

## GAMING AS A RESEARCH TOOL IN ARCHITECTURAL PSYCHOLOGY

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### Abstract

The paper examines gaming as a possible paradigm for study of socially complex situations involving interaction between Man and Environment. Such a perspective is not novel in the human sciences having been applied by Mead, Goffman and others. The more normal "linear" model of research is contrasted with a possible non-linear model based on negotiative gaming. The portrayal of complex relatively complete situations as opposed to controlled laboratory experiments is proposed and the delineation of interactive structures is suggested as a necessary pre-requisite to measurement. Three examples of work using this approach are given.

A basic conflict exists in architectural psychology. This was evident at the Kingston Conference and has been pursued in print and in discussion over the last two years. The conflict of which I speak is that between the strict methodology of the psychologist and the relevance to real problems demanded by the architectural practitioner. Unless this conflict is resolved it seems likely that architectural psychology will have little value as a source of practical benefit in shaping either our ideas or our physical environment.

There is in fact at the moment no real discipline of architectural psychology. What we have is the application of fairly standard psychological techniques to architectural situations of a complexity far greater than the controlled conditions within which these techniques were evolved. On the other hand we have architects, who, eager to employ the findings of the promised discipline, have learned the language of psychology and accepted its techniques without examining the implicit premises of its arguments and now find it difficult to convince sceptical practitioners that their findings are of any relevance.

Such an analysis of the present state of affairs may be overstated. There are no doubt some researchers producing work which would be valuable in practical situations. My argument is

only that, unless we settle some fundamental problems pretty quickly, architectural psychology as a unique and useful area of study will stagnate. These problems are not just concerned with methodology or detailed procedures but concern the anomalies both within and between the present paradigms held by architecture and psychology.

There are, of course, many schools of psychological thought and to speak of a basic paradigm which guides enquiry and legitimates results is perhaps inaccurate. The same may be said of architecture. However, there are some very basic attitudes which are being questioned in the human sciences and in architecture which may ultimately force paradigmatic change. There is one common feature which portends a most fundamental change in viewpoint. This concerns the controversy over the appropriate model of man upon which to base experimental or design procedures.

Most of us are familiar with the arguments which characterise this controversy. The basic disagreement is between those who hold (more or less explicitly) that man is a passive entity, pulled or pushed in various directions by drives or needs, his every move mechanistically determined by his environment and the vast web of social forces, and those who see man as a relatively free decision-maker who forms strategies to deal with his physical and social environment. The main objection to the mechanistic point of view and from the techniques of research that flow from it are that value freedom and non-involvement are spurious goals and that in the attempt to attain such ideals man is reduced to the status of an object. As Charles Hampden-Turner says "to detach oneself and treat others like so many objects is not to be value-free but to choose to devalue others."

This view does not originate in psychology alone but is perhaps inherent in the attitude of most science towards its subject matter and to the society within which it operates and which forms its ultimate audience. For the basic message of science has been "things are not what they seem - common sense is misleading." Just as the physicist can claim that a table is really a collection of atoms or that heat is really molecular velocity so the human scientist has claimed that people are really governed by laws they do not comprehend and which can only be revealed by esoteric mathematical or experimental techniques. The scientist has become the expert interpreter of the hidden secrets of the universe - the modern priest whose creed is objectivity and non-involvement. In this scenario people are seen as manipulated objects - as vehicles whose motive powers are the dark forces of drive or need - as repositories for the multiplicity of factors ascribed to them by mathematical technique.

But (and this is much more dangerous) not only are people seen as manipulated - they are also seen as manipulable by the adjustment of those very factors in their environment and society. Thus the initial academic urge to predict behaviour in human situations easily becomes the desire to control behaviour. Luckily, architectural psychology has not reached this level of predictive precision nor can it. For the very model of man commonly used, partial, simplified and sundered by analysis as it is, is incapable of providing accurate prediction and therefore control.

Interestingly the architectural paradigm also operates in what Friedrichs has called the "priestly mode". The process of design increasingly has involved the architect or planner in making decisions for an anonymous user on the assumption that he is incapable of doing this himself. It is also assumed that the manipulation of the physical environment will produce predictable patterns of behaviour - the architectural determinism condemned by Broadbent and Gans. The present cry for more participation by the public in environmental decision-making raises an interesting parallel to the demands in the human sciences that the barriers between researcher and subject be relaxed. For what is being demanded in both cases is the establishment of interaction as the basis for research or design.

