ENVIRONMENT AND DECISION MAKING

MEDIUL ŞI LUAREA DECIZIILOR

DELIA NASUI*, RADU CURETEANU*

**Aurel Vlaicu University, Arad, Romania*

Abstract: *Inordinate disparity between human goals and human accomplishments constitutes a state of conflict. Most conflicts involve the interpersonal pursuit of inimical goals, but another important class of conflicts involves the relationship between human goals and the supporting physical environment. We tried to harmonize these conflicts in the following paper.*

Rezumat: *Excesivul decalaj între ţelurile umane şi realizările umane constituie o stare conflictuală. Majoritatea conflictelor implică goana după ţeluri ostile, dar o altă clasă importantă de conflicte implică relaţia dintre ţelurile umane şi mediul înconjurător care ne suportă. În continuare am încercat să armonizăm aceste conflicte.*

Key words**:** *decision making, environment, human behavior*
Cuvinte cheie: *luarea deciziilor, mediu, comportament uman*

In the midst of unprecedented affluence and technological sophistication, most members of our culture encounter unnecessary and extensive conflict in their day-today interaction with the man-made environment. The discipline of environmental design is committed to the resolution of such conflicts, to the realization and maintenance of appropriate, viable man-environment relationships. *Designed environments* are systems of energy and matter interposed between humans and antithetical forces in the impinging (macro) environment. When operating at the proper level, such systems become an integral aspect of human biological and extra biological existence.

Designers are inclined to see their efforts as directed toward the satisfaction of human *needs.* This is, *of* course, misleading, and, as a result, the designer's responsibilities have been partially obscured and misdirected. "Needs" and environmental effects on them, can only be assessed in terms of their external manifestations-upon the resultant *behavior.* What people *do* is the ultimate and final reality of environmental effect. Problems of physical accommodation must therefore be defined in the same dimensions.

The behavioral scientist typically manipulates and/or observes the effects of environmental variables upon behavior, and these effects are generally held to involve three classes of variables, that is:

Set of environmental - stimuli set of organism functions - set of resultant behaviors

In environmental design the process is reversed. Behavior (and its antecedent organism functions) must be conceptualized in order to determine the effects of these upon the appropriate arrangement of stimuli:

Set of requisite behaviors - simulated set of organism functions - set of environmental stimuli

The interconnectedness of these two kinds of activity is clear, but moving from behavior to environment presents another class of problems. In the absence of a comprehensive, integrated, functional science of human behavior, the problems of mapping the environment-behavior interface for physical design purposes are understandably difficult and frustrating. Fortunately, the plight of the conscientious designer has come to the attention of the behavioral scientist and one begins to see the tremendous potential for meaningful interaction between these two disciplines. Designers are hopefully beginning to ask less simplistic questions and become increasingly cognizant of the complexities involved. They will

necessarily continue to pursue a breadth of resources, however, which no one behavioral scientist or area of research can deliver. Such is the multidimensional nature of their task[1].

What is lacking is a conceptual framework within which the various bits of knowledge we do have can be assimilated and within which relevant research areas can be identified. Assuming that the interests of environmental design and behavioral science (not to mention the human participants) are well served and equally advanced through collaboration between these two enterprises, what are the conditions which impinge on this interdisciplinary effort?

The objectives and historical situation within which relevant behavioral research (i.e., relevant to the design task) develops may account in some degree for the difficulties designers experience in applying these findings. Within the behavioral science community there is general agreement that, regardless of the mental apparatus invoked-be it simple, complex or nonexistent- the effects of environmental configuration on humans must be assessed in terms of observable changes, that is, behavior. It is agreed that environmental events produce some changes in organism state which in turn produces particular behavioral states.

The designer's mission contrasts fundamentally with that of the behavioral scientist. Moving from behavior to environment both simplifies and complicates the issues involved. It simplifies in that certain resources and research issues become less relevant than others. Analysis and modeling of fine brain structures, or ontogeny-phylogeny controversies, are not, for example, of immediate interest to the environmental designer. It complicates in that the inadequacies within, and discontinuities among, research areas must be sorted out. The designer cannot select particular variables to study or artificially impoverish the problem space. He must deal with human behavioral phenomena as they come. He must understand and accommodate large behavior systems. All classes of environmental variables must be ordered, because all sense modalities are affected. The behavioral sciences have not even approached the controlled investigation of behavioral complexity the designer must accommodate. Unlike the behavioral researcher, he deals fundamentally with *synthesis*. The designer, about to produce a system of stimuli which will have a specific effect upon the participating humans, seeks direction. He has become aware of a "hidden dimension," of profound and relevant studies in crowding and stress. He looks at the exciting developments in perception, rigorous psychophysical laws, elegant mathematical models of behavioral and social functions, the powerful and incisive techniques of operant behavior, and so forth. He knows that all of these make sense; each is rich with empirical substance, and each is relevant to some aspect of his problem. Finally comes the moment of truth when a physical decision must be made. At this point the disparate resources, each purporting to explicate the "blooming, buzzing confusion of sense data," do themselves become a blooming, buzzing confusion of sense data. Suffering from acute information overload, he simply acts, hoping that somehow designer experience, intuition, and creative prowess will overcome all. Occasionally it does, but most often it does not. The human participants pay the price, sometimes quietly enduring the inevitable conflicts, and sometimes reacting to dysfunction in a more overt mode. Since neither designers nor participants have demanded a program of environmental evaluation (as an integral aspect of design method), we have precious little evidence of the precise nature and magnitude of these dysfunctions, but we do know they occur[2].

