STRATEGIC PLANNING ISSUES AND

PUBLIC PARTICIPATION

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SUMMARY

The research examines the problems of public participation at strategic planning levels, and especially the role of social survey methods in eliciting a public response to structure planning issues and alternatives. An analytical framework for planning and participation which can incorporate these problems has been developed. Based on Etzioni's Active Society, this is used to trace the boundaries of participation at strategic planning levels.

A prototype interview technique, the Strategic Choices Game, has been developed which can disseminate complex information regarding structure plan issues to members of the public and which then elicits judgements regarding these. The technique has been tested on members of the public and representatives of community organisations in Wolverhampton and Birmingham, and the structure refined for more general use. The problems of applying the technique within structure plan-making have been examined, and an assessment of the contribution of the technique to public participation and plan-making is made.

Finally, the implications of the work for other substantive areas, and for general theoretical approaches to planning and participation are assessed, and a new emphasis in the Man-Environment research paradigm is proposed.

public participation; strategic planning issues; social survey methods; environment

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CONTENTS

INTRODUCTION

Demands for increased public participation in the statutory planning process in the U.K. arose as part of a much wider social discontent that began to be voiced during the mid 1960's. These demands for consultation were not confined to the urban planning milieu but rather were, and still are directed at the whole range of activities and services that affect the public (Stewart and Eddison, 1971).

The pressure for more responsive planning systems had its roots in the realisation that despite post-war affluence, Britain still faced massive problems of poverty, slum housing, homelessness and general social disadvantage. Stimulated by academic research into, for example, poverty (Abel-Smith and Townsend, 1965) and the ineffectiveness of the welfare state (Titmuss, 1963), many 'middle class radicals' (Parkin 1965) joined the active residents of the inner cities in turning their attention to the problems of urban living.

As with many other demands for social legislation, the pressure for public participation was not based solely on the substantive urban problems, but emanated from the academic and intellectual community as a philosophical idea (Cole, 1973). These philosophical arguments, in turn, provided a variety of practical justifications for increasing participation. For instance, it would increase the quality of services to the community, increase citizens' feelings of political efficacy, increase administrative responsiveness to the needs of the public and promote community cohesion.

In effect, there were two main approaches to proposing and justifying public participation in practice. The first suggested that such participation would lead to 'better', or at least more accountable, services and benefits to the community. The essential focus of this approach is that it is a 'citizen' perspective. The second approach suggested that increased participation would increase public trust in government officials, thereby

reducing urban unrest and facilitating a smoother and more responsive plan-making machinery. This, then, is the administrative, or 'official' perspective.

It was within this general climate of opinion that planners found themselves at the end of the sixties. There was a demand for participation from academics and from the public, and also increasingly from within the planning profession as it found itself in increasing confrontation with the people directly affected by plans, and faced by serious delays in approval of plans caused by formal and informal objections (see Eversley, 1973). Nor were these demands directed only at local issues and problems, but have increasingly embraced large-scale and strategic developments such as urban and rural motorways, the siting of nuclear power stations (and recently of nuclear waste 'dumping grounds'), and the Third London Airport.

As in the USA the demand was essentially for a new model of political behaviour that would expand direct involvement beyond legislatures and public bureaucracies - the so-called 'participation revolution'. In the USA there was, for example, the Community Action Programme, passed in 1964, which called for "Maximum Feasible Participation", and the statutory provision for "widespread citizen participation" in the Model Cities Programme in 1966. Official response in the UK, based to a large extent on the experiences of the Model Cities Programme, came first of all in the Planning Advisory Group Report (1965) and in the 1968 Town and Country Planning Act, giving the public rights of consultation in the new development plan system. This skeleton of participation took real form with the recommendations of the Skeffington Report of 1969 which has been primarily responsible for shaping local authority practice up to the present day.

As well as making provision for measures of public participation, the 1968 Act also proposed a two-tier system of development plans, one level of which would deal specifically with strategic considerations, and intended

in part to translate national and regional economic and social policies into a local context.

Subsequently, planning at the urban and metropolitan level has seen an increasing concern with the development of complex analytical and predictive techniques used in both explanatory and normative modes. Yet even though this process has been paralleled by a growing awareness on the part of practitioners and the general public that the people affected by the output of the planning process should be consulted and involved in the decision making process, and legislation has been enacted regarding public participation, it is now apparent that the aspirations of the legislation, limited though they were, have not been met in practice. Methods of communicating with the public about planning issues, of evaluating the response to such issues, and of integrating this response within the planning process, have proved inadequate. This is particularly true of the large-scale, strategic planning level.

Problems and Objectives

Perhaps the most effective and in the long term the most meaningful contributions that can be made by members of the public and its constituent organisations are through social and political channels. But there has always been concern that the views expressed by elected representatives, community associations, interest groups and others do not mirror those of the community at large, but rather the views of the most active and articulate. In order to supplement the social and political process, planners have turned increasingly to social survey methods to provide representative measures of response which reduce the self selection element of the public input to the formulation of plans.

But although in the past surveys have proved valuable in collecting information from the public regarding local or short-term objectives, they have not proved so successful in evaluating public response to major

strategies for large areas. For example, a common response method used by local authorities in recent years has entailed the publication of a number of alternative structure plans for the area, consisting of major housing, transporation, industrial and employment strategies, to which the public are given the opportunity to respond, usually by postal questionnaire. The results of these and similar exercises have been generally disappointing. Apart from reasons of public apathy, the major problems which have arisen with such surveys concern the presentation of complex planning issues to the public; the capacity of the public to respond meaningfully to abstract issues/problems of which they have limited experience and knowledge; and the evaluation of this response for use in plan-making.

The general objective of the research is . to investigate the theoretical and practical problems which surround the development and application of strategic response survey methods (that is, survey methods designed to disseminate information on strategic planning issues to the public, and to elicit responses regarding these issues), and the problems of integrating the results of such methods within a planning process.

Methodology

The methodology for the study reflects two primary levels of interest within the study. The first is a technical/empirical level concerned with methods and techniques for eliciting public response to planning issues. The second level concerns the operational context of the application of such techniques in practice, in this case the legal, institutional and procedural milieux of structure planning.

The first stage of the study was to examine the operational context of the work. This stage was an essentially analytical exercise, and consisted of an investigation of public participation in structure planning - an area where a concern for public response has been evident for a number of years not least because of a legal obligation to do so.

The second stage comprised analysis of the basic conceptual problems which impinge upon the investigation of the operational context, - these are the general problems of social response to strategic planning issues - in particular, the problems of characterising the issues which are the focus of consultation with the public, and the nature of the modes of response which are most meaningful for public and practitioner.

On the basis of work in the first two stages, a number of desirable characteristics (or requirements) of strategic response methods were specified, and used in assessing those methods which are presently available to practitioners. In fact, the outcome of such an assessment corresponds to what is intuitively the case - that most of the available methods are inadequate according to both practical and conceptual criteria.

The study then continued with the major fieldwork stages, wherein a prototype strategic response technique (named the Strategic Choices Game) was developed on the basis of the requirements specified earlier, and tested according to criteria which arise from the conceptual framework.

Having tested the technique, an assessment of the problems of integrating this and similar survey methods within a plan-making process was undertaken. This necessitated the development of an analytical framework which could link together technical, procedural and institutional elements of the general problem.

The study then returned to the operational context and assessed the general use of strategic response techniques within structure planning exercises.

Finally the implications of the work for general theories of planning and societal guidance were considered, utilising the work as a linking mechanism between empirical and general theoretical levels, that is, as middle range theory (Merton 1957).

The essential focus of the methodology then, is on the linkages between empirical/fieldwork elements and the conceptual structures brought to bear on a practical problem context. The implications for general theory and other substantive areas are also considered.

The Plan of the Thesis

Part 1 of the thesis provides a general contextual framework for the study.

Chapter 1 (General Perspectives on Planning and Participation) describes the major theoretical approaches to the study of planning and participation. The chapter contains a discussion of one normative theoretical approach, Etzioni's theory of societal guidance, which is adapted as the general analytical framework for the study.

Chapter 2 (Public Participation and Structure Planning) outlines the operational context of the work - public participation in structure planning - in terms of its legislative, institutional and procedural dimensions, and highlights the constraints which these dimensions place on participation practice. (These are what Etzioni might label 'control factors'.)

Chapter 3 (Public Participation Methods and Techniques) discusses the methods of participation available for use in structure planning, and describes some of the major problems which have arisen with them. A principal theme of this chapter is that a major contribution can be made to participation by investigating the problems of eliciting direct responses from the public to strategic planning issues and alternatives for development. Chapter 3 is therefore concerned with the 'influence' factors in a system of societal guidance.

Part 2 of the thesis is primarily concerned with the development and testing of a strategic response technique and with the fieldwork carried out over the study period.

Chapter 4 (Strategic Response Techniques) deals with the major problems of strategic response techniques. These centre on the nature of the issues which need to be presented to the public and the modes of response which people can make to such issues. On the basis of this enquiry, an assessment is made of available response methods - many of which are seen to have limited application as strategic response techniques - and the major requirements of improved techniques are delineated.

Chapter 5 (The Strategic Choices Game) focusses upon the description of a gaming/interview technique which was developed and tested in an attempt to meet the requirements specified earlier. Named the Strategic Choices Game, the technique is designed to give respondents information on strategic environmental and planning issues and then to elicit judgements concerning future action on these. The game has a number of formats, ranging in task complexity. At its most complex, the game includes the use of an interactive computer programme with a Multi-Attribute Utility decision aid, at its least complex it resembles a preference questionnaire. The range of task complexity enables the technique to be used with specialists, elected members, or as a household survey tool with members of the public.

Chapter 6 (Testing the Strategic Choice Game) describes the approach taken to test the Strategic Choices Game. An important element of this is the interaction between the 'game situation' and the cognitive organisations and abilities of respondents, and much has been drawn from environmental psychology and information theory.

Chapter 7 (The SCG Formats and Test Battery) continues with detailed descriptions of the SCG formats and test battery. The latter consists of

measures of two major ideographic variables - the information level of respondents and the complexity of cognitive organisation of respondents regarding strategic planning issues. The measures were obtained using techniques based on Harvey's conceptual systems theory and designed specifically to meet the requirements of the test programme. The chapter concludes with an outline of the survey design of the fieldwork.

Chapter 8 (Results) outlines the results of the SCG surveys and the testing sequence, and concludes with an initial assessment of the efficacy of such techniques in public participation practice.

Part 3 of the thesis brings together the major themes of the thesis.

Chapter 9 (Evaluating Strategic Response Techniques) deals with the synthesis of the two methodological levels outlined earlier (the technical and the operational) and includes as a major element a discussion of the application of strategic response techniques in structure planning and the problems of integrating the results into a plan-making process.

Chapter 10 continues by considering the conceptual and theoretical problems faced in the research as the 'middle range theory', mediating and linking the practical/empirical concerns of public participation in structure planning (and particularly the role of strategic response techniques), to the general concerns of societal guidance. The chapter concludes by proposing a new emphasis in the Man-Environment research paradigm which will facilitate accommodation of strategic environmental properties.

PART 1

PERSPECTIVES ON PUBLIC PARTICIPATION AND STRUCTURE PLANNING

CHAPTER 1

GENERAL PERSPECTIVES ON PLANNING AND PARTICIPATION

Planners concerned with the legitimacy of their activities in today's political arena place a high priority on public participation and accountability in decision making. Acceded to by public officials and often demanded by citizens themselves, participation is in theory a powerful means for upholding the public interest which is a major source of this legitimacy. Yet in practice, public participation in the statutory planning process has usually failed to grant people genuine and informed control of policy, and indeed there is still a debate as to what does, and what should, constitute 'public participation'.

Rather than dealing in detail with the history and nature of this debate, this chapter outlines a number of perspectives which can be delineated within it. These include the two ideal-typical perspectives, 'consensus' and 'conflict'. This is done with a view to providing a general framework within which many of the problems of this study are to be located, and also to set the context for the main body of the thesis.

Very often, the differences in approach to public participation are a reflection of the side of the fence from which the planning system and its output is viewed. Participation embodies different sets of values, goals, operating principles, and political feasibilities when it is viewed from the side of established authority, often entailing a consensus view, than when it is seen from the side of partisan groups for whom the natural perspective is often one of conflict. From the perspective of the urban administrator, participation seems to offer the possibility of reduced urban tensions, from the perspective of neighbourhood and minority leaders, it may offer the possibility of a more favourable distribution of goods and services.

These differences are reflected in the perspectives adopted by researchers and writers on public participation. Gamson (1968) clarifies the basic distinction with respect to power, - "One view takes the vantage point of potential partisans and emphasises the process by which such groups attempt to influence the choices of authorities or the structure within which decisions occur. The second view takes the vantage point of authorities and emphasises the process by which they attempt to achieve collective goals and to maintain legitimacy and compliance with their decisions in a situation in which significant numbers of potential partisans are not being fully satisfied".

Gamson describes the partisan view as an "influence perspective", in which those affected by decisions act as agents seeking to influence the decision-making authorities. He includes within this perspective those authors and analysts who have looked at politics in terms of interest groups, political parties, basic conflict, and elite groups. Gamson argues that these writers share a common perspective:-

1) The point of orientation is that of actors in the system rather than the system as a whole. The analysts of influence do not view things from above or outside of the system but from the standpoint of participants with wants or demands that to some degree conflict with those of other participants ...

2) The concern is with ... the strategy of conflict rather than the regulation of conflict. The influence theorists are concerned with how groups try to get what they want and the conditions under which they succeed, rather than with the consequences of such attempts for the stability or integration of the system ...

3) Discontent is viewed as an opportunity or a danger for particular subgroups, not as a problem of social control. It is important because of its consequences for mobilisation of potential influence. Such consequences are possible because of the existence in most political systems of ... 'slack resources' ....

By contrast, the authorities' view is a "social control" perspective, concerned with how leadership operates to achieve societal goals most efficiently while at the same time avoiding costly side effects. The two central themes of this perspective are a concern with the generation of

public power and with the control of private power. Its common elements
are:-

1) The point of orientation is agents of the system or
   the system as a whole rather than actors in the
   system ...

