Architecture and Knowledge: Control or Understanding

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Summary

This discussion centres on the knowledge which architects call on when designing spatially. Practitioners, we argue, view disparities between expert and lay definitions of space usage — conflicts between professional and public interpretations of socio-spatial relations — as stemming primarily from inadequate information. In so doing, they reduce the social issues surrounding space usage to a series of problems that may be resolved by the supply and application of technical information : they seek knowledge in order to predict and thereby to control daily life. Consequently, they expect those social scientists who examine so-called 'man/environment relationships' to present research findings in the form of recipes, of generalised formulae that are immediately applicable to a range of design problems. This cast of thought is shared by social scientists who provide such data : they too seek formula-like abstractions, they too posit social relations as aggregations of standard units. We illustrate this reciprocity, this demand for supply of technical information, by referring to inquiries carried out in Community Homes for children and in office accommodation. In discussing this instrumental conception of knowledge, we emphasise a contrasting view; one that seeks neither to predict nor to control — one that seeks to understand social reality.

Résumé

Les architectes considèrent que c'est par manque d'information que les usagers n'ont pas la même conception de l'espace que les experts. Les architectes réduisent ainsi les problèmes sociaux relatifs à l'usage de l'espace à une série de questions qui peuvent être résolues par l'apport et l'application d'une information technique : ils cherchent des renseignements pour pouvoir prédire et ainsi contrôler la vie quotidienne. Par conséquent, ils attendent des chercheurs en sciences sociales, engagés dans des programmes de recherche sur les relations homme-environnement, des résultats sous forme de recettes ou de formules générales qui peuvent être immédiatement appliquées à une série de problèmes de conception. Cette manière de penser est partagée par les chercheurs en sciences socia-

les qui fournissent de telles données : ils cherchent aussi des recettes, ils posent aussi que les relations sociales sont des agrégats d'unités standard. Cette réciprocité est illustrée dans l'article par l'exemple d'un programme de résidences communautaires pour enfants et par celui d'aménagement de bureaux : on y demande et fournit de l'information technique. Les auteurs opposent à cette conception instrumentale de l'information une alternative : une approche qui ne cherche ni à prédire, ni à contrôler — mais qui cherche à comprendre la réalité sociale.

1. Introductory Comment

Since at least the end of World War II architects have viewed their profession as being in crisis (MacEwen, 1974). They have argued that a major aspect of this crisis arises, principally, from a rupture between their interpretations of spatial design and those of their public, from a disjunction of expectation about patterns of space use; from, that is, a breakdown of communication between expert and lay public. In attempting to overcome their consequent uncertainties, practitioners have turned to fellow experts, to social scientists who claim to provide data about public demand. In the main they have turned to environmental psychologists, from whom they have sought information about 'user requirements', about the functional requisites to be met by buildings. And environmental psychologists have responded. They, in turn, have sought to establish the environmental determinants of social action, to furnish the scientific basis of 'man/environment design' (Lipman & Harris, 1980a).

This correspondence of viewpoints is not surprising. Design practitioners and those social scientists who seek to serve them subscribe to a common conception of the type of knowledge relevant to spatial design,

'...that prescriptions for architectural design might be derived from laws about the reaction of human beings to their environments, analogous to the laws of a natural science such as physics' (Broady, 1975, 738).

That is to say, just as natural scientists seek to predict relationships between natural phenomena in order to intervene technically in nature, so designers and social scientists seek to predict social relationships in order to intervene technically in social life — in order to engineer socio-spacial relations. In short, designers and environmental psychologists share an instrumental view of knowledge : one which is informed by the belief that there is a causal relationship between a physical environment and the behaviour of its occupants. Adherence to this viewpoint gives rise to two related notions: 'form follows function', in which behaviour is held to determine the architectural form of an environment and 'function follows form', in which environment is held to be the cause and behaviour its effect (Harris & Lipman, 1980).

