual mood of a church, are other examples that come to mind. What the theme was would depend on the type of setting. It would be identifiable from an empirical structure that revealed variables which had high average correlations with all the other variables. The fundamental hypothesis here is that there will actually be variables that have a high average correlation with many other aspects of evaluation, rather than there being a lot of separate groupings of inter-correlations. In MDS terms these variables are likely to be central to the configuration as well as having a conceptual centrality to the experience of that place.

Donald (1985) reviewed a number evaluation studies carried out within the facet framework, finding strong evidence for the differentiation facet A, and consequently specific foci for different types of place. For example, in hospitals it is the care and attention at the bedside, and the way in which the design facilitates that, which is crucial to the whole evaluation (Kenny and Canter, 1981). In contrast, satisfaction with the space and servicing of the living room has been proposed as the core of housing satisfaction (Canter and Rees, 1982).

In some settings the reported research expresses more difficulty in identifying what is at the heart of satisfaction with that particular place. In offices, for example, the ability to communicate with other people within the organisation emerges as central but may not be tapped by any particular question dealing with place evaluation in an office (Donald, 1983). This raises the possibility that there may be places that are conceptually encapsulated by what *happens* within them almost to the exclusion of spatial or stylistic issues. An alternative hypothesis is that these settings do not form a coherent system of related aspects but are separate clusters of places. Support for such an hypothesis would be very important because, within the framework presented here it would be predicted to be an inherently unstable type of place. Such places could therefore be of great theoretical value in testing the limits of the theory of place. This is clearly an area in which future research would be very productive.

If there is a core to place evaluation then the other aspects of the evaluation are

likely to have degrees of differentiation that enable the distinct aspects to be identified. It is thus hypothesised that any aspect of evaluation has a number of constituents that interrelate, rather than a set of orthogonal dimensions. Following the discussion above it is hypothesised that the key constituents should reflect the aspects of place experience of facet B, i.e., adaptation that relates to the servicing of the environment, assessment of the action opportunities that are achievable and thirdly, the self-identity enhancing socio-cultural implications of the setting. In effect, these constituents would be hypothesised to radiate out from this core as illustrated in *Figure 2*.

Figure 2 is derived from the analysis of questionnaire based post-occupancy evaluations of buildings. It summarises the results of a number of studies as reviewed by Donald (1985). For each of these studies a large number of building users evaluated their places of work or residence by answering a set of Likert type questions. The questions were then inter-correlated and MDS analyses carried out in which each question is represented as a point in space. The closer together the questions the more highly correlated they are. By looking at the meaning of the questions it is possible to identify the theme that describes the region of the space in which the questions are found. Figure 2 is a schematic representation of that regional structure. The full technical details are given by Donald (1985) or in the papers he cites.

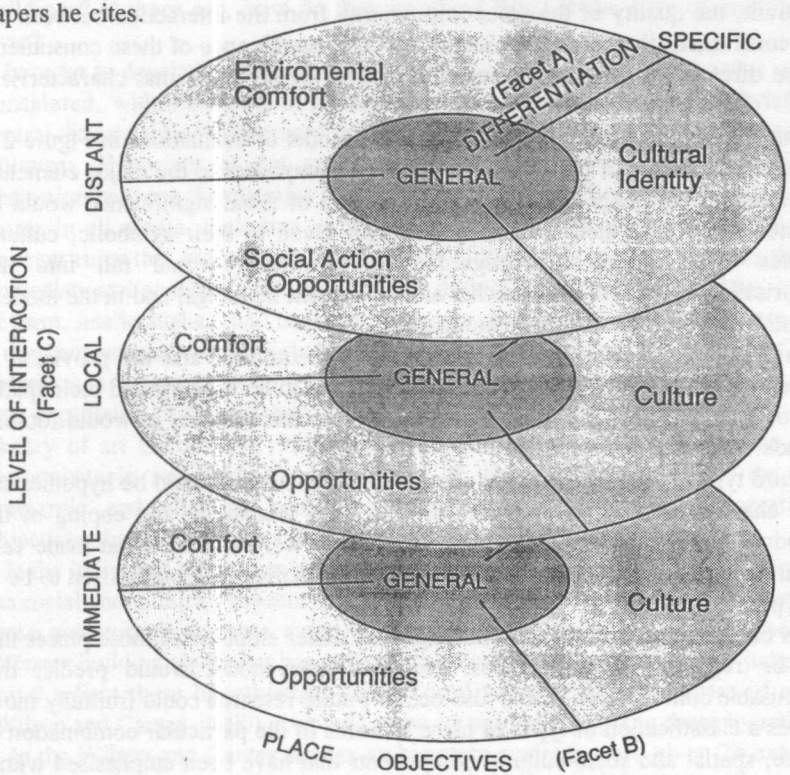

Figure 2 Schematic model of the structure of place evaluations

As will be seen in Figure 2 the elements of the place objectives do not produce some simple order. As with the activities in Figure 1 they have a circular sequence to them. This implies that all place evaluations share the different aspects to various degrees. What is of a special note is that the different elements do indeed group together. So that it is typically the case that heating, lighting and acoustic aspects of an environment highly correlate with each other. These were assumed to be the individual aspects of evaluation relating to element 1 of facet B.