2) The concern is with the regulation of conflict, not
   with its strategy and tactics. The question, who
   succeeds and why? yields to the question of how
   such power struggles among actors may impair the
   ability of the system to achieve collective goals.

3) Discontent is a problem for the system to manage,
   not an opportunity for actors to increase their
   influence. Masses of apathetic and unmotivated
   citizens reduce the power of the system. The commit-
   ment of its citizens is a critical element in its cap-
   acity for achieving collective goals.

(Gamson 1968:17)

These two general perspectives, consensus ('control') and conflict
('influence') lead to different conceptions of the nature of the town
planning system and the function of public participation within it.

The consensus view is epitomised by the legislation on town and
country planning, the aim of which is to secure "consistency and contin-
uity in the framing and execution of a national policy with respect to the
use and development of land throughout England and Wales" (Town and
Country Planning Act, 1943). To the consensus school, town planning is
essentially a technical, apolitical exercise conducted in the 'public
interest'. Thus the failure in accountability of the planning system is
seen as a breakdown in communications between official agencies and the
public. The report of the Skeffington Committee (1969), intended to
elaborate upon the public participation content of the legislation
observed that the "failure to communicate has meant that the preparation of
a plan, instead of being a bridge between the authorities and the public,
has become a barrier, reinforcing the separation that springs up so
easily between the 'them' of authority and the 'us' of the public".

It is in the light of this basic perspective that the adherents to

the consensus approach viewed the rising public concern over the directions and extent of governmental intervention in the 1960's, and made its assessment of the nature of participation required. Thus, although Skeffington realised that people were demanding a greater say in the events that immediately affected them, it saw this more in terms of civic responsibility rather than as, for example, protection of interests.

'Participation' could therefore be considered as one more input into the planning process rather than as an essentially political exercise. The function of the input was, like any other, to make the planning process more effective, especially by reducing the number of objectors - "If objections can be anticipated or eliminated, the formal stage of public enquiry will be smoother, less contentious and speedier". Thus Skeffington's image of an integrated and cohesive social system meant that participation would offer the individual "the opportunity of serving the community and thereby becoming involved in its life".

Such a view does not take account of different impact between groups as a result of planning policy, nor as a result of different public values or because of different interests created by the group's relationship to mechanisms of production and allocation.[1] It was not, therefore, envisaged that there might be conflicts which could not be contained within a well-organised participation.programme.

The advocates of a conflict perspective on participation do not accept these views, seeing the planning system neither as the mechanism for implementing the public interest nor (as in the pluralist school) as an arbiter of competing interests. For them, governmental planning in general can be seen as an attempt to deal with the worst consequences of an essentially unresponsive and inegalitarian social and economic system, and in so doing preserve the status quo. For example Palmer, in the introduction to Goodman's (1972) book, argues that "each phase in the

development of a progressively more embracing planning machine as part of the governmental/business technostructure followed closely upon contemporary crises and preoccupations of British capitalism". Thus it became necessary for the system to devise "new methods of economic and state planning to minimise the imperfections of the free market system for complex production and distribution".

The prevailing concern of the planning system with treating symptoms rather than causes of contemporary problems is the basis of the conflict perspective on the inadequacies of the system. This entails the view that "the main problems communities face are outcomes of a class society and need to be seen as such if anything of value is to be achieved" (Binns, 1973).

Thus, the cause of contemporary problems are considered to arise from basic social inequality. In this context, participation is seen as a political movement for social change amongst those who are least well-off, aimed at achieving a redistribution of both power and resources. "... since no one gives up or shares power willingly, then involvement in decision-making will have to be fought for - it will not be handed over" (Coventry Community Workshop, 1973). A major aim of participation is therefore to strengthen and create alternative institutions with a power base in alternative, very often working class, organisations rather than to connect deprived areas or social groups to those already in existence.

The literature on planning and participation has seen the development of a third perspective, the pluralist, which has attempted an amalgamation of parts of the consensus and conflict approaches. The essential perspective of pluralists such as Davidoff (1967, 1965) and Reiner and Kaplan (1968) is a repudiation of the apolitical stance of the consensus school, arguing that planning activity is fundamentally concerned with values, "...

appropriate planning action cannot be prescribed from a position of value-neutrality, for prescriptions are based on desired objectives". The planning system should therefore recognise and reflect the plurality of interests in society, and the planning profession must engage itself thoroughly and openly in the contention surrounding political determination.

Further, the planner, hiding behind the guise of the expert is not acceptable. Observing advocacy planning in the U.S.A., Blair (1971) states that "the basic need as seen by many professional planners and militant activists, was for the urban poor and racial and cultural minorities to learn how to play the resource game. Poverty, they said, is a problem relating to the control, distribution and management of resources, nationally and locally". Thus for pluralists the real goal for deprived communities is a voice in decision-making regarding resource allocation. The inadequacy of the existing system is the inability of certain groups to adequately represent their case, and participation (or 'inclusion') means ".... not only permitting the citizen to be heard. It also means that he is able to become well informed about the underlying reasons for planning proposals, and be able to respond to them in the technical language of the professional planner" (Davidoff, 1965).

Participation is therefore dependent upon planners being able "to engage in the political process as advocates of interests of both government and of such other groups, organisations and individuals who are concerned with proposing policies for the future development of the community" (Davidoff, 1965). Pluralist pressure from groups in the community might take the form of submitting alternative proposals, fighting public inquiries, lobbying councillors and M.P.s and engaging in forms of direct action to highlight those issues thought to be important.

These broad perspectives on the nature and inadequacies of planning
and participation, and on the nature of change advocated, can be seen as
being underpinned by general theories of social structure.[2] The consensus
perspective has its conceptual roots in the structural-functionalist
theories of Parsons (1951) and his former student Kingsley Davies (1948).
Similarly the conflict perspective on planning is a direct descendant of
sociological conflict theories originating with Marx (1848) and developed,
for example, by Goser(1956).

The models of society which lie at the basis of the theories, and
which determine their perspectives, are outlined in Dahrendorf's (1969)
seminal work. The essential elements of the consensus or integration
theory are:-

1. Every society is a relatively persisting configuration of
   elements,

2. Every society is a well-integrated configuration of elements,

3. Every element in a society contributes to its functioning,

4. Every society rests on the consensus of its members.

Dahrendorf argues that this model does not produce a theory which
will explain or even describe the phenomena of social conflict, which is
essential for an understanding of societal change. For this purpose a
diametrically opposite position on all four points is needed. Thus:-

1. Social change is ubiquitous

2. Social conflict is ubiquitous

3. Every element in a society contributes to its change

4. Every society rests on constraint of some of its members
   by others.

However, the importance of Dahrendorf's work is his illustration
that, although the functionalist and conflict theories seen incompatible,

they are not mutually exclusive with respect to social reality. They are
both in a certain sense valid and analytically fruitful. Stability and
change, integration and conflict, function and dysfunction, consensus and
constraint, are two equally valid aspects of every society. Thus, in a
large-scale industrial society, the very structure necessary for the maint-
enance of society generates conflicts which threaten to change the
structure. Societies, then, exist because they maintain some kind of
balance between the status quo and the forces of change which are inevitably
present in the social process.[3]

It follows that in providing or developing a general theoretical
framework for this study, that one should on a priori grounds utilise one
which attempts a synthesis of conflicting perspectives.[4] In practice,
however, the sociological theories have been utilised, quite properly, to
investigate different types and levels of problem, and this is reflected in
the planning literature where, for the advocates of participation, the
two main perspectives are at opposite ends of the spectrum and share little
common ground.[5]

Although the pluralist approach to planning and participation is an
amalgamation of consensus and conflict perspectives, with a very strong
action-orientation (see, e.g., Alinski, 1966) it does not represent a
conceptual integration of consensus and conflict theories.[6]

In order to locate such attempts one must consult the literature which
is rooted in social theory rather than in 'planning theory'. One of the
most well-developed attempts to integrate specifically influence and
control patterns within a general theoretical framework is Amitai Etzioni's
(1968) Active Society. Etzioni's work provides the analytical basis for
the organisation of the body of this thesis, that is, it is used as a
general framework within which to locate the broader research problems.
More specifically, Etzioni's theory of societal guidance has as one of its

major components an analysis of the (general) problems of strategic decision-making in societies and is therefore directly relevant to the fieldwork elements of this research, concerned with public responses to strategic planning issues.

The Active Society

Etzioni is one of the few theorists to give equal weight to the (downward-directed) control and (upward-directed) influence processes in society. In so doing he provides a framework which illuminates and attempts to resolve the conflicts between those planning models which stress citizen influence and participation and those stressing technical rationality and professional control.

Etzioni presents a normative theory of 'societal guidance' in which social outcomes are always the result of the combination of influence and control processes. The process of upward-directed need discovery and social adaption is named "consensus formation" by Etzioni. Consensus in the perspectives of two or more actors, is built through exchange between elites (control and decision-making units) and collectivities (cohesive social groups with the capacity for unified action) and is mediated by organisations such as interest groups, political parties and unions. The downward-directed communication and power flows (named "social control") originate in a control overlayer consisting of "symbolic control" processes such as information processing and decision-making, and "implementation" processes, both symbolic and mechanical.

Etzioni proceeds to develop a typology of societies based on the relative mix of social control and consensus. "Passive" societies such as underdeveloped nations are low in both control and consensus. "Overmanaged" societies such as totalitarian ones, have a high level of control, therefore tending to overplan and therefore being forced to scale down these plans to meet consensus demands. "Drifting" societies such as

capitalist democracies, have high consensus and therefore tend to face problems of overdue change as they must wait to build consensus before proceeding. Finally, "active" societies are high in both control and consensus. They value social and political self-consciousness and authentic participation and can ensure a high responsiveness to citizens' demands.

Although there are no active societies at present (the construct is a normative ideal) Etzioni continues by describing the essential characteristics of such societies and how we might move towards them. The "postmodern" society is one in which control and freedom are interdependent objectives, and tension between these objectives powers and activates the society:-

> "The post modern period will be marked, in addition to
> a continued increase in the potency of instruments avail-
> able and an exponential growth of knowledge, by man's
> potential ability to control both. An active society,
> one which realises this potential, would differ most from
> modern societies in this key way: It would be a
> society in charge of itself rather than unstructured or
> restructured to suit the logic of instruments and the
> interplay of forces that they generate." (Etzioni, 1968:5-6)

In order to respond to human needs, the society must continually involve its citizens in shaping and reshaping societal structure. Citizens' self-control is seen as a combination of "consensus formation" and "social control" processes, and is the mechanism for 'societal guidance'.

Etzioni's notion of an active society can therefore be seen as based on a synthesis of Gamson's elements, involving both active participation by citizens, and an acceptance of a legitimate role for central planning. The community would be in a dialectic that continually trades off between integration and differentiation, between central system demands and individual demands, between community rights and individual rights. To this end Etzioni considers a number of normative goals (or rather process objectives) leading toward the 'good' community. These goals include 'Self Guidance', and 'Transformability'. It is within this framework that one can locate the general problems of this research.

Self Guidance

For a society to be self guiding it should be able to guide itself effectively towards goals, balancing control and consensus formation capacities. The essence of self-guidance is:-

(i) greater authentic (reciprocal) participation by citizens in planning. This concerns the upward process of consensus formation making use of organised groups and communications channels. The participants must influence societal decision makers to be genuinely responsive to their expressed needs and values,

(ii) the use of non-coercive community control measures. In Etzioni's view the most desirable form of control is 'normative', distinguished by its orientation towards individual development, as opposed to 'utilitarian' control which operates through manipulation of material resources, or 'coercive' control which enforces compliance through the application of power. Normative control relies on both influence and persuasive power,

(iii) greater community planning competence, on the part of both citizens and government. Planning competence refers to citizens' ability to participate in and influence decisions on public plans which affect them.

Each of these three areas has been subject to investigation by researchers and activists in participation. For example, regarding consensus formation one can note the idea of 'community development officers' of the Skeffington Report, and the community action programmes undertaken within conflict and pluralist perspectives. With regard to community control, one can note the views of "advocacy planning" where professional planners involve themselves in a form of control which is essentially normative or utilitarian. Similarly much has been written with regard to planning competence, for example, planning as a "community learning" exercise.

However, with regard to public response to strategic planning issues there are a range of problems which are not susceptible to a purely normative analysis such as Etzioni's, but which appear to be intractable because of the very nature of strategic issues. For example in organising a community for the exercise of both normative and utilitarian control, a communications system is especially important. Knowledge and demands must be transmitted both upward and downward yet (as we shall see) methods of communication about strategic planning issues are still in a primitive stage. Similarly, for authentic participation there must be a 'right to vote' or to participate in decisions regarding goals or alternative proposals, and this must be accepted and facilitated by professional planners. In recent years much work has been done on the institutional constraints acting on the profession (e.g. the 'ideological' notion of acting in the 'public interest') which prevent him from accepting such rights. Finally, regarding planning competence, one can note the many efforts to impart technical skills to citizens (e.g. in the Model Cities Programme). The problems encountered then (see for example, Arnstein, 1970) are aggravated when the complexity of strategic issues are considered.

Thus, whilst the normative (prescriptive) elements of conflict and consensus, and indeed all, theoretical stances can lead to avenues for change, there is a range of problems underlying the prescriptions concerning the formal involvement of citizens in the exercise of control over plans which may limit the success of any participatory, or responsive system. These are concerned essentially with the means of knowledge exchange and the means of problem solving and are the central focus of this work.

Transformability

The second normative goal, mentioned above, is that of transformability. A community is transformable if it has the capacity for major, self-directed change. The transformable community would not only be able to

adopt innovations diffused from a higher level in the national system, but also would be able to devise a radically new self image. The capacity for transformability can be characterised as:-

(i)   greater citizen awareness of the community context and its relative congruence with their objectives,

(ii) greater capacity for mobilisation of resources,

(iii) greater decentralisation of planning authority, within a multi-tier governmental planning structure.

