EXPLORATIONS INTO THE NATURE OF ENVIRONMENTAL CODES:  
THE RELEVANCE OF BERNSTEIN'S 'THEORY OF CODES' TO  
ENVIRONMENTAL STUDIES

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Abstract

Much research in environmental studies has been devoted towards finding  
the one meaning which the environment has, either for an individual or a  
group. Like the hunt for a Platonic idea of a 'table' by the analysis of  
constructed tables, this assumes an ideal, unchanging world; an assumption  
which re-appears in theories of functionalism or 'Ideal Fit'. The search for  
meaning at a different level must involve, not only a re-examination of  
thories of meaning in architecture, but also the discovery of  
a generative structure. Bernstein's 'Theory of Codes' hopefully provides  
a starting point for this investigation by studying how potential meanings  
are actualized in various modes by classification codes operating in a  
variety of contexts.

What I intend to do in this paper is simply to explore certain aspects of  
Bernstein's 'Theory of Codes' which appear particularly relevant to the  
built environment, and hopefully to spark off from this analysis a more  
systematic inquiry into the nature of environmental codes.

An argument which will no doubt confront me is that Bernstein's theory  
applies to the structuring of language and that it is dangerous to assume  
that this is the same as our structuring of the environment. However,  
though I accept the note of caution, an important aspect of Bernstein's  
theory is that it is concerned primarily with the study of the transmission  
of culture in general; its definitions are, as a result, applicable not  
simply to language but to other symbolic forms, such as buildings. As  
Piaget points out, verbal signs exhibit only one aspect of semiotic
function, so that linguistics is only a limited segment of a "general semiotics", which includes mental imagery, symbolic play, etc. To clarify this point, it is helpful if we see the built environment, like language, as a pre-given structure which we transform a little in the process of 'passing through'. In this light, what we are really interested in are the rules or codes which condition this transformation process.

Whereas Bernstein has explained the nature of these codes by looking at the role of a particular institution, speech, as a process by which a child acquires a particular social identity, my concern is with viewing the ritual forms of the built environment as transmitters of culture.

Nature of Codes

Hillier and Hanson have described a person's relationship to the environment as mediated by the

"organisation of representations into systems whose structure constitutes the means by which user experience is made intelligible."

Bernstein explains these systems in terms of codes or regulative principles which control symbols in diverse social contexts. For it would seem that symbols are encoded for particular groups. Therefore, only by understanding the codes employed can we understand how individuals act in specific contexts in the built environment. A particular social identity affects the way a building is perceived and conditions the way objects are related and ordered in space. Take for example the differing reactions to high-rise by different social classes, or again the Central Polytechnic building, which, while satisfying the planners and engineers, arouses numerous complaints from architectural students. Why is this and how do we begin to understand it?

Given that there is an active interdependence between man and environment, we can no longer investigate simply human responses to buildings and treat them as isolated dependent variables. We must instead explain this active interdependence in terms of equilibration mechanisms, existing in the form of relatively stable structures regulating the nature of the interactions.

Let me clarify this. The reactions to high-rise, for example, cannot just be explained by the fact that particular symbols possibly represent to the plaintiffs the coercive power of society, for they are also ne-
cessarily systems for them, since they have learnt to construct them so. Kelly and Piaget have shown that man’s innate structuring ability allows him to interact with and orientate himself in the built environment because he sees it existing as a structure of meaningful distinctions. But as Hillier and Jansen explain:

"In an important sense what the child acquires by his structuring activities is a copy of a structure already existing even if imperfect in all its details."

This point must be stressed. The structure referred to is not directly observable nor genetic, but cultural, controlling the options which the child takes up.

The clearest indications of different cultural codes can be found in different social classes. They do however, control, create and organise the complex of meanings which any role system transmits. They thereby regulate the relationships between modes of cognitive expression and certain social classes or groups.

In other words, the form a social relationship takes acts selectively on the type of code employed. The code itself then becomes a symbolic expression of the relationship and proceeds to regulate the nature of the interaction. By studying these codes we may therefore begin to understand the relationship between the structuring of relevant meanings and the form of their symbolic expression.

Classification and Framing

The first step in this analysis is to understand the underlying structure behind the relating and ordering of objects, rooms, etc., in space, and how this ordering acts as a system of control.

If contents are clearly insulated from each other, such as by zoning, then classification is strong (see diagram). Classification is indicated by the degree of boundary maintenance between contents. Strong boundary maintenance implies a clear differentiation of members and spaces and an authority structure with clear-cut, unambiguous definitions of status reflected in the ordering of space, the arrangement of furniture (c.f. Duncan-Jones' work etc.). If classification is strong we may then expect a purity of categories and specific allocation of objects. The equation of strong classification with ritual with order is vital for our understanding of the classification of space-types in the built environment,
for instance 'living-room', 'dining-room', where each space is accorded a particular activity. Each person is therefore expected to segment his social universe: what one may or may not do in a clearly defined space, such as a shoe shop is implicit in the classification of the shop by its 'use name'.