Similarly, the different spatial aspects relate to each other. It is proposed that when considering spatial evaluation the main implication is for social contact. Therefore this region is seen as evidence in support of element 2 of facet B. These questions about satisfaction with spatial equations are also distinct from those aspects that link to the sort of people who are found in a place and the symbolic meanings that a place has. These are all aspects to do with what we have called cultural processes, i.e., element 3 of facet B.

The scale of transaction with the physical surroundings (facet C) also appears to operate as a separate facet. It can be found in a dimension quite independently of the other two facets. It implies that the transactions with a place that a person has, have the same basic psychological structure to it whether that place be conceived as an area of a town or a particular room. Whether it be an urban park or a restaurant, the quality of the place will emerge from the interaction between the three constituents that have been identified. The significance of these constituents will be directly related to the central objectives or purposes that characterise a place.

A further hypothesis that emerges from the model of evaluations in Figure 2 is that different classes of place will give differing emphases to the major elements. For example, buildings which have a great deal of ritual significance would be expected to be evaluated with special weight given to their symbolic, cultural qualities. Most architecture regarded as significant would fall into this categorisation. Here are the churches and parliament buildings, and in the modern city the banks and the insurance companies.

Buildings which are aimed at providing opportunities, and the provision of particular types of social transaction, are predicted to be built around their spatial components. Theatres and airports would fall into this scheme, as would football grounds.

A third type of emphasis, on the services and provision, would be hypothesised to be characteristic of those places in which the adaptation and coping of the individual was a central focus. Or in which there were activities that made very special demands on the users. Hospitals and schools may be hypothesised to be of this type.

This outline of ways in which buildings may differ emphasises those places that may be regarded as pure types. However, the model would predict that recognisable combinations would also occur. Future research could fruitfully move towards a classification of types of place in terms of the particular combination of service, spatial and socio-cultural components that have been emphasised within them.

One further advantage of such a multivariate typology would be that the effectiveness of a building could be examined in relation to what was considered a typical profile for places of that type. This would go beyond explorations of the meaning of places and their symbolic functions or the ad hoc attempt to identify the characteristic purposes. It would provide a cumulative framework within which to consider the different approaches taken to a variety of designs.

Place form and meaning

The final study to be considered draws upon the formal element 3 of facet D. It looks at the way in which the designs and styles of famous buildings may reflect the same psychological distinctions as do the functional and spatial aspects.

The theory of place draws attention to the ways in which forms of building may be hypothesised to reflect different approaches to modes of transaction with places. It is hypothesised that these variations would be analogous to those found for activities and building evaluations. Here the hypotheses derive from consideration of the ways in which the form or style of a building, mainly reflecting visual aspects of its design, may emphasise different approaches to place objectives. Is there any evidence for personal, social or cultural elements in the style of buildings? If there are, how do they overlap? What is the core of architectural style?

In order to develop further an understanding of how architectural styles may be considered, within a theory of place perspective, it is useful to review briefly the central discussions of differences in style that have been characteristic of aesthetic criticism. Historians of Art and Architecture have always pointed to a clear distinction between the classical and the romantic approaches to the creation of art forms in all media, including architecture. In the classical styles there are pure abstract rules that are seen as being free of culture and related to effects that are immediate and personal. Collins dictionary defines classical as 'marked by stability of form, intellectualism and restraint'. The romantic style by contrast is more local, it does not espouse abstract principles that define what is good and bad. The Collins definition is 'an emphasis on feeling and content rather than order and form .... the free expression of the passions and individuality'. In his extensive review of the history of art Gombrich (1950) showed in considerable detail how these broad movements in art touched every aspect of their activities, so that the terms 'romantic' and 'classical' could be taken as summaries of a conglomeration of objectives that the designers themselves were espousing.