In his analysis of change, Etzioni relates transformability to the hierarchical structure of societal knowledge. This structure consists of an overall 'context' or a theory, which contains a number of knowledge 'bits' or facts. Thus;-

> ... elites are relatively free to set the societal course so long as such changes either entail only bit changes in the societal knowledge of the publics ... or relate to areas in which public knowledge was previously unorganised. When, however, elites initiate changes that fall outside the boundaries of institutionalised contexts ... the 'backlash' is likely to be powerful, and consequently, elites, if they wish to remain in control, must either change the contexts or avoid contextual - i.e., fundamental - changes.
>
> (Etzioni, 1968:163)

The key concepts relating to transformability are "awareness" and "mobilisation". The latter concerns the amount of latent social energy and committment that can be mobilized for collective action. This concept is not considered directly in this work. The other concept, that of 'awareness', is a prerequisite for mobilisation and is central to this study. It concerns whether citizens are conscious of the overall community 'context' - the organising principles and structures of societal knowledge, which hold together various 'bits' or items of information.

This is important for this study in two ways, reflecting (i) and (ii) above. Firstly, awareness of the community context is the basis of a type of decision making, called "mixed-scanning" which relies on the 'bit'/ 'context' distinction. Mixed scanning employs intermittent scanning to

identify strategic occasions where a comprehensive review of relevant alternatives is required; then it utilises comprehensive rationality for an overview of fundamental contextual decisions. Thus if the public are to participate in planning in a meaningful way, Etzioni's theory requires that they participate with regard to strategic issues. In the phraseology used earlier, they must enter into knowledge exchange and problem solving with regard to strategic issues, and this is the focus of this work.

Secondly, the bit/context distinction is important in that to facilitate mixed scanning in decision making there must be a parallel institutional separation. Decentralisation helps build community awareness by translating community wide guidance issues into locally-perceived issues, this then acts as the launching pad for mobilisation for plan-making and social response because of increased identification with, and self-interest in, smaller neighbourhood scales. Although a two-tier structure of local authorities is in existence in Britain, this study does not deal specifically with institutional linkages between first and second tier decision-making. However, the work on public response to strategic (or contextual) issues obviously has relevance for a consideration of these linkages.

SUMMARY

Three general perspectives on planning and participation have been outlined in order to provide a context within which to examine the central objectives of the research. The latter surround the problems of obtaining meaningful public response to strategic planning issues.

The theoretical framework which can accommodate these problems most directly, is Etzioni's theory of societal guidance which gives equal weight to control and influence processes which together determine strategic decision-making in societies. The central concerns in Etzioni's work are

the means of knowledge exchange and the means of problem solving in societal planning. A citizen input is particularly important to these concerns.

Public responses to strategic planning issues can therefore be seen as an essential ingredient to the strategic problem-solving level of mixed-scanning, a key element of transformability. This focus can be character-ised utilising the self-guidance principals of Etzioni's framework:-institutional arrangements governing the 'rights' to participate at a strategic level; the communications channels available for information exchange regarding strategic planning issues; and the planning:competence of planner and public regarding strategic level problems.

Etzioni's framework therefore provides a useful contextual structure around which to develop the central objective of the research which is to investigate the practical problems of knowledge exchange between planner and public at strategic problem-solving levels. This contextual approach is developed in the following two chapters with reference to a specific operational context, public participation in structure planning. This provides a contextual basis for Part 2 of the thesis which utilises an empirical approach to investigate the practical problems of social response to strategic planning issues.

A general/secondary theme of this study is that many of the normative propositions within Etzioni's theory concerning influence elements may prove to be unfeasible in practice.

NOTES

1. The view of the public as a broad aggregate within which values and interests are uniform is reflected in the failure of the Skeffington Report (1969) to identify any divisions in the public other than between the 'joiners ' and the 'non-joiners', further demonstrating its adoption of the consensus perspective.

2. A similar argument is given in depth in a recent essay by Thornley (1977) which distinguishes between conservative, liberal and radical theories, and utilises the classification in a consideration of 'participatory democracy'.

3. Without consensus a society would be almost in a state of anarchy (and regress to 'pre-civilisation'), or, without conflict, it would be in a state of near-stagnation.

4. It has (also) been suggested by Lenski (1966) that there is an "emerging synthesis" between the two theories. Whereas both thesis and antithesis rely on logic and isolated illustration the synthesis relies on empirical analysis of social inequality.

5. Though many of the 'new paradigms' such as transactative planning (Friedman, 1973), innovative planning (Ackoff, 1974) and collaborative planning (Godchalk, 1976) can be placed somewhere towards the middle of the spectrum ranging from consensus to conflict perspectives.

6. Though the Gamson (1968) work already mentioned goes some way towards this by treating influence and control patterns within a unitary conceptual framework

CHAPTER 2

PUBLIC PARTICIPATION AND STRUCTURE PLANNING

Structure Planning can be considered as one element in the general
system of societal guidance, and public participation is one of the
important influence factors at work within that system.

Participation in structure planning has of course taken a number of
different forms, including representations and suggestions from active
citizens or special citizen groups; direct communication from individuals
and groups in the form of complaints, petitions and objections; demon-
strations or other acts of protest; citizen reactions at public meetings
and council sessions. Also, in recent years, social surveys have been used
increasingly as the medium for information exchange between planner and
public and have assumed growing importance.

These public response methods, or 'influence factors' will be dealt
with in more detail in the following chapter. However, prior to this it is
necessary to characterise the downward-directed control factors within the
system of guidance that is town and regional planning, for it is these
which determine the real nature and scope of public participation, or the
'boundaries' of participation. Important control elements of the planning
milieu include the legislative framework within which the profession
operates, the organisational structure and institutional milieu of the
profession, professional training and ideology, and the different social
interests which practitioner and public often represent. These are
discussed in this chapter under the headings of the legislative context,
institutional context, and procedural context of public participation in
structure planning.

The Legislative Context

We shall not deal in detail with the pressures which led to reform

and legislation regarding public involvement in planning. These have been well documented elsewhere.[1] It is reasonable, though, to summarise these as arising from three main sources. The first was from within the planning profession itself (Bor, 1975). A central feature of this pressure for reform was the idea that planning required a substantial broadening so as to integrate fully social and economic aspects with physical aspects of its activities. Within this pressure there was an expressed desire for more flexible and continuous planning procedures which would include an element of public involvement.

A second source of pressure was from the public, and was a reflection of increasing dissatisfaction with the output of the planning process. This was interpreted at the time as a pressure for participatory rather than representative democracy (Reynolds, 1969). Indeed some saw the demand as a _general_ trend in all areas of life towards participatory democracy (Cullingworth, 1972). However, although these demands were recognised, they were not analysed and articulated in sufficient detail to provide the basis for legislation.

The third source was from academics and interested parties.[2] Here, the pressure was varied, ranging from pressure for administrative change to changes in procedures, but underpinning much of it was a questionning of the social and professional ideology of contemporary planning. Thus Simmie (1974) argued that planners lacked the competence to be effective in social terms because of "an unspecified belief in physical determinism". He indicts the profession for its "failure to support radical reform" and for its "political neutrality".

The sources and nature of the pressures for reform are perhaps illustrative of the fact that many of the criticisms of planning - and planning was perhaps _the_ most criticised area of governance - were a reflection of general changes in social and political values during the

1950's and 1960's towards greater accountability and responsiveness of government.

The first major piece of legislation which attempted to come to terms with the demand for public involvement was the 1968 Town and Country Planning Act. Its most important antecedent was the report of the Planning Advisory Group (1965). The Planning Advisory Group (PAG) found that the existing 1947 Town and Country Planning Act had become increasingly rigid and unable to anticipate and guide change. The defects of the 1947 Act were later summarised as:

> First, it has become overloaded and subject to delays and cumbersome procedures, Second, there has been inadequate participation by the individual citizen in the planning process, and insufficient regard to his interests. Third, the system has been better as a negative control on undesirable development than as a positive stimulus to the creation of a good environment. (Introduction to 1967 Town and Country Planning Bill)

The main proposal of the PAG report was that of a two-tier development plan system which distinguished between strategy and tactics. This formed the basis of the 1968 Act which laid down a general pattern of procedure for the preparation of structure plans concerned with broad strategy and for local plans operating within the framework. The structure plan was to be an essentially written document, accompanied by appropriate diagrammatic illustration, intended in part to translate national and regional economic and social policies into a local context. In so doing they attempt to provide a framework for the preparation and implementation of local plans whose proposals are to be shown on a map. The latter may take a number of forms from 'Action Area' plans concerned with comprehensive renewal or redevelopment over a short to medium term time horizon, to 'district plans' concerned with local planning policies for a sector of the city, to 'subject' plans which may set out to tackle specific topics such as the provision of leisure and recreational facilities.

The structure plan therefore represented a considerable change from the old system:

> It was to be a policy vehicle and not a means for expressing physical development proposals in detail. It had to set out the social, economic and environmental strategies for the area. These had to be justified by "reasoned assumptions" and based explicitly on appropriate surveys. (Drake et al, 1975)

Furthermore, it made provision for public involvement in the planning process, a feature hailed as a 'legislative landmark' by some (Cullingworth, 1972). The PAG report on which the Act was based made no specific recommendations for public participation but did mention the desirability of explaining policy to the public and stimulating public interest. The essence, then, was on publicity:

> A draft local plan would be prepared and put on deposit in the area concerned. It would be advertised and open to inspection. Public meetings could be held to explain the plan's proposals. It would then be open to members of the public and interested bodies to send their comments, representations and objections in writing to the planning authority within a specified period.
> (Planning Advisory Group, 1965)

To elaborate upon the public participation aspects of plan making, the Skeffington Committee was set up. Its report (1969) made a number of recommendations concerning public involvement. Although it distinguished between participation and publicity, the latter being "the making of information available to the public", its recommendations were essentially concerned with information exchange. These have been summarised by Thornley (1977) as:

1) people should be kept informed
2) information on the opportunities for participation should be made available
3) participation should concentrate on the discussion of choices and, secondly, the local authorities presentation of proposals
4) community forums should be set up giving local organisations an opportunity to discuss
5) proposals should be publicised in the areas affected
6) community development officers should be appointed to secure the involvement of those people who do not join organisations
7) people should be told what they have achieved by participation

8) citizens should be encouraged to assist with the planning process (e.g. by doing surveys) as well as expressing views

9) better education about planning should be developed both in schools and by the public at large.

Skeffington's recommendations went considerably beyond the minimum statutory requirements of the 1968 Act but have never been reflected in statute. The 1968 Act required "adequate publicity" be given and an "adequate opportunity" for the public to make representations. The only government action since Skeffington has been a DoE circular (DoE 52/72) containing its views on the Skeffington report, and a new code of practice published in 1973 which revised the inquiry procedure for structure plans.

Circular 52/72 takes a more restrictive view of participation than Skeffington, dropping, for example, the idea of community development officers, and giving a deal of discretion to the authorities in their interpretation of the Act:

> Local authorities themselves will be able to consider what methods, including publicity, are available to them to encourage those described in the report as "nonjoiners" to interest themselves in the preparation of plans which are likely to affect them or the area in which they live. Much could usefully be achieved by ensuring that local councillors are kept fully informed (DoE, 1972)

The 1973 code of practice proposed a new form of public inquiry - the "Examination in Public" at which not all objectors would be given the right to appear, but only those thought by the Secretary of State to have raised matters which would affect his consideration of the plan. This reduced right of hearing was justified by, and places more importance on, the opportunities to participate in the development of structure plans as outlined in the 1968 Act. The requirements at key stages in the development of the plan are in outline:

(i) Publication of a report of survey, followed by a period of publicity on issues arising

(ii) Publication of matters proposed to be in the plan, that is, a draft plan. This involves opportunities for public comment and representations and a statement on changes which are made because of these

comments
(iii) Formal <u>placing of the plan on deposit</u> and invit-
ation of written objections. A copy going to the
Secretary of State for the Environment
(iv) The <u>examination in public</u>, carried out by a panel
appointed by the Secretary of State, which reports
to the Secretary having taken written and verbal
evidence from interested parties. (for a local
plan the report is to the appropriate planning
authority)
(v) <u>Publication of proposed modifications</u> to the plan and
consideration of resulting objections
(vi) Publication of the <u>adopted version of the plan.</u>

It is not surprising, considering the variety of aims and requirements
of those pressurising for reform that a deal of debate has been engendered
concerning the nature of participation framed within the Town and Country
Planning legislation and Skeffington.[3] Whilst official guidance calls for
public participation this is neither statutory nor are requirements
precisely formulated. The statute on the other hand only mentions 'publicity'
and contains no clear differencences in the requirements for strategic as
opposed to local planning participation. Further problems and misunder-
standings have been posed by the reorganisation of local government into a
two-tier system of administration. In the major metropolitan areas there
are now 'Metropolitan County Councils' who are broadly responsible for
strategic planning and strategic services and a second tier of 'district
authorities' responsible for local planning and local services.

Skeffington in particular has been subject to both numerous and wide-
ranging criticism. Firstly, it has been criticised for a lack of theory
pertaining to the problem. Its recommendations were not backed up by any
planning theories, theories of social organisation, political decision-
making or communications (Damer and Hague, 1971). It did not, for
example, recognise that the public may have different goals to planners, or
that 'education' is, or should be, a two-way process (Reynolds, 1969).

In particular, it did not recognise that planning is political in the
broad sense, and that to function with any effectiveness it must be attuned
to the inequities of power within society. Thus Hague and McCourt (1974)

ask the planner to "take a long cold look at his operations in pursuance of the public interest in relation to his notions of public participation".

Similarly Pahl (1970) argues that the planner's traditional claim, reflected in Skeffington, to optimise on behalf of society in particular needs to be exposed as a convenient administrative fallacy, inadequate for a future with greater potential for social conflict. "Whose City?" will depend on "Whose Power?".