For environmental psychologists, as for designers, these expressions of a positivistic standpoint are associated with the utilitarian, the func-

tional emphasis that members of both groups place on space usage. Accordingly, in their efforts to engineer social relations they — in particular, designers — call for technical information on 'user requirements'; they call for studies that,

'...identify purpose, in terms of activities and human needs, for a projected building, and analyse their effect upon its design ... *designers* need to see how the animate and inanimate contents of a building affect the arrangement of space, fabric and mechanism, so that performance specifications can be devised to achieve a unified end' (Royal Institute of British Architects, 1965 — emphasis in original).

In other words, physical (environmental) scientists are required to marshal technical information about the thermal, acoustic and visual performance of buildings in order to prepare 'performance specifications'; in order, that is, to produce formulae for designers. And social scientists are to marshal technical information about the behaviour, attitudes and sentiments of building users in order to prepare similar performance specifications; in order, that is, to furnish designers with standardized data. User requirement studies are, then, directed toward generating generalised findings — findings that express everyday socio-spatial relations as the attributes of 'standard' units of population, as abstractions.

2. Design, the Demand for Technical Information

Architects, confronted as they contend by crisis, call for information about socio-spatial relations. Their demand for such data appears to be grounded in their occupational conception of service to the public. As we have argued elsewhere, the ideal of service to the community is central to the professional ideology of design practitioners : indeed, the designation *professional* carries with it the expectation that in applying knowledge technically on behalf of clients, practitioners also serve the interests of the community, of the public at large (Lipman, 1969). Like other professionals, architects claim that they bring neutral fact to bear in the service of all; that, as experts, they disinterestedly deploy value-free knowledge.

Furthermore, architects' conceptions of their publics have changed : increasingly — in particular since World War II — they have expected and are expected to design for what are perceived to be mass populations. That is to say, practitioners are constrained to employ the technology of mass production (e.g., so-called industrialised building systems) in order to accomodate large numbers of, for them, amorphous and anonymous building users (Lipman, 1976). Not unexpectedly, then, they seek formulae for identifying the 'standard units' which such populations are held to comprise (e.g., the 2+2.4 nuclear family). In short, they seek to fit standard units of population to standard units of production.

Consider, as a case-in-point, socio-spatial relationships in local authority Community Homes for children. Here the Department of

Health and Social Services (DHSS — the Ministry responsible for such accommodation) has elaborated relevant design principles in the guidance for architects published under its aegis (DHSS, 1971a). As in the case of other, similar, instances — such as the spatial design of Homes for old people (e.g., DHSS, 1973, 6) — these guide notes stress the salience of the standard unit 'family groups'.

This concept has been expressed as an organisational as well as a design principle. As an organisational, an administrative principle, the notion was expressed formally in the Curtis Report — the 'blueprint' for the Children Act of 1948 (Report of the Care of Children Committee, 1946). Seeking to reproduce 'normal' family life in institutions, the Curtis Committee — following evidence submitted by, among others, social scientists — recommended,

'...the abandonment of the large institution in favour of small group homes, containing not more than twelve boys and girls of various ages. In an environment on this scale, run ideally by a married couple, the woman would "play the part of a mother to the children", whilst the man "must play the father ...". Such a pattern was clearly an attempt to simulate ordinary family life — to reproduce, in the institution, a near-replica of the foster home that had found such favour with the committee' (Packman, 1975, 38).

The notion has similarly been endorsed as a design principle, as the basis on which purpose-built Community Homes have been planned and existing buildings adapted. This occurred in the 1970's when, following reports from the DHSS Advisory Council on Child Care (e.g., *Care and Treatment in a Planned Environment* — DHSS, 1971b), 'grouping' was held to be *the* basic design principle. Accordingly it was advocated that Homes accommodate family groups; that daily life be designed for and organised on the basis of small, spatially discrete groups of children :

'... that children in residential care should have opportunities for experiencing a variety of group situations. These vary from complete privacy and living in a small group to wider associations inside ... the home. This design guide therefore suggests that children should sleep, eat and find privacy in small groups formed within the larger community setting of the home. These groupings will need to be expressed in the design of the home so that each "living group", which might contain about 8-12 children, can identify its own particular "home" base ... the design of a community home should reflect its organisation : that is, a number of group living areas ... connected with common social and recreational facilities' (DHSS, 1971a, 7).