Is the individual adaptation perspective, when seen as style, essentially classical; the social and cultural, aspects of a romantic style of architecture? A precursor to these questions is whether even architects can recognise relationships between different building styles that has any structure to it. If they can then their judgement could reflect these hypothesised architectural movements. One series of studies (Wilson and Canter, 1990) does lend some intriguing support to these hypotheses.

In the Wilson and Canter studies architecture students were given 26 examples of contemporary architecture in the form of colour photographs. Using the multiple

sorting procedure (Canter et al, 1985) students of different years in two schools of architecture freely assigned the building to categories of their own choosing. A particular type of MDS procedure, multidimensional scalogram analysis (MSA), that is especially suitable to this type of data was then used to examine the underlying structure of their judgements. For the present discussion the judgements made by final year students are of most relevance. These respondents had all spent a year in professional practice and were therefore acting from a basis of some considerable experience. *Figure 3* summarises the results of the MSA for the 15 final year architecture students.

In Figure 3 each of the buildings that was judged is represented by a small line drawing. The closer together these drawings the more likely were the buildings to have been assigned to the same groupings in the sortings that the students made. So, just as with activities and evaluation questions, it is possible to look at the configuration of buildings and consider what underlying structure it might reveal. A schematic summary of one proposed structure is drawn onto Figure 3. (A full list of the actual buildings used is given in Wilson and Canter, 1990.)

In the top half of Figure 3 are buildings that are undoubtedly modernist in their form, perhaps most obviously building 21, Mies Van der Rohe's Seagram building, and building 23, Eisenman's House VI. The other buildings in the top half all have an essentially simple, almost cubist form to them that is apparently driven by abstract concepts typical of classical 'intellectualism and restraint'. By contrast the lower half of the configuration contains buildings that are more complex in form and make more obvious reference to local, social and cultural issues. They exhibit much more directly than the top group romantic 'free expression of the passions and individuality', typically being drawn from styles described by Jencks (1972) as clearly 'post-modern', e.g., building 22, Moore's Piazza d'Italia, or building 24, Turner Brooks' Butterworth House.

It is therefore suggested that 'modernism', with its abstract, classical forms, creates places in which the individual's reactions to the building, independently of any social or cultural processes is the essence of the design approach. As such, a simple, pragmatic view that the form relates directly to the functions of the building would be consistent with the aesthetic stand. By contrast, the major developments of post-modernist thinking are to accept the relevance of the social and cultural significance of a design.

Within the theory of place, then, Figure 3 is seen as evidence for a general approach to architectural style being influenced by either the notions of individual adaptation, or by the opportunity and socio-cultural objectives that form other paradigms of person-place transactions. Indeed, a close examination of Figure 3 does indicate two distinct sub-regions in the 'post-modern' region. To the left are buildings that draw upon broad references to cultural meanings, including what Jencks (1972) called 'post-modern classical', whereas to the right are buildings, that Jencks called 'post-modern vernacular'. These latter have a much closer reference to local, social and sub-cultural design issues. It is therefore hypothesised that the distinctions between the cultural identity place objectives and the social place opportunity objectives are reflected in these two different approaches to

architectural styles.

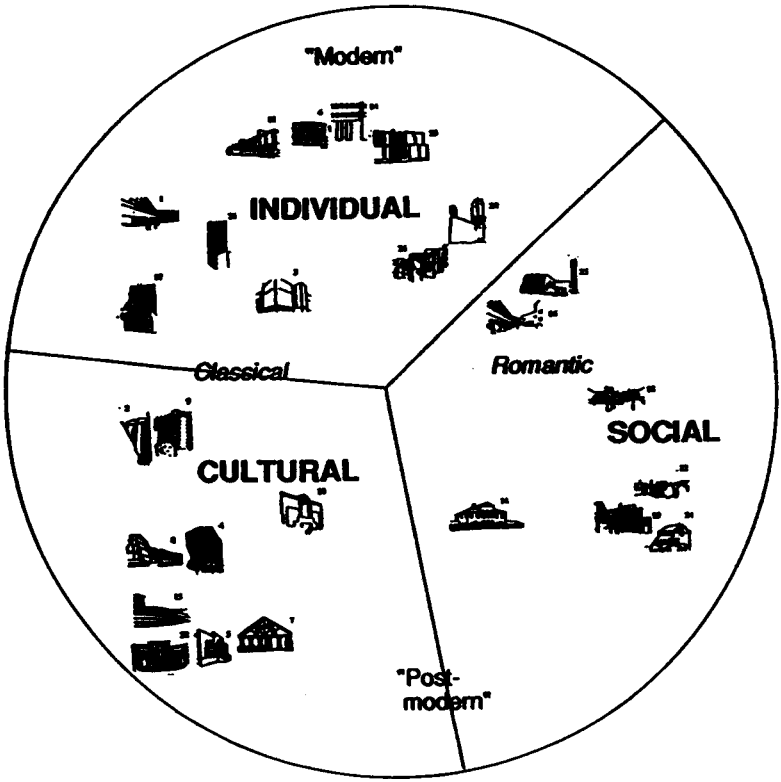

Figure 3 Schematic model of architectural style.