The social theories of society, as well as political theories were not acknowledged in Skeffington. Thus there was no consideration of the demand for participation reflecting increased bureaucratisation in society, or increasing alienation (Hampton, 1971. Richardson, 1970). The nature of modern community is never distinguished from other types of community so that Styles (1971) could show that participation in the Skeffington sense will only take place where the participants are relatively disinterested about the issues.

A second major criticism, linked to the first, is a lack of political awareness. In this context there are the works of Styles regarding concepts of democracy and the political context of participation, and those of Pahl and Hague and McCourt already mentioned.

In fact, some writers saw the report as paying lip-service to the ideal of public participation. "What the participation game is all about is public relations for the planning profession. The purpose of public participation in planning is to make life easier for the planners." (Damer and Hague, 1971) Thus, instead of conceiving of public participation as a means to achieving greater democracy, through an appreciation of the pluralistic nature and conflicting values of society, Skeffington treated it as an end in itself, to be achieved when the correct procedures were in operation.

Thirdly, Skeffington has been criticised for its inadequate recommend-
ations. This is related to the other criticisms. For example, McLoughlin
and Thornley (1972) criticise Skeffington for not offering advice on how
policies and underlying goals are to be established and for emphasising
procedures instead of questions of social and economic content.

Further, there were no details of the <u>organisational</u> context within
which participation was to occur. Given the assumption that purpose or
task is a prime determinant of organisational structure (Litterer, 1969)
then local government as an expression of democratic 'natural rights' as
opposed to local government as an administrative agency of central govern-
ment would require different organisational structures. Thus the present
hierarchical, Weberian bureaucracy is incapable of maintaining its present
structure and incorporating public participation. For the latter, it
would need to be organised along flexible non-hierarchical lines and would
require a high degree of power-sharing among its members.[4]

The Skeffington recommendations were also, it seems, poorly attuned to
the realities of the professional planning climate. Hague and McCourt
(1974) show that comprehensive planning as presently conceived and part-
icipatory democracy are both theoretically and practically incompatible.

Finally, the recommendations were criticised because of the inadequate
definitions of 'participation' and the 'public'.[5] A useful essay on the
definition of participation which undoubtedly stimulated much of the debate
in Britain was by Arnstein (1971) who sees participation as a 'ladder',
each rung representing different degrees of power, "at the bottom of the
ladder is manipulation, ... to citizen control at the top".

The concept of participation as a function of power is related to the
question of power relations at different stages in the planning process.
Skeffington, however, argued that participation is continuous, implying

that the involvement of the public is equally effective at all stages.

Many problems were therefore left unresolved by Skeffington, and seem likely to remain so. These include the practical problems faced by planning departments relating to the time and cost of public participation exercises, the lack of specialist skills and the lack of adequate techniques, to which little attention was given by Skeffington. But the fundamental problems were not realised to be so far-reaching. The nature of inequality is various. Directly relevant to participation in structure planning practice are inequalities of knowledge, understanding and participation experience, which in turn are often a reflection of inequalities in income, status and education.

One finds, then, that full implementation of Skeffington was impossible. The legislation itself has certainly not produced innovative developments in participation methods and techniques and indeed has led to a great deal of debate, controversy, and in many cases a waste of valuable resources.

The Institutional Context

Although the legislation regarding participation is in many ways inadequate, its very vagueness and simplicity permit a high degree of flexibility in interpretation. Why then, if pressure for participation both within the profession and outside of it was so strong, have planners not made better use of the possibilities open to them? Part of the answer must lie in the institutional context of planning activities, for it is here that one can locate the pressures which determine how legislation is to be used and for whose benefit. As Simmie (1974) observes, "One of the major factors determining what a town planner seeks to do, and what he is able to do, is the discretion allocated to him by the governmental power structure and society".

Planning as a State Activity

Planning is a state activity conducted by central and local government institutions. The majority of members of the profession work within state institutions and their activities derive meaning and significance from the legislative framework within which they are conducted.

Miliband (1969) argues that despite the changes in parties and personnel running government and the various institutions that make up the state, policies have consistently had the effect of preserving capitalism rather than replacing it. He argues that "Governments may be solely concerned with the better running of the 'economy'. But the description of the system as the 'economy' is part of the idiom of ideology and obscures the real process. For what is being improved is a capitalist economy; and this ensures that whoever may or may not gain, capitalist interests are least likely to lose".

Palmer (1972) undertakes a similar analysis aimed directly at that sector of state activity concerned with town planning. He argues that during the last century, public health and engineering activities to make the city more healthy had the impact of ameliorating the worst contradictions of free enterprise capitalism. Similarly, during this century, statutory town planning and public housing were instrumental in placating demands for more fundamental change as well as providing a wider market for industrial mass production.

This structural context is bound to have a continuing impact on the output of planning, for it means that there is a whole range of preconditions which inhibit the nature and types of solutions which are acceptable regarding planning problems in this and indeed in any society. It also has important implications for public participation, especially as these preconditions are mediated by bureaucratic organisational structures and by professional ideologies generated within these structures.

Planning in a Bureaucratic Structure

As well as limiting freedom of action in relation to issues and problems, the State also to a certain extent predetermines the nature of the organisation with which the public are to participate. Town Planning is carried out by the bureaucracies of central and local government and consideration of the impact of this form of organisation is important for an understanding of the institutional constraints on participation. Most considerations of bureaucracy originate in the work of Weber (1925), who outlined the principal characteristics of the ideal-typical bureaucracy. In Weber's view, bureaucratic organisation is "... from a purely technical point of view, capable of attaining the highest degree of efficiency and is in this sense formally the most rational known means of carrying out imperative control over human beings".

Bureaucracies operate in a characteristic way, involving the application of fixed rules and the impartial treatment of all clients. Their concern is essentially with the means by which a particular course of action is implemented rather than with a consideration of the validity of that course of action. Bureaucracy, then, is "the means of transforming social action into rationally organised action. Therefore, as an instrument of rationally organised authority relations, bureaucracy was and is a power instrument of the first order for one who controls the bureaucratic apparatus". (Hardy, 1974) Taking this argument further, Hardy has observed that "There is an obvious collision course between the idea of planning as a creative, ideological and, at times, democratic activity and that of bureaucracy as a detached, impersonal efficient form of organisation.".

Many writers have found it necessary to modify Weber's original formulation in order to take into account recent developments, such as the increase in departmentalism - or what Selznick calls the "bifucation of interests". As the Bains Report (1972) comments, "The local government

service at officer level is based on a tradition of professional skills, each operating within its own specialism. As new functions have been given to local government to perform, so new 'professions' have grown up, each with its own professional body to develop and improve the skills of its members, but often becoming increasingly concerned with the status of that particular profession in relation to others.".

The Royal Town Planning Institute has itself promoted this bifurcated structure with its proposals for a separation of departments for social and economic objectives, land and finance (RTPI 1971(a). See also Simmie, 1974). Some studies have shown, however, that often it is planners themselves who suffer from excessive departmentalism.[6]

Despite these modifications, however, Weber's views are still valid. For him, the very idea of public involvement was antithetical to bureaucratic structure, a structure which "... always tends to exclude the public, to hide its knowledge and action from criticism as well as it can".

Although the State can be seen to place the overall boundaries to the activities of the statutory planning agencies, the day-to-day problems with which the profession attempts to deal and the procedures it uses, are specified in relation to language and 'models of the world' which its members acquire because of their training and role within a certain social milieu. These 'models of the world' are discussed in the following section under the title of the Ideology of Town Planning, for undoubtedly the ideology of planning poses considerable constraints on the types of participation which are possible.

The Ideology of Town Planning

Contemporary conceptions of ideology, following Marx (1848) and Mannheim (1936) see ideology as reflecting the interests of specific groups, interests which are determined by the group's position in the social structure. 'Models of the world' and definitions of 'problems' which are

contained within an ideology are, then, essentially relative - they are problems *of* some groups *for* other groups (Rubington and Weinberg, 1973). Further, the moral element of all social problems must be recognised, for no discipline or profession can provide a value-free basis for deciding what is or what is not, a social problem.

Such an 'ideological' approach, which is not uncommon in sociological works, implies a conception of social order as the degree to which members of a society exhibit shared meanings, allowing co-ordination of activities (see, e.g., Douglas, 1971). This social order is socially constructed, by consensus and control (see, e.g., Etzioni, 1968) and is constructed specifically through the activities of the state (see, e.g. Milibard, 1969).

One can consider the ideology of town planning, therefore, as providing "a philosophical base for the activity. It indicates the main goals and approaches. The ideology provides a basic operating rationale." (Foley, 1960).

Foley's (1960) article, quoted above, makes reference to the 'three ideologies of town planning'. In fact, for the purposes of this study, an analytical distinction can be made between what shall be termed Primary and Secondary ideologies of planning.

The primary ideology refers to Foley's "philosophical base". It includes the formal and official definitions of planning, arising mainly from legislation and reinforced by the training of planners. It therefore refers to the values implicit in their work which, at the very least, provide symbolic justification for planning activities. The two main elements of the primary ideology can be conceptualised as the notion of the 'public interest' which can be seen to provide a justification which is directed primarily to those outside the profession, and the sense of mission or 'idealism' which supports the planning system from within.

The secondary ideology is more concerned with the instrumental activities of planners towards their primary goals, that is, it refers to 'practice-theory' (Greenwood, 1960). · It is therefore concerned with the problems towards which planning activities are directed (i.e. substantive concerns), and with the procedures which are adopted in order to investigate and ameliorate these problems.

The Public Interest

The principal rationale for the planning profession is that it is acting in the public interest. The discussion of legislation illustrated the conception of public interest which is often implicit in planning language and activities.

Glass (1959) sees the belief underlying town planning as one where "the public interest can be defined and pursued in terms of consistent social policies". The altruistic nature of this belief is expressed by Meyerson and Banfield (1955) who consider that, for planners, "a decision serves special interests if it furthers the ends of some part of the public at the expense of the larger public. It is in the public interest if it serves the ends of the whole public rather than those of a sector of the public.".

The notion of the 'public interest' has been well-aired in recent years. For example, Meyerson and Banfield (1955) differentiate between a number of conceptions of 'public interest' which might be used in empirical studies of specific situations. Yet whatever the outcome of such studies, the planning profession, as agents of the state, must act in accordance with the general characteristics of public interest. Indeed, the concept takes on the form of tantology - whatever the actions of planners they will always be justified in terms of the 'public interest'. It therefore serves to justify general practice.

Idealism

If the justification for planning is to serve the public interest, its motivating force lies in its idealism, its "sense of mission" (Albers, 1968). The 'evangelistic bureaucrat' (Davies, 1972) is "wholly devoted to increasing human welfare" (Keeble, 1965). Like the medical and political professions this element of ideology serves to bolster their impression of the 'public interest'. However, although it can be argued that this gives the profession its visionary outlook and evangelistic sense of purpose, it cannot be doubted that planners have no generally accepted view of their ultimate goals. Both their goals, and the means to attain them are rooted in their perception of problems, and more specifically in the theories and techniques which they utilise (i.e. the Secondary level of ideology).

Two consequences of the underpinning of practice-theory by the primary ideology can be discerned. Both arise out of the role of the planner as a discretionary agent in the interpretation of legislation which is conspic- uous in its espousal of value neutrality and public interest. First, this discretion has led them to the position of accounting for <u>all</u> interests, whereby they attempt to achieve a balance. The result is that they have espoused an illusory political neutrality - illusory because it often serves the most influential interests. Further, this identification with political neutrality through the concept of public interest was, in Simmie's (1974) view, "but a short step ... to the proposition that its logic rises above the erstwhile conflicts of political debate to something approaching the level of a scientific politics.". Secondly, to achieve this position planners have adopted theories which assume a consensual society in which any differences between groups are a problem of communication - the product of a failure to comprehend fully their true communal interests.

The result is that practice-theory (the secondary level of ideology) which determines to what extent and in which ways the profession attempts to meet its goals, characteristically presents a rational, value-free facade which often seems to conceal a lack of critical inquiry.

Practice-Theory in Urban Planning

The notion that there exists a body of knowledge that may be uniquely referred to as urban planning theory is problematic at best. The field of urban planning may be characterised in many ways; according to the purposes of planning, planning strategies, various actors or client groups and so forth.[7] Although the different approaches in the literature are vast, there appears to be two basic types of theoretical interest, one substantive, the other procedural.[8]

Substantive concerns are directed at specific classes of urban problems themselves, such as environmental quality, congestion etc. Procedural theory has been directed at how to resolve such substantive problems or how generally to plan within existing political and economic structures. These procedural concerns, which are the primary areas of theoretical work in planning, have resulted in an emphasis on the development of various decision models and theories of choice and a closely related emphasis on seeking to operationalise diverse value systems into planning goals, objectives and programmes.[9]

The Substantive Approaches

It is not necessary to describe in detail the many factors which contributed to the development of the planning profession and planning thought.[10] Therefore this section will briefly illustrate the major substantive themes of planning theory before discussing their relation with planning procedures and methods.

In post-war planning and until the mid-sixties, one can discern three main substantive approaches. The first is the so-called comprehensive approach, espoused, for example, by Geddes (1915) for whom planning was:

> the attempt to meet no longer piecemeal and from day to day, but with intelligent foresight, the complex needs of a great town of progressing affairs and growing population, and of supplying the demands of modern industry without forgetting those of modern populations. Place, work and folk-environment, function and organism - are thus no longer viewed apart but as the elements of a single process - that of healthy life for the community and individual.

In post-war planning, the notion of comprehensiveness has combined with another similar idea that has been identified by Hebbert (1973) as the "collective engineering model". This again treats the spatial area under consideration as a "social whole" within which the various components operate interdependently, maintaining the functioning of the complete entity. It was not necessary, therefore, to refer to individuals or groups in specifying performance criteria or in defining problems.

The engineering tradition within planning had a considerable influence in the development of this perspective, now most easily identifiable in transport planning. The same approach often underlays urban redevelopment, for example, where it is claimed to be essential for the city as a whole to maintain a steady rate of renewal or face a crisis of obsolescence in the future.