Framing, on the other hand, refers to the context in which knowledge is transmitted and received and particularly to the range of options over the control of what is transmitted. If framing is strong, this implies clear boundaries between what may or may not be transmitted, (e.g. what items may or may not be included in one's furniture). The possibilities of role and code switching are thereby reduced for instance, for the working-class, with their limited control over resources.

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<th>Classification (strong)</th>
<th>Framing (strong)</th>
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<td>Framing (weak)</td>
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It is clear that an individual orients himself to a group or groups through interpersonal and indirect relationships involving joint membership of a defined classification - such as clothes or the way different groups classify their houses. The more closed the social group, the more this is reflected by the ritualistic use of space, the commitment to a purity of categories and strong boundary maintaining procedures. Any breakdown in this classification weakens the identity of members and disturbs the authority structure. This implies a move to a more personal role system and leads to the blurring of boundaries and to the celebration of a mixture of categories in the use of space. This would obliterate one-to-one fits of activities to spaces and the classification system accompanying this 'perfect-fit' concept. Rooms could no longer be classified...
as objects (by use-names). However, if classification and framing are very weak, then a person is denied any frame of reference of group identity.

Context

The realisation of codes, at a different logical level, varies both according to whether frames are fixed or variable and according to the context and the strength of frames within the context. (I.e. the form of their institutionalisation). This is not to take a relativistic stand.

For if contexts other than one's own can be perceived and several people can relate to a particular context, there must be normative principles or codes at work allowing for this understanding. 'Context' then, has a mediating function, allowing the common use of space to several users simultaneously who become, through this, part of each others' context. They operate at many different levels, whose interdependent nature can hopefully be established through coding principles.

Restricted and Elaborated Codes

Bernstein's research has concentrated on different coding principles in middle and working class contexts. This is not to say that codes are necessarily functions of social class. In fact an important distinction needs to be made between codes and their use (or, in other words, people must be differentiated from the codes applied). In the environmental field, in particular, it would seem that social class is the clearest indicator of different space classification systems.

Bernstein has found that the organisation of different social strata is such that a different emphasis is placed on language potential as signified by different levels of verbal planning. This orientates the speaker to distinct and different types of relationship to objects and persons, irrespective of measured intelligence. So, for instance, cognitive mapping or the organisation of representations is qualitatively different in the middle and working classes. Bernstein calls the two codes which have emerged 'Restricted' (dominant in working class) and 'Elaborated' (dominant in middle class).
The Restricted Code is, perhaps, best exemplified by the poetry of working class children. This places an importance on the spatial ordering of lines, which allows symbols to reverberate against each other and points to the implicit and symbolised nature of space and the importance of condensed symbols for a working class child. It is a code of implicit meaning, mainly because its meanings are context-dependent, so that only those possessing a shared, unspoken, implicit understanding of certain features of the context can have access to its meanings. Because it serves to reinforce social solidarity and sustain the particular social form, emphasis is placed on the social order, not on the individual. Bernstein writes:

"The identity of the individual will be refracted to him by the concrete symbols of his group rather than creating a problem to be solved by his own unique investigations."

As a result, in the pure form of the restricted code, individuality is expressed through a set of social/public terms and by expressive means and not by the creation of unique forms. A gulf cannot develop between personal and public meanings, since the perception as well as the interpretation of symbols is socially determined. These symbols then become condensed, serving as multi-reference signs to expose and reinforce the social structure. The feeling attached to social content leads to an adherence to standards, ritualisation and tradition, which regulate the social relationships.

This descriptive order inhibits the hierarchical organisation of experience, creating a low order of generality which, consequently, places an emphasis on the content as opposed to the structure of objects. A restricted code is thus characterised by the ability to respond to the boundaries of an object, rather than to the matrix of relationships and inter-relationships in which it stands with other objects.

Elaborated Code

An elaborated code on the other hand, facilitates the construction and exchange of individuated symbols. Language, for instance, is seen as a set of theoretical possibilities available for the transmission of unique experience and the presentation of this to others. The emphasis is then on the verbalisation of feeling and on verbal arrangements which fit specific referents. This greater sensitivity to the feelings of others and
the interest in one's own internal states means that self is seen as differentiated from others. This form of differentiation, by encouraging explicit and specific meanings, creates a more instrumental attitude to social relations, making for a relatively context-independent speech form and a more highly differentiated social system. This high differentiation requires a complex conceptual hierarchy for the organizing of experience, and hence characterises the elaborated code as the 'learned ability to respond to an object perceived and defined in terms of a matrix of relationships'.