The assumption is, apparently, that spatial organisation reflects social organisation and *vice versa* : that there will be a *fit* between intended usage of space (as expressed in the dispositions of rooms desig-- nated by architects) and actual usage (as expressed in the ways in which the institutions are run). In other words, the notion of family groups is founded on the premise that there is a determinate relationship between

form and function, that there is a relationship of direct dependence be-
tween physical environment and behaviour.

A study of Community Homes for children that we have carried out
has not, however, upheld this assumption (Lipman & Harris, 1980b). On
the contrary, our observations indicate that norms associated with space
usage vary with the age-related expectations which staff present to those
in their charge. By way of illustration, consider sexual norms. We found
that as the children in the Homes approach sexual maturity, their sexu-
ality informs, permeates, life in these institutions. Thus, in one of the
settings we examined — a purpose-built unit for adolescents — the bed-
room accommodation for boys and girls is, we noted, located in zones at
opposite ends of the building; zones that, in addition, are separated by
staff bed-sitting rooms. This spatial segregation is reinforced by an elec-
tronically operated lock and warning device. Moreover, male members of
staff may not enter the girls' sleeping quarters unaccompanied by female
colleagues. In other words, we found that in this instance (i.e., in a Home
specifically designed to accommodate two family groups of mixed sex —
in accord with DHSS recommendations) the organisational principle is
not based on family grouping but is rooted in gender, in the expectations
about the sexuality of the children which staff bring to bear. Our data
suggest that a central concern for staff is to keep post-pubescent boys and
girls apart. At night this is done by segregating their respective sleeping
zones; during the day the same end is sought by concentrating, for ease
of surveillance, the children in adjacent communal spaces in one wing of
the building :

Deputy Officer-in-Charge : *Boys' and girls' bedrooms are at sep-
arate ends, with staff between them. They didn't use the corri-
dors but would meet downstairs during the night, or the boys
would come down their stairs and up the girls' and sleep with
them. We put a stop to this by fitting buzzers to the doors at
the girls' end. Now if anyone goes in or comes out an alarm
goes off.*

Senior House Parent : *If the architect had worked in residential
care with teenagers he wouldn't have planned for mixed groups.
If the ends [wings] were mixed they would be popping in and
out of bed with each other.*

Deputy Officer-in-Charge : *We don't run the Home as two
groups of eight, but as one group of sixteen. Everyone lives at
the kitchen end. We've two entrances, but we only use the
front door ... It's much easier supervising with only one door.
You only need one staff then and they'll know who's coming
in and who's going out.*

In advancing the design and organisational principle of family groups, the DHSS Advisory Council on Child Care offers architects a standard unit — a quasi-family complete with 'brothers', 'sisters', and 'parents'. In effect, practitioners are presented with a design recipe, a formula purporting to encapsulate the seemingly uniform needs of parents and siblings. We, however, found 'brothers' and 'sisters' to be sexually active adolescents and, so, to be segregated. We found, that is, the familial relations idealised in the notion of family groups to be fictitious, to conflict with the realities of sexuality among teenagers and staff. For the authors of official design guidance, as for architects who implement their advocacy, the notion provides a design and an administrative means of attempting to channel, to control people's sexuality. However, as our study indicated, sexuality is not a mere technicality, a problem to be 'designed away' by applying abstract formulae. Quite the contrary. For those who live in Community Homes designed on the principle of family groups, expressions of sexuality have to be confronted : for them, everyday realities obtrude.

Even in those Homes in which the notion of family groups was an administrative reality, we found departures from the prescriptions in the design guide; in particular from the injunction that :

'In the Community Home there should be opportunities for experiencing total privacy, involvement in small groups with adults and children, and contact with the whole community ... A home can be regarded as a progression of spaces ... (from "personal, 1 child" through "small group, 8-12 children" to "communal, all children") reflecting the children's need for privacy and community' (DHSS, 1971a, 7).