Hebbert (1973) suggests that planning thought is also underpinned by a "natural harmony model" of social life:

> The model has a single dynamic property, namely that the elements in the system will tend, under certain conditions, towards an harmonious equilibrium.

This illustrates a second characteristic approach which operates by providing the planner with an ideal image of future states. The difference between the normative ideal and the observable situation constitutes the problem to be solved. Hebbert argues that, for example, at the level of the town map the balance of harmony is perceived to be destroyed by the

intermixing of uses and the consequent congestion, smell etc. The obvious solution is then to rearrange uses in an orderly manner, separating those that are incompatible, that is, zoning.

A third approach or characteristic, emerging from the engineering and idealist traditions of planning, is that of physical determinism. Those in the engineering tradition would apply the deterministic causality of the physical world to the less concrete social realm, whereas the latter would claim that the construction of the ideal city would be a necessary feature of, and indeed would be instrumental in creating the ideal society. Thus, for example, once the correct arrangement of houses is arrived at, at the correct density, and with sufficient facilities such as shops and open space, then an homogenous, consensual society should emerge.

Since the mid-sixties further developments have taken place, notably the systems view of planning, which would, it was hoped, solve planning's basic problem which was the need to become more expert whilst retaining the undoubted heritage of its founding fathers. Thus systems theory is both comprehensive in scope and technical and sophisticated in application – a theory that relates traditional concerns to the new technologies of computation. However, when reduced to its basic concepts it looks remarkably like the other models - it is comprehensive in scope, it deals with the order and balance of complex systems, and does so with an eye to the physical manifestations of social life. The role of the planner is still that of guiding the evolution of the system.

Thus whatever the benefits that have been derived from the systems view, its substantive concerns are still the same as the other approaches, and are based on the institutional and primary ideological contexts. To illustrate these linkages one can note how the three ideologies specified in Foley's seminal paper reflect notions of comprehensiveness, order and

physical determinism, with an underlaying emphasis on the 'public interest' and 'idealism';

> Town Planning's main task is to reconcile competing claims for the use of limited land so as to provide a consistent, balanced and orderly arrangement of land uses.
>
> The role of planning. ... is to provide a good (or better) physical environment
>
> town planning ... is part of a broader social programme ... responsible for providing the physical basis for better urban community life[11]

We can now proceed to a consideration of the procedural context of planning, and its relation with substantive approaches previously outlined for this is an important linkage for an investigation of public participation methods and techniques in practice.

The Procedural Context

It was stated earlier that the procedural context embraces the operations and procedures of the 'planning process' itself, giving the profession a reasonably coherent framework within which to act. In Part 3 of the thesis it is considered in terms of a rather clinical and simplified 'planning process', of the type which seeks clear social aims and objectives, formulation of alternative policies to serve these aims, evaluation of alternatives, and subsequent monitoring and review. Indeed this is the way it was treated by PAG.

However, it is now generally recognised that the introduction of structure planning, the reformed management of local government, the appeals for increased public participation in policy making, and the growth of corporate planning, can all be seen as part of a broad movement towards a more explicitly rational policy making. It is this 'rationality' and the related concept of 'choice' which are the basis for planning procedures,[12] and which are closely linked with primary, (i.e. 'public interest') and other secondary (i.e. 'comprehensiveness' etc.) ideological elements.

Rationality and Choice

Three contrasting theoretical models of rational policy-making have been extensively discussed in the literature as the basis of planning procedures:

comprehensive

disjointed incrementalism

mixed scanning

The first of these, that of the comprehensive or 'pure' rational policy maker, is embodied in the very concept of structure planning (Dor, 1968). It attempts to identify the nature of conditions in the 'real world', to develop aims and objectives for policies which would improve these conditions, to evaluate alternative policies, and to implement and monitor the impact of the 'best' alternative with a view to modifying existing policy or developing new ones. Whether using 'aims' or 'problems' its purpose is always to create an overview which is comprehensive such that conditions in the external world and intervention in it are interrelated as a 'whole'.

Incrementalists such as Lindblom (1959) attempt to identify specific issues or problems and to deal with them singularly rather than seeking to establish overall aims and objectives. Thus, rather than being concerned with overall improvement of a system over a long time period, the incrementalist seeks to solve immediate specific problems, attention being paid to undesirable side-effects if and when they occur.

The mixed-scanning approach of Etzioni (1967) tries to adopt the essential characteristics of both these models, whilst minimising their disadvantages. Thus the aim is to carry out a 'broad scan' of general system features (for example, population, employment, housing etc) whilst identifying periodically critical issues for in-depth study and action - the 'fine scan'. It is interesting to note that, whilst the legislation and official advice on structure planning are clearly identified with the comprehensive rational model, in practice there have been many examples of mixed-scanning approaches, and Drake et al (1975) suggest there is a

general tendency towards this approach.

It can be seen from the three models that rationality refers primarily to a concept of how people 'should' make decisions; choice primarily refers to concepts of how people select among alternative strategies in deciding a course of action. A priori, therefore, rationality and choice appear important concepts in seeking to understand problems concerning the urban planning and design process. A central problem highlighted by critics of planning practice is that these concepts are primarily based upon and associated with economic decision theory and such a basis mostly ignores the important sociological, psychological and ecological factors which significantly affect decision-making behaviour.

The concept of rationality associated with economic theory is based upon the model of an ideal rational man, namely man in the market place, and is similar to his close relative Scientific Man. The primary characteristics of Economic Man are that he knows and understands his own and other people's motivations; he maximises utilities; he has the ability to find facts and understand situations; and finally his actions are not based on emotions. He is involved in the following activities, (Lee, 1971):

> ... establishing goals relative to values
> ... identifying environmental constraints and opportunities
> ... determining alternative methods for achieving goals relative to resource limitations
> ... determining consequences for each alternative
> ... evaluating alternatives to maximise goals and minimise costs (i.e. optimise)
> ... selecting and implementing alternatives in which former decisions are guides to later ones

The main problems with such a model involve motivational and information constraints. The former refer to the impact of needs and values on each of the activities. The informational constraints refer to the type, amount and quality of information available to him in each activity. Generally, these constraints combine to create complexity and uncertainty relative to decision-making.[13]

Based upon these problems of complexity and uncertainty, one finds the primary criticisms of the basic assumptions of economic theory - assumptions regarding the concepts of competition, scarcity, and maximisation - which are believed to compel man to behave rationally.[14]

In seeking to indicate the major differences between the basic concepts in the economic literature and this study in investigating decision-making behaviour, the following observations are important. In economics individuals and groups have preferences for certain goods and services, which generates demand, and this demand results in a supply response by 'society'. This supply response is a combination of market, quasi-market, and non-market processes. This is roughly consistent with the classical model of consumer behaviour.[15] However, individual and collective demand for public goods, such as police, open-space and even structure plans (see Batty, 1976) or for control of externalities (such as air pollution) cannot be realised by individual market transactions. Therefore non-market and quasi-market processes are especially important to urban planning due to the public intervention (that is, the eminent domain for the public interest) and public participation implications of these processes.

It has been suggested (for example, Wingo (1973)) that by interpreting choice patterns from existing market and quasi-market processes relative to indices such as property values, individual and collective preferences for certain public goods can be determined. However, because these are based on aggregate outcomes, one still does not know the trade-off components of individual preferences that determine these outcomes, nor are the exact structures of aggregation known. Also, market and quasi-market processes can only indicate preferences for those who have the income and other resources such as information which enables them to make choices such as moving house. Finally, the choices are related to personal preferences whereas in strategic planning one might expect .

there to be a need for choices regarding the 'community', that is,
'ethical preferences'.[16]

The primary ideology of planning therefore provides the basis of the
procedures of plan-making within which the public are to participate.
This procedural basis is an essentially rational/technical one and the
methods of public response are thereby limited to those which can be
accommodated within such procedures. In practice, this has meant that
the 'input' from the public commissioned by planning authorities is often
in the form of market choices, that is, aggregate behavioural data. Whilst
this type of input is both desirable and necessary for effective plan-
making, it cannot act as surrogate for the eliciting of <u>direct</u> responses to
substantive community problems and solutions, and indeed the formulation
by the public of these problems and solutions. More direct modes of public
involvement have not been used in the past as an integral element of plan-
making, though they are permissable and have been advocated within the
legislation on public participation.

This highlights a major obstacle in seeking to understand and address
problems such as the social response to strategic planning issues. It
arises out of the 'procedural-substantive' dichotomy, which indicates that
most of the conceptual foundations of planning have been based upon either
procedural or substantive concerns but rarely the two together.[17] When
they have been integrated in practice, such efforts have usually been on
the scale of societal utopias, or the much maligned "comprehensive plan-
public interest model".[18] A contention of this study is that procedural
issues (quantitative methods, decision models etc.) must be related directly
to the nature and perception of substantive issues such as environmental
quality, transportation costs etc.

Thus, if one accepts that economic models of equilibrium and optim-
isation are in themselves inadequate because they omit those elements

reflecting social forces and social values, then the sub-field of 'social response' can be characterised as providing a necessary feedback mechanism relating to the problems of defining societal choices, that is, with regard to substantive concerns. By considering problems of social or public response relative to a 'rational' planning framework (i.e. to a specific procedural framework) it is hoped to illustrate one avenue of substantive procedural integration.

Although this integration should be deliberately and conceptually structured, it cannot be based upon developing increasingly sophisticated methods of analysis and evaluation for specific isolated phenomena, such as transportation. Though complex problems require complex solutions (Ashby, 1956) the definition and causal dimensions of such phenomenon are as much cultural and non-objective as they are objective and functional.

Therefore this study approaches the problem of public response using a framework which is more related to theories of motivation (psychosocial and cultural) than to the 'theory of demand' and the various forms of allocative planning related to political economics. It is concerned, then, with strategic courses of action chosen relative to the situation as comprehended by individuals, rather than with those which are 'optimum' in an aggregative/economic sense.[19]

The Boundaries of Participation

The legislative, institutional and procedural elements of the planning milieu determine the scope of public participation practice. These elements represent the downward-directed control (Etzioni 1968) and the impact of the methods of participation on the output of planning procedures represents the upward directed influence patterns of societal guidance.

Although legislative control elements confer certain 'rights' on the public, the 'influence' effects of these are restricted in practice because of the organisational structure which maintains structural and normative

distance from the public, and within which elected representatives attempt to maintain the representative institutional systems of the state. In turn, the procedure of the plan-making system is itself so remote that citizens are often not aware of the role and significance of their input to it. This is confounded by the technical language and rational aims of the procedure which delimits the contribution of the public to the conceptualisation and articulation of problems and goals, and their ability to form interest groups to promote their own solutions and means of attaining them.

Thus the enormity and complexity of the 'problems' of participation are illustrated by this framework. Any attempts to overcome the whole series of problems would be brave indeed, and this, of course, would necessitate a general normative theory involving fundamental social change. But although such theories (of which, for example, Etzioni's is one of the more developed) are useful for <u>structuring</u> the general problems of participation, <u>their very generality limits the extent to which they can solve many of the more difficult practical problems often ignored by them.</u>

To determine improvements or solutions which are immediately practicable one requires investigations based on a 'middle range theory' (Merton, 1957) which will mediate general theoretical problems and empirical/practical concerns. Such investigations would facilitate practical improvements now, and also throw light on many of the practical problems of implementing changes in accordance with general theoretical propositions. The middle range theory developed here is concerned with social response to strategic planning issues. We shall proceed in the next chapter to a description of influence patterns i.e. public participation

methods and techniques which have been developed for use within the boundaries created by legislative, institutional and procedural domains, that is, to a description of public participation practice, before continuing with the main body of the thesis which is concerned with social response to strategic planning issues.

1. See, for example, Cullingworth (1972), Bor (1975).

2. See, for example, Ashworth (1954), Burton and Cherry (1970), Webber (1964), Willis (1970).

3. See, for example, Drake et al (1975), Thornley (1977), McLoughlin and Thornley (1976).

4. See, for example, Burns and Stalker (1961) on 'organic'-type structures.

5. The definition of participation was criticised especially for its unidimensionality. For a classification of participation types see, e.g., Goldsmith and Saunders (1975). The term 'public' can also be given different analytical and empirical meanings. See, e.g., the classification offered by Hampton (1974).

6. For example, Muchnick's (1970) study of urban renewal in Liverpool demonstrated that planners'concern for a comprehensive, strategic approach took second place to the more immediate needs of removing unfit houses which was the primary concern of the operational departments such as housing and public health.

7. See, e.g., Bolan (1967).

8. See Hightower (1969). Hightower emphasises the procedural-substantive dichotomy relative to planning education in the U.S.A. See also, Friedman (1973) and Ackoff (1974).

9. The decision models include optimisation techniques, quantative methods such as linear programming, Cost Benefit Analysis, and Planning Balance Sheet. See Lindblom (1959), Davidoff (1965) and Friedman (1966).

10. For a review see the paper by Cherry in Bruton (1974).

11. In the discussion presented here, these 3 'ideologies' are treated as goals developed for the profession on the basis of the Primary Ideology.

12. See Bolan (1969) and Dyckman (1961).

13. Conditions of insufficient information and uncertainty in economic theory led to the development of "Theory of Games and Economic Behaviour", von Neumann and Morgenstern (1953).

14. Boulding (1970) for example, argues that the economics approach to decision making has become a "generalised theory choice". The price system thus becomes a "theory of value". Welfare economics also has grave conceptual problems, as exemplified by Arrow's (1951) "impossibility theorum".

15. See Miernyk (1971). Also, for important studies in decision making behaviour see Luce (1959) and Luce et al (1960).

16. See Harsanyi (1955).

17. Recent significant exceptions to ·this are Friedman (1973) and Ackoff (1974).

18. In this model the master plan functions as the 'common goal' toward which actions are directed. Criticisms include Banfield (1961) regarding the inability of cities to develop common goals or match ends and means; Friedman (1966) regarding the nature of power politics in deicision-making; Wingo (1961) regarding the need to know the distribution of social costs.