An architectural psychology based on the traditional methodologies of design and research may be represented by a linear model.

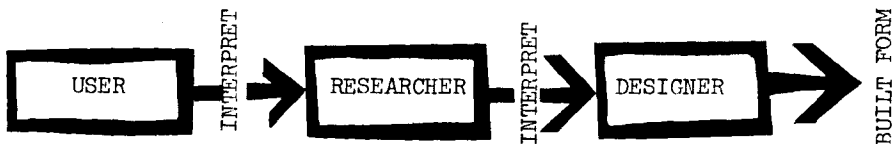


FIGURE 1. In this model the varied activities or verbal responses of the user are classified and quantified by the researcher who then passes this information on (usually in written form) to the designer who reinterprets the data according to his specific design task. The resulting artefact is thus the product of many successive interpretations by different individuals which have no opportunity of correction by the original user. How can we construct a model in which the interaction of the three roles of researcher designer and user is stressed?

It is at this point that I introduce the main concern of this paper - the suggestion that the concept of the game might serve as a common interactive paradigm for research and design and that gaming itself can be viewed as a research technique in architectural psychology.

The concept of the game has been used by a surprising number of human scientists as an analogue of human activity. G. H. Mead refers constantly to games as an illustration of **reflexive** activity in which individuals assume the roles of others in order to examine themselves. Goffman has used gaming as a perspective on human interaction in many situations ranging from public behaviour to espionage. Long considers communities as "ecologies of games pointing out that there is a "political game, a banking game a contracting game, a newspaper game, a civic organization game, an ecclesiastical game and many others. Within each game there is a well-established set of goals whose achievement indicated success or failure for the participants, a set of socialized roles making participant behaviour highly predictable, a set of strategies and tactics handed down through experience and occasionally subject to improvement and change, an elite public whose approbation is appreciated and, finally, a general public which has some appreciation for the standing of the players. Within the game the players can be rational in the varying degrees that the structure permits. At the very least, they know how to behave, and they know the score."

Thus the perspective is not novel in either sociology or psychology. However as Raser states "gaming has not been a vital part of research or teaching in psychology, probably due to the strongly entrenched tradition which sanctions only highly controlled experiments ... psychology has made and continues to make invaluable contributions of theory and data to the field of gaming but has not made much use of this technique".

One point that I must make clear before we proceed any further is that the approach which I will suggest has little to do with "gaming theory" - the mathematical analysis of simple games played by logically idealised participants. The gaming situations to which I will refer are multi-roled, multi-valued and of an order of complexity quite beyond the range of analysis in terms of game theory. They are in fact intricately structured face-to-face situations which can act as the total model in which research, design and participation may take place in a negotiative manner.

In fact "negotiation" is the key word here. It is in negotiation towards ends that human interaction takes place. The processes that we wish to examine are therefore purposeful and the way in

which such purposes are formed and modified is a crucial area of study. Such processes cannot be reconciled within the mechanistic model of man, for they touch on the problems of meaning and interpretation - central although often ignored factors in the study of man.

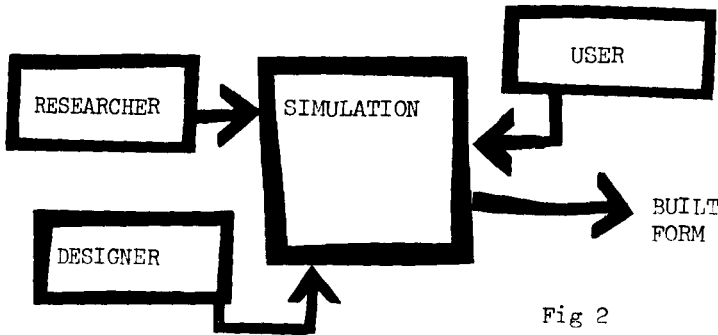


Fig 2

In the above model, researcher designer and user are brought within the same framework, each trying to influence the other through negotiation, within a simulation or game in a relatively risk-free environment.

Negotiative games fall into the category of "free" games - that is games with as little structure and as few rules as possible which allow the participant to project his own values and perceptions onto the game. As Raser comments, "A game (may) indeed (be) just that - a very elaborate, rich and unstructured projective test". As such they are difficult if not impossible to quantify. Their usefulness lies in the delineation of the structure of face-to-face situations, in the study of the conflict and co-operation which they engender and in study of the perceptions both of human and physical elements as modified by the game structure.