Space in a Home ought, in other words, to be allocated to shared facilities (e.g. 'leisure and dining') for the community as well as for specific family groups. Our study, however, showed that while such groups did, indeed, occupy their specified zones, space was not apportioned for communal use. Thus we observed 'communal' activities (such as leisure and dining) to occur within rather than between family groups (Lipman & Harris, 1980b). We observed that where Homes were organised with reference to the principle of family groups, the groups existed as, so to speak, self-contained and autonomous entities : each of the spatially discrete family groups was administered as an independent 'institution'. That is to say, we found the community-like relationships idealised in the notion of family groups to be fictitious, to conflict with the realities of socio-spatial relations in Community Homes. 'Community', like sexuality, is not a mere technicality, a condition to be designed in or designed out by applying abstract formulae.

In summary, architects and those who supply them with design guidance seek to foster particular types of social relations. They seek — by applying technical information to the design of buildings — to engineer familial and community-like relationships; relationships that are held to be desirable, beneficial for all and self-evidently wholesome. Such,

indeed, is the self-evident merit of these relations that the values on which they rest tend to be taken-for-granted and, so, are embodied in such abstract design formulae as the standard unit 'family groups'. In so doing, we contend, designers misrepresent the very socio-spatial relationships they seek to accomodate.

3. Environmental Psychology, the Supply of Technical Information

The cast of thought exhibited by design practitioners mirrors that held by environmental psychologists. The latter also subscribe to the doctrine that knowledge can be value-free; that it is produced by the disinterested accumulation of 'neutral' fact. They too seek formula-like abstractions and do so by positing social relations as aggregations of standard units; such units are specified by scores registered on standardised tests, indices, scales and the like. Thus Barker, founder of the 'ecological' school of environmental psychology, has defined a 'behaviour setting' by manipulating scores computed from batteries of 'structural', 'internal dynamic' and 'external dynamic' tests. The notion of behaviour setting constitutes the central, standard unit for ecological psychologists, the identification of which calls for 'precise operations', for 'detailed technical procedures'. Such a setting focusses on aspects of interpersonal behaviour and their purported fit — their 'synomorphy' — with an environment : they consist, in Barker's terminology, of 'behavior-and-circumjacent-synomorphic-milieu entities'. Three tests are applied for identifying 'community units that possess the structural and dynamic properties of behavior settings'. The first, the structural test, 'serves to exclude as behavior settings such discriminable community features as mores and customs, social classes, organizations, ethnic groups, geographical areas, roles, legal codes, educational systems'. The other two (the internal dynamic and the external dynamic tests) serve to reduce further the phenomena of community life, serve to make daily life as it exists for ecological psychologists 'manageable' (Barker, 1968, 18-35). Manageability, then, is the basis of the information that ecological psychologists present to designers (e.g., Gump & Good, 1976).

This emphasis on administering everyday life is shared by other environmental psychologists. They too seek to provide information for promoting, for engineering community relations. Lee, for example, has assembled a 'neighbourhood quotient' from a variety of indices representing the 'neighbourhood schemata' of a sample of housewives. Amalgams of their individual scores — the 'quotient' — are to be employed on behalf of design practitioners to examine phenomena such as 'neighbourliness' and 'community spirit' . In describing the implications of his work for designers, Lee argues that 'what they [planners] most lack at present is the ability to predict the consequences of their decisions for human behaviour'. Accordingly, Lee notes that the measures arising from his study provide 'a means of predicting behaviour for a given aggregate of people with a territorial base'; they provide, that is to say, a means of

promoting 'more friendships, club memberships and shopping links', they provide 'a variety of people to fit community roles and to enhance 'mutual awareness', they provide 'higher social participation' ... and similar desiderata (Lee, 1970, 349-370). And, in the past, we too have subscribed to this orthodoxy; we too have aspired to engineer social relations. Indeed, one of us sought to define 'social behaviour' by summating individually-based measures; measures, that is, of the frequencies of contact reported by neighbours living in a New Town. Scores of this 'social' behaviour were then used to examine design 'problems' such as 'traffic segregation', 'territorial perception' and 'environmental status' (Lipman & Russel-Lacy, 1974, 139-147).

For environmental psychologists, then, research is a means to a specific, an instrumental end. For them, the research enterprise is not an attempt to understand how people construct their daily lives : their measure of success depends on the extent to which their 'predictions' contribute to efforts to administer, to control socio-spatial relations (Harris & Lipman, 1980; Lipman & Harris, 1980a).