19. This is in line with Simon (1957) who argues that the psychological models of adaptive behaviour (i.e. learning) tend to explain observed behaviour better than models of rational behaviour in economics with their assumptions regarding information and computation ability. He stresses the importance of theories on perception and cognition, leading to the principle of 'bounded rationality' which terms 'satisficing'.

CHAPTER 3

PUBLIC PARTICIPATION METHODS AND TECHNIQUES

The previous chapter considered the 'control' factors which determine the 'rights' of participation. These control factors provide the overall boundaries of public participation, that is, they delimit the 'influence' which public participation methods can have on the content of planning procedures. It is to this general level of concern, that is, the overall constraints on participation that many of the general theories are directed and to which general normative theories direct their prescriptions and proposals.

This chapter considers the influence factors themselves in more detail. A distinction is made between two main areas of concern. The first is that concerned with the inherent characteristics of public participation methods and techniques themselves. This is labelled the Technical Context.

The second area of concern is with the use or application of public participation methods in planning practice. The problems which arise can be considered as the problems of accommodating particular participation methods (i.e. the Technical Context) within the institutional, legislative and procedural contexts of the structure planning milieu. They are conceptualised, then, as problems of the Integration of the Technical Context within the Legislative, Institutional and Procedural Contexts mentioned earlier.

The Technical Context

It is not surprising, considering the constraints on them, that the methods of participation adopted by local authorities have followed similar patterns (see J.R.T.P.I., 1975). These have usually involved a combination of some or all of the following; general publicity handouts (often with a returnable questionnaire); the use of the mass media to publicise structure

plan options; the setting up of exhibitions as a means of publicity and to
collect responses; public meetings, sometimes involving elected represent-
atives; consultation with organisations, private and state-owned firms
and interested parties; in-depth social surveys; and more recently 'planning
kits'.

It is this diversity which has led to the development of a number of
classifications of types of participation which attempt to structure the
growing volume of public participation exercises.[1]

However, these attempts at classification and definition are in
themselves fruitless unless they provide the basis for further exploration
or inquiry.[2] The approach taken in this work is that a classification of
public participation methods must link into, and indeed is only given
meaning by the analytical dimensions of legislation, institution and
procedure. Thus the diversity of participation methods reflects the
diversity of the planning or plan-making process within which they might be
used. One can specify the principal categories of functions or aims to
which social response and participation methods are directed:-

> (1) Unstructured Representation and Liaison
>
> This is an important source of information to the
> planning authority and consists of all communi-
> cation from individuals, groups and organisations where
> the function of the communication and role of the
> communicator is not specified or structured by the
> authority. It is essentially uni-directional yet
> is often based on information given by the author-
> ity and provides a medium for community decisions.
> Its nature makes generalisations regarding use and
> incorporation in the separate stages of plan-making
> difficult. It therefore occurs primarily within
> the earlier stages of plan-making and in practice
> is closely related to the use of ad hoc consultat-
> ive methods.
>
> (ii) Identification of Specific Needs/Values/Problems
>
> This function covers those modes of response which
> are utilised to identify individual, group and
> organisational perceptions of needs/values/problems
> which are specifically linked to the control and
> aims of planning activity. The fundamental
> characteristic is the explicit unidimensional link

between the subject matter of response and the subject matter of planning.

(iii) <u>Identification of Trade-Offs and Conflicts</u>

This function includes the identification of possible trade-offs for individuals and groups, across a variety of planning concerns. This is a prerequisite for the identification of conflicts between groups and organisations regarding the benefits to be derived from the planning process.

(iv) <u>Conflict Resolution/Generation of Ideas and Plans for Solutions to Strategic Problems</u>

This function constitutes the input from the public, its elected representatives and constituent organisations to the resolution of apparent or real conflict. It therefore includes those inputs in the form of solutions as perceived by the various publics.

(v) <u>Evaluation</u>

This consists of those inputs of an evaluatory nature directed toward possible planning solutions or constituents of alternative final plans.

(vi) <u>Decision-taking</u> represents the last function that individuals or groups can perform - the direct choice of the final plan or elements of it.

It is clear that as one moves from lower to higher order functions greater emphasis must be placed upon those methods and techniques which are more representative and measurement-oriented. For example, in evaluation it is necessary to assess impacts on a wide variety of groups, some of whom may never form interest groups to present their own case, and secondly this representativeness must be balanced by a degree of measurement of the relative importance of impacts if a decision criterion is to be applied, or as a preliminary to reaching a compromise or a consensus solution.

One can therefore distinguish roughly between two major types of participation methods. Firstly, those methods which occur essentially within a social-political context. These are the methods of mass communication, dialogue, bargaining etc., and include public meetings, representations to elected members, seminars and workshops, liaison with

organisations and pressure groups. The second grouping includes methods which are of a specifically technical nature and are concerned with measurement and valuation of different types of response. Measures include those of attitudes, of perceptions and of behaviour, utilising techniques such as behaviour mapping, questionnaires, and priority-evaluator techniques. (A full classification and check list of participation methods is presented in Part 3 of the thesis.)

Survey methods and techniques have become increasingly important in public participation exercises and in plan-making as a whole. Whilst local authorities have recognised the necessity of using consultative methods, the responses are often on a small-scale and are certainly unrepresentative of the population as a whole.[3] This has led local authorities to utilise methods which do not have a self-selection basis, in order to supplement consultative procedures in the social-political area.

These measures are the central focus of this study and represent what might be termed 'technical' influence factors when considered in a theory of societal guidance, that is, they constitute the Technical Context. Before discussing response techniques further, however, the following section introduces the second area of concern vis-a-vis influence patterns - the problems of application of techniques.

The Problems of Integration: case study material

Whilst each of the contextual dimensions exhibits problems peculiar to itself (evidence the work on 'models' of the planning process, or the technical problems of 'social choice criteria') it seems that many of the practical problems of public participation are the result of the mal-integration of contextual dimensions. This section illustrates this proposition, utilising a number of case studies to highlight the mis-match between pairs of contexts.[4]

Institutional-Technical

The problem in relating institutional and technical contexts has been one of relating the response one is able to get from the public, to the institutional milieu. Problems encountered include the relationship between officers, public and their elected representatives. For example the 'participants' at Teeside concluded that,

> "There is not - and should not be - any alternative to the process of decision-taking by the elected representatives of the public in council"[5]

Whilst one can reasonably accept the basis of representation on which decisions are made, it is the nature and quality of the information on which the decisions are made which seems to be problematic. If, through the application of the authority of appropriate techniques councillors have an adequate view of the response of the public to specific strategic issues then the mis-match between institutional and technical contexts will not be too great. However, one must note the criticisms at Teesside and elsewhere of the almost total non-involvement of councillors in the public participation process.[6] A first point to note then, in a review of case studies, is that councillors have rarely been involved in deciding which social response/measurement techniques should be used and how these are to fit in with their own role.

A second area of difficulty centres on the consultation and publicity programmes (as opposed to the technical 'measures' of response), which are more properly placed within the institutional rather than technical context, and which create particular problems of organisation. The first organisational problem concerns who to involve. Again, the role of councillors is central to the development of effective participation yet with regard to public meetings N.E. Lancashire,[7] Teesside[8] and Cheshire[9] all detail the lack of participation by councillors. The organisation of a participation exercise must facilitate the involvement of those who bear responsibility for the outcome. Further, the organisation of

consultation programmes must make available, at the right time, those with the required expertise. At public meetings it is essential that the planner be aware of the target audience, that he has the correct information in an adequate form for presentation, and that expertise is available for evaluating comments.

Organisational problems include not only who to involve but how to involve them - that is, involvement must be managed and controlled. Although one might agree that public meetings are not a good means by which planners may gauge the general public's reactions to their proposals, they can be improved by better organisation. In particular, as well as involving the appropriate people or groups, the public meeting must be integrated within the broader public participation exercise. That is, it must be organised so as to complement the use of questionnaire techniques, gaming techniques, etc.

Having elicited responses from the public by various methods, and commenced a dialogue with the public and interested parties, there still remains the major problem of evaluating response. Irrespective of the technical difficulties of evaluation, the organisational difficulties which arise in this particular institutional context are enormous. In this regard the role of councillor is most uncertain -

> "the statutory requirements and advice hardly mention
> the role of councillors in this ... technical exer-
> cise" 10

The task of evaluating contributions of a qualitative and quantitative nature is increasingly being seen as value-laden, making the involvement of elected representatives indispensable. The Teesside experience is relevant in this respect. A working party including representatives of all corporation departments was convened to consider public response to the draft plan. Major difficulties seem to have been encountered because of the make-up and organisation of the working group. Each representative reported back to his department on all relevant issues - yet no major

charges in the plan were made as a result. There seems, then, to have been
poor integration of the working party into the organisation of the structure
plan, hence Hampton and Walker's comment on Teesside that:

> "unless the councillors are involved in the evaluation
> of public comment the process will remain at the
> level of detailed review rather than reappaisal of
> policy"[11]

Another aspect of the organisational problems encountered at Teesside
concerned the timing of the group's activities within the general plan-
making process, such that Hampton and Walker state:

> "the process of assessing the response needs to be
> considered at the same time as the programme for public
> participation is prepared ... the analysis of response
> is not an ad hoc nuisance tacked on at the end of a
> public participation programme"[12]

Similar problems concerning the lack of expertise of planner and
councillor, and the poor organisation of the two in the co-ordination of
plan-making and participation has been witnessed in most public participation
exercises. In Teesside much of the response was "never formally recorded";
Merseyside had lost "a good deal of detail" prior to writing the report; in
N.E. Lancashire "subsequent collation and use of questions and comments"
was problematic. Perhaps Cheshire best sum up the situation - "we still
don't know how people feel about various individual issues".

To summarise; the mis-match between institutional and technical
contexts has arisen because specific techniques of response and consultation
methods have not been organised in such a way that officers, councillors
and public have a clear conception of how these techniques are to be
utilised in plan-making. The techniques and the actors involved have not
been integrated in any meaningful or efficient way.

Institutional - Procedural

The problems of organising a public participation exercise involve not

just the need to link planner, councillor and public so that consultation
and response modes are integrated in an efficient and meaningful way, but
also the need to organise it in such a way that the procedures of the
plan-making process are enhanced.

There have been two major sources of difficulty which authorities
have encountered prior to the utilisation of consultation methods within a
plan-making programme. The first concerns the very definition of what is
to constitute public participation. For instance, Whitehead, in his
assessment of the Hartlepool case study observed that:

> "sample surveys - whilst useful - can hardly be equated
> with the previously stated definition of what constitutes
> participation"[13]

The second difficulty is to ascertain how this notion of participation
relates to the plan-making procedures, that is, what are the public to
comment on? Senior comments that the failure of the early participation
exercises was:

> "in regarding the final stage of the plan-formulation
> process (the statement of preferred proposals) instead
> of the preceeding stage (identification of choices
> available) as the main occasion of public participation"[14]

Similarly, for Teesside participants it is the "alternative possible
ingredients of a plan, not complete alternative plans that are the proper
objects of selection".[15] Similar concerns have been documented in reviews
of the Cheshire, N.E. Lancashire and Merseyside participation studies.[16]

In practice the planner may resist attempts to input community
objectives into the plan-making procedure at an early stage, either
because it limits the flexibility he has within the technical process of
plan-making or because it introduces a political element into the process
which taints his view of the process as an essentially technical one.
Hence councillors may be expected, in any rational process, to decide
objectives at an early stage of plan-making but in practice they rarely do.
It is the poor integration of planners, public and councillors with

respect to the procedures of plan-making which often leads to non-involvement of councillors. Coupled with the natural tendency of practitioners to maintain their role in plan-making (a tendency which has led them to emphasise their technical rather than their creative contribution to the process) and there can be little wonder that councillors "have sometimes felt that obstacles have been placed in their path which are likely to make their role less effective".[17]

The role of public and elected representative may also be restricted at the important decision-making stages. At Cheshire "the public did not really alter the planner's views of the different plans".[18] At Teesside "the Council did not change a single policy as a result of public objection or suggestion".[19] There is then no detailed account of the linkages between planner, councillor and public with regard to the operations of plan-making:

> "the degree of confusion or imprecision throughout the Teesside exercise on the nature of the contribution that could be made by the public",[20] has been shared by most plan-making exercises to date.

To summarise: the relation between institutional and procedural contexts centres on the <u>functions</u> of public, members and officers in plan-making, and in particular the nature of the role that each is expected to play at specific stages in the plan-making process.

Technical - Procedural

Even after the decision as to how the general notion of participation is to link into the operations which have to be undertaken, problems have then arisen in the past concerning the method of participation - that is, which techniques are to be used, and what form of response do they provide? The form of response deals with problems such as the competence of the public to define goals and objectives; their direct input to the plan as a system to be measured (e.g. 'accessibility' measures in transportation studies); and the appropriateness of various publics as respond-

ents to specific proposals.

The question of which technique to use has again caused problems when viewed in isolation. The conventional battery of public meeting, questionnaire, local radio, exhibitions etc. has to be considered in terms of the constituents of public participation and their input into the plan-making process. For example Cheshire's exercise was almost purely educational yet even then the comment forms at exhibitions were not adequately linked to the presentational material on the display boards.[21] With a more encompassing notion of participation and a closer investigation of the plan-making procedure, a less restricted form of consultation might have been achieved between public and planners - planners who are:

> "repeatedly struck by the ability and willingness of the public to grasp the complexities of structure planning, clearly demonstrating their ability to make a useful contribution to the process." [22]

The actual form of techniques, their relation to one another, and their coverage are, of course, subject to decisions made in an institutional context which is unadventurous, careful of cost, and sensitive about the more political issues. Couple these restraints with the lack of training/expertise in social response techniques and one is tempted towards the conclusion that the definition of what is to constitute participation is determined not by prevailing values of democracy, or even the quest for a better plan-making, but by the acceptance of a battery of conventional social response techniques, unrelated to each other or to the plan-making process. This is epitomised in structure planning by the marked lack of attempts to design participation exercises which can integrate responses from individuals regarding local immediate problems with responses elicited to more strategic issues.