Is there a core to architectural place styles? The centre of Figure 3 is empty. There therefore does not appear to be any archetypal place within these contemporary buildings that could find an association with most of the other buildings. The idea of the evolution of places would predict this, arguing that by focusing on contemporary buildings a later stage in differentiation is being illustrated. This leads to the hypothesis that the central region would be filled by older buildings such as the early work of Frank Lloyd Wright. This is an hypothesis relatively easy to test.

Implications for future theory, research, and utilisation

This chapter has provide a broad sketch of a theory of place. Patterns of place use,

building evaluations and explorations of architectural style have been discussed as distinct but related examples of issues that all have a place within our experience of places. It has been proposed that each of these studies illustrates a different one of the three major aspects of design, namely function, space and form. The theory also predicted that each of these three aspects would show similar constituents that related to the individual, social and cultural objectives that people have for their transactions with places. A re-examination of earlier published research gave some general support to this central hypothesis, although there is clearly a very great deal of research still needed before the theory can claim any general validity.

Linking function, space and form

The results summarised and illustrated do indicate that consistent facet structures are likely to be found within the functional, spatial and formal realms of architectural discourse. In each of these realms there is some evidence for distinct, but interrelated, personal, social and cultural aspects of the person-place transactions. These findings throw a new light on the nature of evaluations, studies of place use and of architectural meaning. The possibilities for links between these three areas of research are also strongly suggested by some of the common aspects of their structure.

However, the complexity of the models proposed here presents a challenge to future research. How can the richness of possibilities that derive from the combinations of all the facets be reduced to manageable proportions?

One answer lies in the comment by Markus that there are basic, typical conjunction of form, function and space. Are there, at least by analogy, typical conjunctions of the personal, social and cultural modes of place transaction? Indeed, is it not possible that there are a limited sub-set of combinations of the particular aspects of building and experience? A sub-set limited by custom, tradition, design process and the requirements of human beings; in other words, a faceted typology of places?

This is a topic directly open to study using procedures like those described above. The hypothesis would be that identifiable structures would be found that have characteristic profiles across the facet elements discussed. Preliminary pilot studies following up these ideas have produced encouraging results.

Exploring the development and decay of places

If such characteristic places profiles can be identified then the question immediately arises as to how they came about. To answer this there is a need to address more closely the issue of the inherent processes of change in places. The general theory of place evolution argues that the major changes will be towards increasing differentiation of places, although the mechanics of this have hardly been touched upon. Does this mean that there are no conditions under which places will become less differentiated? These would be situations in which a number of separate places, housing distinct functions, were amalgamated whilst still supporting the different

uses. My own view at present is that such a reduction in differentiation is inevitably decadent in the sense of implying a deterioration of social and psychological processes. Examples of this are therefore likely to be found in destructive contexts such as war or famine. However, this is a matter of importance for future research.

A further range of research possibilities within this framework derives from new ways of looking at the physical forms of places. For example some of the meanings of physical forms derive from the opportunities that those forms offer. Size of a space, for instance carries limitations on what can happen in that space. Other meanings are more arbitrary, relating to historical accident or the availability of materials, such as the use of bricks in English houses. Studies to establish the universality of the association of meanings with forms could help to demonstrate whether functionally based meanings, such as space and status, are any less manipulable than those that are arbitrary, such as brick and domesticity.

Another related area of research would be to study, say, the evaluation of contrasting building forms that offer the same function but have quite different social connotations. Pilot work in which I have been involved does indicate that the evaluation of any given physical form will change enormously if the perceived function of the building is changed, even when only visual aspects are considered.

Developing place programming

Even a general acceptance of the theory of place outlined above has profound implications for the approach to design. Consideration needs to be given to the different modes of transaction that the building will facilitate, at the personal, social and cultural levels, as well as the functional, spatial and formal qualities of the building. The various interactions between these different components also need to be considered. The way the interactions will vary with the type of place that is being produced, and how they might evolve over time, add a further complexity to the processes that could be studied. A tall order indeed, and one that is only feasible if more research is carried out to reduce the implicit complexities of the processes involved, creating a distilled framework of the facets of place.

Acknowledgments

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Note

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