A few concrete examples will serve better than further theorising to illustrate the potential of the approach.

AEGIS (Aberdeen Environmental Game - Instructional Simulation). This game is used in the teaching of urban design. Its purpose is to put students into complex design making situations in which they are acting on only partial information. The game itself consists of a physical three-dimensional model of a town. Each player selects or is given a role and a simple banking system is used to record deals made during the game. A time scale is selected and players are free to maximise their role during this time in any way they see fit. There are few rules, but all real world rules, as far as they are known or seen to be applicable by the players, may be introduced at any time. As many as fifty players may take part.

In any game the two basic modes of attitude and behaviour are conflict and co-operation. The structure of AEGIS is such that the development of all roles depends upon both of these modes. It is characteristic of such games that a very high degree of involvement takes place, and, as in real life, the roles are not just adopted by a player. They are actively created by him in interaction with others. "He is creating and modifying roles as well as merely bringing them to light; the process is not only role taking but role making". (Turner).

Within a short time of play it becomes possible to study individual attitudes to and perceptions of:

- 1) The player's own role
- 2) The other roles
- 3) The physical model
- 4) The social and political system

together with

- 5) The general level of knowledge of the processes modelled
- 6) Strategy forming processes. Particularly the amount of knowledge seen by the participant as necessary for action.

It is not necessary to set up tests of these factors outwith the game - they can be observed and categorised within the game structure itself. In fact the strength of this approach is that it describes these factors as conditional on and relational to each other. It is essentially a "mapping" tool which can handle complex and relatively complete situations.

The game defines the changing structure of interaction. Quantitative techniques may later be employed to make the definition more precise but such mapping of processes is a necessary pre-requisite to measurement. The two approaches are complementary.

#### The Wick Study

The next step was to take such negotiative methods into the field, and we were asked by a local firm of architects to assist in the preparation of a questionnaire which would determine the needs of council house tenants in Wick. This information was to assist in the preparation of new house plans which would meet the new Scottish Metric Space Standards. At this time we ourselves were concerned with the shortcomings of the questionnaire approach and

were investigating other methods of gaining design information. We recommended a technique which, to our knowledge, has not been used elsewhere. The survey was therefore in a very real sense an experiment.

During the survey, interviewees were first presented with a series of layout diagrams which indicated typical arrangements of road to garden to house to open space. They were asked to select the layout which in their opinion suited their needs most. The selected layout was then constructed in three dimensions using a series of wooden blocks and interviewees were asked to make detail changes in layout, to select the type of roof pitch and to indicate which house position in the layout they would prefer. During this session, we negotiated and argued out the problems of housing layout. The resultant layout was recorded using a Polaroid camera.

Given a selected layout type and a family size, it was then possible to narrow down the range of house plans which might satisfy those interviewed. Using a combination of the National Building Agency Metric Shells and the Scottish Local Authorities Special Housing plan book, several suitable plans were selected and the choice narrowed by further negotiation. On the eventual selection of a house type this was constructed using a kit of parts. The interviewee was then asked to modify the plan, place furniture etc and a whole further process of negotiation took place. The resultant plan was then recorded, using a Polaroid camera.

In terms of response, the survey was a success. The use of models over which negotiation can take place seemed, in almost all cases, to break down the barriers of suspicion and verbal expression which normally accompany a survey conducted by supervised questionnaire. As soon as the informality of the approach was made clear to those interviewed and the team showed its receptiveness to criticism and suggestion, the problem became that of recording the flow of information. The casting of the whole exercise as a game helped immensely in creating an atmosphere of trust between us and those interviewed, and in encouraging a two-way flow of decision.

#### Planning Participation Game

As a direct result of the Wick Study, a further extension of the technique is being developed. This will involve the setting up of an enlarged version of AEGIS so that it fulfils the criteria of Fig 2.

The public meeting or forum is constantly offered as the medium

through which participation in urban planning should operate, and yet what little is known about the process of the public meeting indicates that it is primarily a situation which polarises views. It is seen as the venue for conflict - not co-operation.

Using AEGIS it is hoped to involve local planners and public groups in a negotiative dialogue which will, in the same way as the Wick Study, directly generate prototype solutions. Again the model should act as the catalyst for interaction and the displayer of the consequences of negotiated decisions.

### Conclusion

Gaming may perform three functions in architectural psychology - as a paradigm of social and man-environment interaction - as a research technique which defines the structure of such interaction preparatory to the precision of measurement and as a negotiative design tool.

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