The essence of the mis-match between technical and procedural contexts centres on the actual form of techniques for eliciting public response and the nature of that response. Having decided upon the roles

which public, members and officers are to play in the plan-making process, the question becomes one of how best to achieve a public response.

The preceding sections covering the mis-match between contextual dimensions highlight a number of general properties and relations which must be included in any framework used to investigate problems of integration. These are firstly, the relation between consultation processes occurring in a social political context and social response techniques developed for technical reasons. Secondly, the functions of the consultation processes (including the roles of planner, public and elected representatives) with regard to specific stages in the planning process. Thirdly, the contribution of technical methods of response to these procedures of plan-making.

The first two are not central to this study but will only be considered in terms of problems of integration discussed in Part 3 which focusses in detail upon certain aspects of the contextual dimensions and the relations between them. The main part of this study centres on the third problem, the contribution of technical methods of response in plan-making.

Social Response Techniques

Many survey techniques and methodologies, each with different characteristics and capabilities, are available to local authorities. They differ mainly in their general methodology, in the nature of the responses generated, and in their typical usage within the plan-making process.

It is useful at this stage, therefore, to make some general observations on these differences and to illustrate these by means of the taxonomy presented in FIG.1.

The classification of response types utilised (column 3) consists of

behaviour, conation, perception/cognition, attitude and judgement.
Behaviour is the most widely used response-type, usually facilitated
either by direct observation of activities, by indirect records or by verbal
reports. Allied to this is conation - the intention to behave in certain
ways. Rather than being directly measured, conation is usually inferred
from studies of present or past behaviour, for example in economists'
use of market analysis. The third category, perception/cognition concerns
the knowledge that people have regarding their environment and the way
this is constructed and represented mentally. Attitudes relate to the
degree of affect for or against particular environmental attributes or
combinations of attributes, whilst judgements concern strength of feeling
regarding attributes, often with respect to one or more criteria, that is,
it is evaluatory in nature.

All of these response types have fulfilled functions within plan-
making procedures. Their use in planning depends upon the degree to which
it is actual behaviour or stated preferences which is being measured, and
whether the information given to the respondent is about a real or
hypothetical situation. This leads to the four simplified methodological
approaches outlined in column 2 in FIG.1. These are:-

(i)   monitor individual or group behaviour with respect
      to existing urban/environmental systems
(ii) monitor individual or group behaviour in a sim-
      ulated system by means, e.g., of gaming devices
(iii) measure stated opinions or preferences with
      respect to existing systems
(iv) measure stated opinions or preferences with respect
      to hypothetical system characteristics

Column 1 of the diagram illustrates the essential nature of the usage
of these methodologies in plan-making, that is, whether it is concerned
with designating, describing or categorising a system or its parts, or
appraising and evaluating a system or its parts. The essence of planning
is of course, that each of the approaches in column 2 are linked to some

1	2	3	4
Nature of Approach to Response	General Methodology	Response Type	Examples Methods/Techniques
Descriptive	Monitor behaviour in existing situations → Behaviour	Behaviour	Market Analysis
	Monitor behaviour in a simulated situation → Conation	Conation	Games
Predictive	Infer the dimensions of the system relevant to an individual or group and the relative importance of each dimension in a value structure		
	Infer the dimensions of the system relevant to an individual or group and the relative importance of each dimension in a value structure		
Evaluative	Measure stated opinions and preferences with regard to existing situations → Perception / Attitudes	Perception	Annoyance Measures
		Attitudes	Likert Scales
	Measure stated opinions and preferences with regard to a hypothetical situation → Judgements	Judgements	P.E.T.

FIGURE 1

ideas about <u>change</u> in the system by inferring the dimensions of the system relevant to an individual or group, and secondly by inferring the relative importance of each dimension in a value structure from a consideration of behavioural or preferential manifestations. The changes in the system are considered in an essentially predictive sense. Thus column 1 consists of descriptive, predictive and evaluative categories.

One can now make some comments on the approaches outlined in column 2. The first is really concerned with describing the urban system or part of it, using measures of behaviour and conation such as activity self reports and direct observation. This is by far the most common survey method used in structure planning and is usually utilised in the early stages of plan-making up to report of survey. For example, urban transportation planners have often used this approach as the basis of prediction of future travel behaviour and to derive the future need for transportation facilities. The transportation planner would generally prefer to measure behavioural or 'operative' value rather than preferential or 'conceived' value,[23] because the former will affect the usage of and reactions to systems that will be built in the future. The limitations of this approach are that measures are influenced by the opportunities provided by the existing system and constrained by its inadequacies, that is, we do not know to what extent observed behaviour is the result of preference or of constraints on behaviour. Further, this approach focuses on the individual as a <u>user</u> of the system or facility under consideration, and only rarely examines responses arising out of different respondent roles (e.g. pedestrian as opposed to driver, as opposed to parent). In strategic planning the interrelation of systems, for example transportation, housing employment, is crucial (reflecting the different roles an individual adopts) and responses to strategic issues require consideration of these inter-relations.

The second approach is to observe individual behaviour in a simulated system or environment. In such situations (e.g. gaming approaches) the respondent can take on a variety of roles and the constraints on behaviour can be varied in terms, for example, of budgets or trade-offs. The respondent therefore chooses/bargains/negotiates regarding a number of alternatives within a set of realistic constraints. However, because he knows he is in a game situation, the response is a 'conceived' one and the extent to which this approximates operative values is problematic. The simulated environments within which the respondent behaves are usually representative of the environment he faces everyday in the present, and do not therefore include strategic elements in the future - the essence of reactions to structure plans.

The third approach monitors/measures stated preferences, attitudes and perceptions regarding existing systems (these systems might also be presented in a simulated way, e.g. with photographs). Methods include interviews, attitude scales, and repertory grids, and the main focus is usually on the background to behavioural choices that respondents have made or intend to make. Surveys which inquire into the reasons why choices/ behaviour with respect to the system fail to generate satisfaction yield useful information about the gap between conceived values and operative choice situations (e.g. Rossi, 1955).

The final approach is concerned with stated preferences/opinions with respect to an hypothetical situation, and therefore considers conceived values by removing some of the technological and economic constraints of existing urban/environmental systems. This approach may lead to strong personal preferences for attributes that might not have been revealed from behavioural studies. This type of response can give important insights into present behaviour (an example is the Priority Evaluator Technique - Hoinville, 1971) but more importantly it can deal directly with hypothetical

future situations, which is central to plan-making. Simulation, for example, is only concerned with representations of existing systems whereas this approach involves a direct link between subject matter (that is, alternative system states such as planning options) and response, the hypothetical representations or possible system states being built upon information from the previous three approaches.

This final approach is the only one that can deal directly with future strategic characteristics. It is therefore concerned with 'conceived' responses to 'hypothetical' alternatives as presented by the researcher. The responses are not, then, located in purposive action but are symbolic responses made verbally or by moves in a game.[24] Further, the object of response is not concerned with 'sectoral objectives' (arising out of the preferences of groupings based on, for example, social class criteria, or some functional category such as residents or pedestrians) but with 'policy objectives' which are utilised to guide plan-making.[25]

Some Problems of Strategic Response Techniques

The methods currently in use for eliciting direct public responses to strategic planning issues are very limited in range. The most appropriate stage for the use of such methods is after alternative strategies have been developed, usually on the basis of preliminary consultations and examination of sectoral objectives. At this stage the general implications of alternative actions have been investigated within the framework of policy objectives.

However, the alternative strategies or plans which have to be presented to the public are essentially complex and are composed necessarily of inter-related topics such as transportation, employment and housing and this poses a dilemma in terms of the coverage and complexity of the technique. On the one hand one can aim at in-depth and comprehensive treatment of alternatives. But this necessitates a coverage which is

usually limited to interested groups because of inhibitive costs and the inability of the general public to comprehend very complex issues. An example is the 'planning kit' used by South Yorkshire.

On the other hand, many local authorities have publicised a number of simplified alternative structure plans (usually in the form of 3 or 4 illustrated maps) upon which a wider and more representative public have the opportunity to comment, or to decide between using a returnable questionnaire. An example, taken from the South Hampshire plan, is included below (FIG.2).

There have, however, been few attempts to develop more sophisticated techniques, designed for a wide coverage, which would elicit in-depth responses regarding strategic planning issues. Nevertheless, if one accepts that for meaningful participation respondents must be directly involved with 'guiding' the strategic directions and changes of the system, then the development of more meaningful social response techniques seems to offer an important avenue for investigation.

These themes will be brought more sharply into focus in the following chapters. However, in order to organise an investigation into the problems associated with the development of strategic response techniques it is necessary at this stage to differentiate between the different types of problem which arise. The following analytical categories of problem can be specified:-

Definition

That is, which parameter of response is selected as representing the general system? In the past, planners and consultants have tended to use those parameters which are widely accepted in everyday use such as attitudes or preferences. As in a growing majority of public and private agencies, they have generalised the use of the more accessible tools of the social science to meet the institutional demands of the planning milieu.

One must, however, reassess the use of such 'conceived' response types in situations where respondents are faced with such unfamiliar stimuli as 'alternative structure plans'.

Content

The content problems are concerned with differentiating the complex subject matter broadly described as the 'environment'. Legislation determines those aspects of the environment which are of concern to the profession, but professional training further determines how the environment is perceived, described and represented (the South Hampshire examples are typical in this respect). This is merely a reflection that planners have tended, quite understandably, to treat planners' problems, rather than the public's.

However, one must attempt to understand the nature of these 'hypothetical' environments, which are essentially complex and abstract, if one is to evaluate the nature and meaningfulness of the response obtained. For example, in terms of the design of techniques, planners' delineation of strategic environmental elements, when combined with an emphasis on attitudes and preferences as measures of response, often creates ambiguities and tensions within the methodology when viewed from a theoretical perspective.

Presentation

That is, what type of information is given as being representative of the environmental stimulus (subject-matter). The presentation of environmental stimuli to the public, either as general publicity or in order to elicit a response is subject to problems of content and definition, and is particularly difficult when dealing with strategic planning issues.

Presentation is also constrained by lack of finance (hence the sparce use of T.V.), by ideological and institutional milieux (e.g., the

presentation is usually 'apolitical' or 'neutral') and perhaps most importantly, it is hampered because of the sparcity of evidence concerning which media, and types of presentation are likely to inform the public best.[26]

Method

Obviously the nature of evidence is influenced by the techniques employed, for example, questionnaires, laboratory studies, participant observation etc. The actual _form_ of technique is usually conventional, and is frequently determined by consultants, or by the previous use of such techniques. This can create problems when techniques such as attitude scales, developed for military and educational selection during World War II, are used to measure general traits towards, e.g., 'unemployment' or 'overspill'. Different forms of techniques, then, may need to be developed for application in specific operational settings.

Analysis

This refers to the use of scales and specifically to the aggregation principles which are employed, often implicitly, to achieve a 'social choice' or a 'community value'. The effects of ideology in the form of unconscious or implicit values, and lack of theoretical knowledge of aggregation principles often enter into procedures thereby distorting information and results. In the development of more meaningful techniques it is therefore necessary to consider the types of aggregation which are envisaged and which are theoretically valid.

Application

At which stage in the 'planning process' and for what purpose is the technique to be employed. This is a central problem of 'integration' of techniques in plan-making.

CONCLUSIONS TO PART 1

The first three chapters of the thesis have been arranged so as to set the context for the main body of the thesis. Chapter 1 was concerned with the general theoretical context of the work and provided a number of themes which are central to it - participation rights, planning competence, information exchange. Chapter 2 introduced the specific operational context of the study - public participation in structure planning, and dealt with the first level of problems - the boundaries or rights of participation, in terms of a number of contextual dimensions (legislative, institutional and procedural). Chapter 3 continued by introducing two other levels of problem. First, the problems of public participation techniques themselves - the central focus of this study, and secondly, the problems of integration of such techniques within the operational context of structure plan making.

There are a number of reasons for focussing upon social survey response methods in public participation; firstly, it was felt that the problems of developing and applying strategic response methods were, more than any other area of participation, suffering from a lack of adequate analytical and conceptual inquiry; secondly, such a study would have, hopefully, immediate practical output in the form of techniques, which would be of value for existing local authorities; thirdly, in order to fulfill the first aims, one would have to face directly the range of problems associated with communication of strategic planning issues and responses to them, as well as the problems of the public's 'competence' to deal with such issues and the planner's 'competence' to evaluate and utilise the public's response; fourthly, by considering a specific operational context, public participation in structure planning, the study would illuminate some of the key elements of Etzioni's normative theory in a situation which approximates an 'experimental control' situation.

The issues arising from these comments will be clarified in Part 2 (following), which deals with the practical and conceptual problems of developing and testing Strategic Response Techniques. These are the central concern of the study, and surround such questions as:-

(i) what is the nature of the strategic issues with which planners deal

(ii) how can these be communicated to the general public

(iii) what types of meaningful response can we expect from members of the public

(iv) what are the best ways of evaluating this response for use in plan-making

(v) how can such responses contribute to public participation in plan-making.

1. Goldsmith and Saunders (1975), for example, distinguish between
   (i) educative participation, (ii) informative participation and
   (iii) involved participation. Similarly Drake's (1975) treatment of
   publicity; consultation and participation. The term public has also
   been given different analytical and empirical meanings. Hampton
   (1974) classifies these as; major elites; minor elites; and the
   general public.

2. The concept of 'participation' is akin to that of 'community', for
   which Hillery (1955) found 94 definitions in the literature and
   found such confusion and so little consensus that Stacey (1969)
   wrote it off as a 'non-concept' and Hillery commented that "beyond
   the recognition that 'people are involved in community' there is
   little agreement on the use of the term".