It has been generally recognized that the environmental designer's task is far too complex for the human cognitive apparatus to handle directly. The move to externalize, evaluate, upgrade, and formalize design method-to make physical decision making more

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[1] *Anderson, D., Environmental Economics, Pensive Press 2007*
[2] *Skinner, B. F. Science and human behavior. New York: Macmillan, 1953*

amenable to the tools of logic, mathematics, and computer science-is now under way. These problem-solving techniques address complexity generally, but have not developed so as to overcome the discontinuities in behavioral resources. Our own efforts have been in the direction of realizing design methods grounded on the proposition that human behavior is the fundamental class of variables which must be accommodated.

If human environmental requirements can ultimately be assessed and accommodated only in terms of behavioral effect, the following concerns necessarily emerge. The issues which must be dealt with in a behavior-contingent approach grow out of an analysis of those operations required to:

- delineate the system of behaviors required in a particular human organization;
- specify the precise characteristics of the physical system required to realize the behavior system delineated;
- realize the physical system specified;
- verify the resultant environment-behavior ensemble;
- maintain the environment-behavior ensemble.

The human participants must communicate their goals, but beyond this, the problem is one of designating the behaviors whereby these can be realized. This can be a formidable undertaking embodying fairly technical implications. Whether or not environmental designers are equipped, or ought to be equipped, to handle the design of such behavioral networks is another kind of issue-a pedagogical one perhaps. In any event, a number of tools are developing in other disciplines which are directly applicable to such problems. Designers, it seems, must either become technically equipped to handle such operations, or find a means of working integrally with other disciplines which can. Perhaps, the latter is more feasible at this time[3].

The behavior-contingent paradigm tends to bring vague notions of man environment relations into somewhat sharper focus, at least for design purposes. The designer is primarily interested in the fact, beyond any theory which explains it, that a particular ordering of physical elements will produce specific behavioral topographies. His interest in the details of internal organism functions would seem to be limited, *provided* that the behavioral manifestations are understood. Two interrelated classes of problems are associated with an understanding of this interface. First, we obviously need more comprehensive and refined empirical data. Dependencies between behavioral and designed environmental elements are simply not well understood. Secondly, we need a more appropriate language for expressing these dependencies so as to specify a particular physical order (or class of them) for design purposes.

The environment rarely unfolds precisely as predicted, but if humans do carry such representations and expectations-an environmental model-contained therein is indication of a set of conditioned reinforces (positive and negative). Before such information is at all useful, or even verified as existing, it must of course be *externalized*. If it can be, such information is of obvious value to the designers of well-fitting environments.

Modifying behavior toward a viable or specified state, that is, stimulus control of certain features of the spatial environment, and the acquisition of appropriate stimulus discriminations involve multiple and varying presentations. Appropriate responses to complex, high-information environments generally come about as an organism acquires increasingly complex repertories. An environment which reinforces such acquisitions is one which is constantly *modified*. This is, we think, the key to the environmental designer's dilemma.

[3] *Glueck W., Business Policy and Strategic Management, Ed. Mc Graw-Hill Company NY, 1980*

As anyone who has attempted to deal with these matters understands, these are but speculations, intended to clarify, but not to resolve some of the basic issues. They do not really relieve the substance of our ignorance since only an innovative, energetic and expanded program of research can do this. In view of the vicissitudes of the environment-behavior interface and the crudity of our design methods, finite-state physical design objectives require serious reexamination. Indeed, our ignorance of these matters is not the only source of difficulty in realizing finite-state ensembles. If there is one obvious and unchanging characteristic of human systems, it is that they exhibit constant change.

Dissonance in the environment-behavior interface can come about as a result of, for example:

1. Changes in individual and collective *goal structures.* All human systems for example, industrial, governmental and even families constantly modify their goals.
2. Changes in *other environments* in the human setting, for example, social, economic. These change states in response to external and internal events.
3. Changes in external *physical constraints,* for example, when manmade and natural physical impingements, building codes, and economic means produce new environmental states.
4. Changes in the participating *human organisms* as a result of deprivation states, adaptation, and learning. These produce entirely new response probabilities in a particular setting.

Each of these classes of inevitable variability can and does produce dissonance in the designed environment-behavior interface. This sources of dissonance-together with our sheer ignorance of human behavioral processes and our impoverished methodological tools-produce a problem-solving environment of enormous uncertainty for the designer. In the light of these uncertainties, it becomes clear that a physical solution is not a solution at all but a *hypothesis* which can only be verified in a real-world setting. Furthermore, even a verified hypothesis must be reformulated when constraints vary. To be more specific, any human problem situation changes before a solution to it can be realized! In light of the realities of accommodation man-environment systems, we should simply reject solution-oriented design objectives in favor of realizing *experimental* contexts. The design community's mission is not to realize "timeless" artifacts, or even "optimal" solutions to man's needs. The real challenge is realization of the technical and conceptual means to maintain equilibrium between behavioral goals and the supporting environment on a *continuing* basis. The "experiment" is not performed to find a solution; it *is* the solution. The physical implications of such a proposition are challenging, to say the very least.

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