We turn now to a detailed discussion of environmental psychology at work, to studies of a particular 'design problem' — office accommodation. Here, the standard unit of population is based on the notion of 'work groups'; on, that is, the number of office workers deemed to comprise functionally efficient units of production, of work. This is instanced by the guidance offered in the Department of Environment's (DoE) publication on office planning addressed to officer managers (DoE, 1971) as well as that for design practitioners (DoE, 1976). For their part, environmental psychologists customarily calculate the composition and size of such groups by correlating individuals' responses to environmental variables (thermal, acoustic, visual and spatial) with factors such as age, sex, nature of task, status (e.g., Manning, 1970; Brookes & Kaplan, 1972). These correlations form the basis of formula-like guidance for designers to use when, in their turn, they calculate spatial distributions in buildings; distributions intended, among other goals, to enhance job satisfaction, to maximise productivity (e.g., Duffy & Worthington, 1977). These design and research practices are directed toward realising managerial aims : they are technical means by which research workers and designers intervene on behalf of office managers (Lipman et al, 1978).

Duffy et al's 'Planning Office Space' provides a pertinent illustration of such intervention. Published initially as the Architects' Journal's 'Handbook of Office Building', this 'heavily revised' version of that document furnishes 'managers and architects' with a 'practical guide to ... space planning'. This the authors claim to do by relating 'the basic types of office space ... to user requirements' and so to reveal the 'rational basis ... for making all (sic) the major decisions in commissioning and designing office space — from writing out the brief to laying out furniture' (Duffy et al, 1976, 3).

What is this 'rational basis' of office planning? What information is to be supplied for designers to achieve 'fit' between office spaces and

their would-be occupants? Duffy and his co-authors provide some requisite recipes : they prescribe a series of technical operations for optimizing the match between 'office shell' and 'organisation'. Apparently the first task for research workers is to identify hierarchical structure; or, in more explicit terms, to distinguish between the bosses (designers'clients), their managerial staff and the workers. Patterns of work-flow and communication networks in such structures are then analysed to identify 'functional elements' — work groups; in more explicit terms, to determine who tells whom what to do, with whom to do it, when to do it and where. This done, attention is focussed on collecting data for detailed 'layout planning'. Here, readers of the Handbook are directed to specific 'techniques and rules' — to techniques for determining such drolleries as 'closeness values' and 'closeness ratings' and to rules for producing such exotica as 'adjacency diagrams'; more explicitly, they are directed to establishing 'objectively' how much and what space is to be allocated to whom. When these and similar data have been categorised, codified and tabulated (e.g., Canter, 1972; Wells, 1972; Boyce, 1974; Justa & Golan, 1977) they are, as it were, distilled for design practitioners; distilled into 'space standards for different kinds and grades of staff ... the dimensions which are essential in planning office layouts' (Duffy *et al*, 1976, 78-95).

For Duffy and his colleagues, then, space standards are but expressions of office hierarchy. For them, the research enterprise ends where it began, with the *status quo*. They seek prescriptions that serve — by way of spatial planning — merely to reinforce existing managerial views of office life. They do not, that is, seek understanding of daily life in offices, but spatial formulae for supplementing managerial control. They do not, in other words, seek insight into socio-spatial relations, but design recipes for reproducing relations of dominance. In short, for them there is but one view of office life — the prevailing, the dominant, the managerial view.

But, as in the case of Homes for children, everyday reality obtrudes. A study of daily life in offices which we have carried out indicates that, not unexpectedly, office personnel attribute different meanings to their socio-spatial relations; they hold contrasting interpretations of space usage, they hold conflicting definitions of office layout (Lipman & Tranter, 1978; Lipman *et al*, 1978; Cooper *et al*, 1980; Harris & Lipman, 1980). Such interpretations do not occur randomly. Our analyses show that they are associated with membership of status groups. Thus we found that respondents of senior (managerial) rank tended actively to endorse existing socio-spatial arrangements whilst those of middle grade expressed passive acceptance. Comment by other staff was less clear-cut. Though they approved of some aspects of their physical environments and accepted others, they were overwhelmingly the most actively critical.