Different Modes of Classification and their Spatial Applicability

The distinct forms of differentiation in the two codes as a result of different means of organizing experience, are crucial for an understanding of environmental codes. What is important is not what is classified or ordered but the relationship and the nature of the differentiation between contents maintained. For the middle class, organization of the environment, in terms of space, time and social relationships, is explicitly regulated and has a greater rationality of connections. Through their upbringing their curiosity is directed to a greater sensitivity to the implications of separateness and difference and to a hierarchical conceptual organization. An experiment to demonstrate this showed that after studying pictures, the middle class child pointed to more differences and described them more efficiently.

In their classification of spaces, the middle class are thereby pre-disposed to the ordering of symbolic relationships, to imposing order and to analysing and breaking down complexity by atomistic reductions. Because of this stress on differentiation, they are led to deduce or create a structure from the differentiated spaces with which they are presented. To define this structure, however, requires the drawing of symbolic lines and boundaries by means, for instance, of zones or physical objects which can be used as environmental 'props' to distinguish the differentiation.

With the working class, however, curiosity is directed so as to enhance the solidarity of the social relationship. Categories referred to are not broken down systematically, and only the simplest logical implications of the boundaries of a structure are cognized.

The differences in these conceptual categories of classification lies in the context-bound nature. So the middle class, with their awareness of the formal ordering of the environment, classify spaces by means of 'use-names' (such as dining-room) which bears no relation to the
context in which the room is placed or to physical characteristics. Use names exemplify the form of differentiation of an elaborated code, whereby meanings of spaces are logically explicit and finely differentiated. By these 'name tags' the classification of activities and spaces are visibly displayed, but they have little meaning to the restricted code user because they are context-independent. For sensitivity to context, which characterises a restricted code, means that only certain aspects of an object will register as 'meaningful areas' and provokes a profound response to symbols of orientation. As opposed to discrimination in terms of use, naming will tend to be context-tied and locational, for instance 'front-room' and 'corner shop'. Anna Bridge's research at Kingston confirms that; she found that the working class tend to assess rooms in terms of basic physical form.

The pure form of a restricted code is characterised by a particular appreciation of symbolic action, which is a sensitivity to condensed symbols, multi-reference signs, allowing for personal and social integration. Mary Douglas gives an example of this concordance between symbolic and social experience in the ritualistic layout of a working class house.

'The first thing that is striking about the English working-class house is the attempt to provide privacy in spite of difficulties of layout. The respect for the privacy of bodily functions corresponds to the respect for the distinction between social and private occasions. The back of the house is appropriately allocated to cooking, washing and excretory functions, the front parlour, distinguished from the living room-kitchen, is functionless except for public, social representation.'

The ritualistic use of space exemplifies the emphasis placed by a restricted code on non-verbal symbols. These create a structure of meanings in which individuals relate to one another and realise their own ultimate purpose, but which appear from outside 'strung together like beads on a frame, rather than following a logical sequence'. Condensed symbols such as the ritualistic arrangement of windows, are placed against a background of communal, self-consciously held interests so that there is no need to make individuality explicit. In addition, and of importance to designers, these non-verbal symbols allow a person to find his way and orient himself in the environment without the aid of a multitude of signs, or naming devices, which serve to differentiate and make use of space explicit. The dominant belief in the efficacy of instituted signs, however, (as witness the built environment) discourages orientation by non-verbal signs and the richer experience of, and interaction with form which these facilitate.
Having outlined two basic conceptual categories of classification, I will now briefly attempt to show how the analysis can be carried further by looking at role systems.

Codes can be transmitted in a variety of ways and by looking at role systems, we may begin to understand what form of elaborated and restricted codes these encourage and how this is reflected in the ritual use of space. (See diagram)

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<td>Restricted</td>
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<td>Personal (person focussed)</td>
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For different normative systems will create different role systems operating with different modes of social control. Two role systems can be identified which result in distinct coding structures and thereby different modes of classification and ordering of meaning in the environment. The first of these is termed positional/personal; the second, person/object.

A positional role is distinguished by the formal division of areas of responsibility and spaces according to age, sex, status, etc. Spaces are thereby strongly classified or ordered, so that objects and rooms are correctly manipulated and each is accorded its correct place. A strong sense of membership is created in a particular class, which is reinforced by the maintenance of boundary areas. Appeals to status affect the transmission of culture or of local culture and thus serve to increase the similarity of those regulated by the role structure. Members then internalise this structure, against a common backcloth of assumptions, in the process of interaction.