Criticism from this latter group of office workers centred on the contradiction which they imputed to their work settings; on the tension between the use of office space to enhance efficient work and its use as a symbolic expression of organisational hierarchy :

> Clerk : *Obviously it [the office layout] was decided higher up. Mr ..., who I work for is only in about one day a week. I could work in there when he's away but it would raise too many problems with everyone else wanting to. It's really a question of status here. This may be rather a selfish remark, but it does seem that the most accommodation goes to those who need it least while we get pushed further and further into chaos.*
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> Secretary : *I mean, the obvious thing would be for the people who're here all day to have the separate rooms. But the others are more senior. So ...*

On the other hand, high ranking staff regarded such hierarchical symbolism as efficient, as functional :

> Senior member of staff : *I do need status 'cos I'm in a market trying to sell ... [the organisation]. In the past, when I worked in other ... [similar organisations], I could look as bad as I wanted — with whiskers on my face — because I didn't need to be smart. My status trappings are very functional.*
>
> Senior staff : *The main reasons [for the layout] are to give senior members of staff some space in which to think and work. I do think it's essential to have a room in which to work. I can't work myself in open-plan.*

And personnel who tended passively to accept the settings did so by rationalising, by justifying existing arrangements :

> Clerk : *It's lack of space. They tried making some people's workplaces separate in the typing pool — with shelving and cabinets. But there wasn't enough room.*

In sum : office settings are not defined uniformly. On the contrary, they are interpreted in accordance with status, with staff positions in grade structures. And the interpretations that prevail in tangible, in concrete form are those held by high status personnel — by those who exercise social power (Harris & Lipman, 1980, 424-425).

4. Socio-spatial Relations — Control or Understanding

Thus, we contend that design practitioners, and environmental psychologists share a view of social relations; in particular, they share a view of the nature and purpose of knowledge about these relations. Members of both disciplines subscribe to a positivistic cast of thought. For them, apparently, natural scientific knowledge is the acme, and the methodology of the natural sciences is the model, the paradigm of knowing. Just as natural scientists search for lawfully determined relationships, so social scientists are to seek the irreducible principles that regulate the conduct of human affairs. Just as, on the basis of such laws, natural scientists seek to predict relationships between natural phenomena and to intervene technically in nature, so social scientists are to predict and to intervene in society, to engineer social relationships. Just as nature is an object to be dominated via natural scientific knowledge, so social life is an object to be dominated via social scientific knowledge. Accordingly, environmental psychologists seek the immutable determinants of 'man/environment relationships'; they seek to furnish fellow experts — architects — with technical information about the latter's publics. They treat of building users as objects with measurable properties — they seek to prescribe 'user requirements'. They seek, in other words, to manipulate, to direct, to control socio-spatial relations.

We depart from this orthodoxy on at least three related counts :
A. We hold that, unlike the natural world, society is a product of human agency : accordingly, socio-spatial relations, unlike phenomena of the natural world, are produced by people in the course of their daily lives; people actively interpret their environments and, via these interpretations, they modify — even reproduce — aspects of their social and spatial worlds.
B. We hold that relationships in the social world, unlike those of the natural world, are governed by socially constructed rules and not by abstract, determinate laws: consequently, knowledge of socio-spatial relations arises from, and is a formal expression of, an understanding of culturally-bound conventions that, over time, are collectively produced, instituted and contested.
C. Thus we hold that knowledge of the rules of the social world calls for an understanding of social interaction, of interaction involving the exchange of meanings attributed to people, to their actions, and to the spatial settings in which the actions occur; it calls for interpretations of the social processes that underlie the conduct of human affairs (Harris & Lipman, 1980, 415-419).

For us, then, knowledge — as distinct from technical information — is not produced by conjuring up relationships, by concocting formulae. Quite to the contrary, it is produced by making extant relationships explicit and by attempting to understand such relations from a standpoint that, though different, embraces the interpretations of those who live the relations as part of their everyday lives. Such knowledge, such under-

standing is predicated on people's propensities for 'taking-the-role-of-the-other'; a capacity that turns on appreciation of how others experience the immediate social and spatial circumstances of daily life.

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