A personal role, on the other hand, is distinguished by a reduced segregation of roles because the emphasis is on the psychological qualities of the person, rather than formal status. Space will thereby be weakly classified because of the continuous process of assimilating and accommodating the verbally realised, different intentions of the group.
Person/object role systems involve logically similar conceptual orders, but nevertheless are directed to different referents. Object modes, for instance, are concerned with the realisation and verbal elaboration of relationships between objects, as found, for instance, amongst science students. The person mode is more likely to be found amongst art students. For example, an elaborated code in a positional group will focus on objects as opposed to persons, since this mode discourages any reflection on the nature of social relations. Unlike the positional code, though, which tends to have a closed communication system, the person/object mode may be open or closed. If open, this results in an induced motivation to explore and create novel meanings.

**The Designer - Role Systems and Codes**

We are now closer to an understanding of how the symbolic ordering of space is related to the structure of social relations and how both would change through a shift in coding principles. We can now move from the context of the building in use to an understanding of how this context is related via the mediating regulating principles of codes to the context of the design activity.

The designer is generally drawn from a culture which encourages the use of an elaborated code. The extent to which this code has been stressed in his upbringing will be reflected in his design. As Masgrove writes:

"The degree of integrative skill which they bring to bear depends on the degree of integration already existing in his own cognitive map and only secondly on the skill at interrogating and using the instrumental sets at their disposal."

In the architectural school, he is then forced to narrow his interests to some extent, depending on the strength of his classification and framing in the educational system. The stronger the boundary-maintaining procedures, the more difficulty he will experience in stepping out of his field and relating it to other fields. The extent to which this integrative skill applies outside his own subject area will vary according to the emphasis placed on the positional and object roles within his own subject.

The designer's position, though, is complicated by the fact that he is required to fulfill and integrate the demands of both a person and an object role system. Within the object role system, the building is treated
as a symbolic object requiring an implicit methodology, the traditional insistence on drawing and model-making (implicit, non-verbal) and the distrust of verbalisation (i.e. explicitness). Paul Stansell’s research confirms this; he found that the more experienced the student was, the more the code used was implicit.

The designer traditionally, anyway, interrogates the instrumental sets at his disposal within the object system and attempts to synthesise these, as best he can, with the informal codes, (in the form for example of user requirements) derived from the person system, into the design solution. But to understand the informal codes, he is required to use a form of elaborated code, by making his principles explicit and establishing a reflexive relationship to the social order. By the jury system of defending design, he has also to be verbally explicit and is therefore forced to explain his design in an atomistic, reductionist way and to make his justifications person-oriented, as opposed to object-oriented. This has led to the emphasis in architectural theory on explicit function as opposed to implicit form. The conflicts within the context of design activity then arise as a result of the differing requirements of the role systems and the difficulty with the strong framing in education of role switching.

The designer is expected to perform an integrative function in designing a building, without any relational concepts. Within a more integrated code, design hypotheses would need to be based on invariances and functional permanencies characterising the variables affecting the design process, and applying to environmental structures and their regulation as a whole.

Herein lies the importance of codes – as mediators between the contexts of design activity and the building in use. For, at present, the lack of relational concepts deters the designer from studying the building in use (user context). The user instead is atomistically analysed into a set of rational behaviour patterns, with at most only casual links. This is due to the fact that the designer is not directed to general sociological elements symbolised by the form of communication. Instead, he maximizes pressure on the user to structure and restructure his experience with the aid of individual verbal symbols. But, as discussed above, the restricted code user has been encouraged to construct social not individual symbols. He has not been encouraged to make verbally explicit individual qualifications.

**Wider Implications**

This brings us to the wider implications of Bernstein’s theory to environmental studies. For unless surveys are aware of specific contexts...
the answers will appear irrelevant, since the restricted code user is not directed towards symbolizing intent in a verbally explicit form. Similarly if context is changed for the working class by, for instance, separating a family from the community, this will weaken the transmission of collective beliefs by creating a more individual system. Perhaps the most important questions for the designer concerns the two very different sets of symbols produced by the codes, demonstrating two separate appreciations of symbolic action. These are manifested by, firstly, a sensitivity to condensed symbols and, secondly, a belief in the efficacy of instituted signs.

Conclusion

I have attempted to outline following from Bernstein's work, how these classification systems or codes regulate the interaction between man and his environment and the context in which this takes place (at whatever level this may be). This hopefully helps us to avoid the usual casual hole, which for instance user requirements studies fall into, and gets us closer to an understanding of the building in use.

References


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"At the time this paper was written, Linda Clarke was a research assistant at the Architectural Psychology Unit, Kingston Polytechnic. She is now a research student at the School of Environmental Studies, University College London".