3. For example, the DoE Linked Research Project points out that "the
   contribution from the audience at a meeting is unlikely to be
   representative even of the audience, much less of the general public"
   (Stinger and Ewens, 1974). The same problems occur with 'passive'
   survey methods such as advertisements in local newspapers which
   include a postal return questionnaire. For example, East Sussex
   distributed some 150,000 of which 300 were returned (Perkins and
   Barnes, 1975).

4. This section does not provide a full review of the case-study mater-
   ial but does highlight the type of problem which might be addressed
   using the framework. In Part 3 of the thesis, a more detailed
   treatment is offered of the components of the contextual dimensions
   and the linkages between them, with the aim of illustrating areas for
   improving 'integration' and application of techniques.

5. Centre for Environmental Studies 1976.

6. Ibid.

7. Stringer, P. and Ewens, S. (1975) para. 5.2.

8. Hampton, W. and Walker, R. (1975) para. 5.22.

9. Goldsmith, M. and Saunders, P., (1975) para. 5.64.

10. Drake, M. etal (1975).

11. Hampton, W. and Walker, R., op cit., para 5.22.

12. Hampton, W. and Walker, R., op cit., para 7.10.

13. Whitehead, P.T., (1976) pp. 374-383.

14. Senior, D., (1973) p.123.

15. Centre for Environmental Studies, op cit.

16. Whitehead, P., op cit., p.379.

17. Drake et al op cit.

18. Stringer, P. and Plumridge, G., op cit, para 5.19.

19. Drake et al, op cit.

20. Centre for Environmental Studies, op cit.

21. 'Practice Review', The Planner, pp.23-4.

22. Ibid.

23. The notion of 'operative' and 'conceived' values are as those used by Peterson (1968).

24. See, e.g., Coleman (1966), Lieberman (1969).

25. This distinction is made by Lichfield (1975). Policy objectives specify the means by which problems may be solved and are not necessarily related to individual preferences which are sectoral in nature and which are often the basis of evaluation of comparative performance of plans. Examples of policy objectives would be "to promote decentralisation from inner London" - South East Joint Planning Team, or "to encourage industrial development in depressed areas". A similar classification is found in Suleck (1975).

26. Work is currently being done on use of video by e.g. P. Stringer of Sussex University. Also, W.M.C.C. in the development of a structure plan is currently using T.V. personalities on video displays in exhibitions etc.

PART 2

THE DEVELOPMENT AND TESTING OF A STRATEGIC RESPONSE TECHNIQUE

PART 2

Part 2 is primarily concerned with the development and testing of a strategic response technique and with the fieldwork carried out over the study period.

Chapter 4 deals firstly with a series of ontological problems concerning the nature of the issues which need to be presented to the public, and the modes of response which people can make to such issues. Whilst planning at the strategic level deals with people and physical objects, its immediate concern is not with individuals' adaption to social, material and economic space, but with system adaption to processes and relations which characterise the large-scale configurations of spatial properties. Further, the language and concepts that practitioners use to characterise strategic level problems is developed and acquired in an institutional and social context to which members of the public have only limited access. For these reasons, the strategic alternatives which are often presented to the public are often seen to be remote from their everyday experience and the modes of response available to them are constrained correspondingly. On the basis of this inquiry the Chapter continues with an assessment of available response methods, many of which are seen to have limited application as strategic response techniques. The chapter concludes by delineating the major requirements (i.e. character-istics) of improved strategic response techniques.

Chapter 5 focusses upon the description of a gaming/interview technique which was developed and refined in an attempt to meet some of the requirements of strategic choice techniques specified in Chapter 4. Named the Strategic Choices Game, the technique is designed to give respondents information on strategic environmental and planning issues and then to elicit judgements concerning future action on these. The game has

a number of formats, ranging in task complexity. At its most complex, the game includes the use of an interactive computer programme with a Multi-Attribute Utility decision aid, at its least complex it resembles a preference questionnaire.

Chapter 6 provides a description of the approach taken to test the Strategic Choices Game. A major concern surrounds the capacity of respondents to handle relatively abstract, complex information. Further, the meaningfulness (validity) of data derived from the technique can only be assessed if attention is given to the cognitive characteristics of the respondent in that members of the public do not ordinarily have to respond to or think in terms of strategic planning problems and indeed may not have access to the professional concepts and languages which planners use to describe and present these issues. The testing of the technique, then, is based on the interaction between the 'game situation' and the cognitive organisation of individuals, and much has been drawn from environmental psychology and information theory.

Chapter 7 continues with detailed descriptions of the S.C.G. formats and test battery. The latter consists of measures of two major ideographic parameters - the information level of respondents and the integrative complexity of cognitive organisation of respondents regarding strategic planning issues. The measures were obtained using techniques based on Harvey's conceptual systems theory and designed specifically to meet the requirements of the test programme. The chapter concludes with an outline of the survey design of the fieldwork.

Chapter 8 outlines the results of the S.C.G. surveys and the testing sequence, and concludes with an initial assessment of the efficacy of such techniques in public participation practice.

CHAPTER 4

STRATEGIC RESPONSE TECHNIQUES

Strategic Planning Issues

Many areas of societal governance experience the problems of relating broad objectives for long term change to the control of small-scale changes in the short-term - the problems of relating strategic levels of decision-making to tactical ones.[1] A characteristic of strategic planning areas, of which Structure Planning is one, is that the alternative choices for action can only be broadly specified and their consequences can only be expressed at a low level of detail. In contrast, tactical decisions for example on local planning matters, may be characterised by more detailed specification of choices which to a certain extent helps to balance the relative unreality of strategic decisions, and yet is supposedly guided by them.[2]

Although there can be no absolute distinction between strategic and tactical policy levels, a number of differences are apparent. Strategic policy is concerned with decisions where the scale of effects is great relative to. existing states, that is, the variables under consideration will exhibit a fundamental change. It is, then, the marginal scale of effect arising from changes in individual variables which is great. Strategic policy areas therefore provide examples of individual decisions or actions with major impacts - for example, large development schemes with corresponding land-use changes, or closure of manufacturing enterprises with consequent loss of employment.

A second difference is that strategic policy is concerned with decisions which, although perhaps having minor effects on the variable under consideration, leads to a succession of further changes in related variables which overall produces a major effect, that is, the changes are highly interactive. For instance, changes in transportation networks may

restructure travel patterns over a wide area with consequent changes in employment opportunities.

Arising from these two differences is a third, and that is that strategic policy is principally concerned with the long term. Consequently it must often generate a greater committment for resources, and yet at the same time be sufficiently robust or flexible to take account of changes in resource availability, social and political priorities, or system characteristics which may occur over the time period.

Strategic decisions can only be guided directly by strategic policy. Similarly, tactical decisions should only be guided by tactical policy, though strategic and tactical levels may be related in terms of linked objectives.[3] For instance, the decision to release a large area of land for residential development should not be determined by policies which are pertinent to decisions regarding the permission for an individual house within that area. The former may have consequences which are more far-reaching than the latter and must therefore be accommodated within a broad policy field.

The differences between the two levels with regard to the nature of the policy variables are also reflected in policy languages which have been developed to deal with the different levels. Languages employed in strategic policy fields are qualitatively different from those dealing with tactical/incremental matters. In the development of structure plans, which are clearly intended to be statements of strategic policy, these differences in subject-matter and language pose numerous problems for communication between members of the public who are often interested in local problems which affect themselves personally, and planners who are interested in larger areas and longer time spans and who have acquired languages and concepts to deal with this more generalised subject matter. These differences are the source of problems of content.

Strategic Issues in Structure Plans

Solesbury has outlined five functions of the structure plan as a
policy statement:-

(i)   interpreting national and regional policies

(ii) stating objectives and strategic policy

(iii) stating policy norms for strategic promotional and regu-
      latory decisions

(iv) providing a framework for detailed policy statements

(v)   binging major issues and policies before the public and the
      Secretary of State.

The Regulations provide that policy in a structure plan should relate
to such fields as the local planning authority may think appropriate:
population, employment, industry and commerce, housing, transportation,
shopping, education, recreation and leisure, conservation, townscape and
landscape, utility services, and any other relevant matters.

Whereas maps and mathematical language are the appropriate media for
expressing tactical policy, less precise verbal language of words and
diagrams are more appropriate for strategic matters. As statements of
strategic policy structure plans are necessarily selective in content and
generalised in expression. As well as reflecting the generality of
structure plan content, representation by verbal statements and illustrat-
ive material (principally the key diagram) is designed to set down issues
for public debate. The difficulties of making such policy statements
comprehensible to the public, especially as the content is very strongly
based on the conceptualisation of inter-relationships between policies
regarding topics such as transportation and land-use, or employment growth
and housing availability, is a fundamental problem concerning the fifth aim
of structure planning specified by Solesbury - that which characterises
public participation practice.

The strategic level problems which would have to be communicated to the public in the development of the structure plan for the West Midlands Metropolitan County Council give an impression of the difficulties. For instance, the plan will have to deal with a range of planning issues arising from the industrial and employment base of the County. In 1971 an economic appraisal of the region identified a number of major weaknesses in the regional economy stemming from overdependence on the traditional industries of metal manufacture and metal goods. It highlighted the need for a more positive economic policy, selective introduction of industries exploiting new technological developments and the stimulation of the service sector of the economy. In the housing and population sector, the plan must tackle the basic social and environmental problems created by emmigration from the inner city areas and peripheral pressure for new development in protected green belt areas. In the transportation sector the County faces the familiar problems of catering for the demands of the private car whilst supporting the needs for public transport provision. In this regard it faces the dilemma that undue restraint of the private car is a particularly sensitive issue in an area dependent for employment opportunities on vehicle manufacturing industries.

These brief comments give some impression of the difficulties of consultation with the general public regarding major strategic policies and issues. Without doubt, the larger the scale of the planning role and the higher the level of abstraction of the planning policy, the greater the difficulties of both communication and the eliciting of public response become.

The analytical definition of strategic issues thus poses fundamental problems for the design of a public participation exercise. The early optimism of British planners concerning participation was, in part, based

on the American experience which was concerned primarily with citizen
involvement at a city level and the organisation of the public at a neigh-
bourhood level. However, the nature of strategic considerations aggravates
such problems as the specification of groups with different needs, and
different influence, the possibility of consensus, the determination of
weights for interested groups and the decisions as to which groups should
be consulted. There are constraints on the information available to
planners about problems and their definition, so that issues presented to
the public are never clear cut. There are constraints on the extent to
which an authority can deal with 'problems', firstly because of its narrow
legal responsibilities and secondly because of its limited resources, so
that the depth of concern about certain problem fields will not always
reflect the public's concern with them.

The issue of techniques presents equally complex problems arising
primarily from the nature of strategic issues themselves. Strategic issues
lack the immediacy of local issues, and the individual perception of
concrete problems. Briefly, strategic planning problems differ from
local ones in that they are more abstract, complex, and interrelated so
that members of the public often encounter difficulties when confronted
with strategic planning matters in survey investigations.

Although the elements of definition, content, presentation, method,
analysis and application (outlined in the previous chapter) are all
essentially problematic, the difficulties of communication and response
are a function, primarily, of problems of content, that is, of the public's
competence to respond to those issues and problems differentiated for
strategic policy making.

An understanding of the repercussions of content problems on other
areas of response is limited especially by the lack of an adequate
conceptualisation of the differences between the public's comprehension of

their environmental problems, and the large scale strategic problems which are of concern to planners. These problems of conceptualisation are dealt with fully in Part 3. However, in examining Strategic Response Techniques the following comments are pertinent. Whilst planning at the higher, strategic level deals with elements of land, people, transportation etc., interests shared with members of the public, it posits a subject matter of complex and interdependent systems of action. The language and concepts it uses are concerned with processes and relations. The structure planner's activities are concerned then, not with individual adaptation to social, material and economic space, but with system adaptation to processes and issues which characterise the large-scale configurations of environmental properties.

Further, though the information which is accumulated for the purpose of planning, (through surveys etc.) relates to physical elements, that is, to observed events, it is represented by symbols. The planner's actions in the course of his work, are therefore primarily oriented not to the physical or perceptual environment, which is a primary orientation of an individual in the course of everyday activity, but to a cognitive environment which is much less immediate and which is characterised by symbol and association. His work is concerned with manipulation of symbols and the adaptation of symbolised or conceptual environments.[4]

Members of the 'public', on the other hand, consider their environments usually in terms of behaviour settings, that is, the immediate behavioural milieu within which they find themselves. They do not, mainly because of past experience, consider themselves as units in a much larger and complex environmental system. Also, their adaption to their environment necessitates only intermittent consideration of the large scale environment. If techniques are to be developed to facilitate improved communication between planner and public regarding strategic planning issues, then account must be taken of these differences in understanding

and cognition. Indeed improvements in techniques are conditional upon a greater understanding of, and a more rigorous conceptualisation of these differences.

Value and Choice

The main impetus for this study is located primarily in the difficulties of discerning people's values and needs concerning large-scale environments, and communicating these in a meaningful way to practitioners.[5] The focus of interest is not on people's present behaviour, occurring in their immediate environments and oriented towards a short time span, but on their cognition of the future of a large-scale environment. Any choices which they might make regarding this future will likewise not be purely personal choices, but may be close to 'ethical' preferences[6] that is, they will be making judgements from the point of view of what is best 'for the community'.

Many methods have been developed to obtain measures of individual and group response to planning issues, measures which can be utilised by practitioners. These methods for eliciting 'values' reflect the major methodological and substantive interests of a number of academic disciplines and schools of thought. The problem for planners is that, whilst they can present what they consider to be the facts of a situation, or the probable outcomes of a policy to the public, they cannot say definitively what the relative values of these outcomes are to the people subject to the situation. The facts of a situation, and outcome of policy are, of course, determined within and constrained by the Institutional, Legislative and Procedural Contexts outlined in Chapter 2. Further, the level of abstraction and degree of precision is not uniform to all subject areas of planning, nor to all stages of the planning process.

However, irrespective of particular techniques, reflecting different disciplinary sources, the methodological problem centres on the necessity

of translating responses of pleasure, benefit, pain, cost, etc., into a
measure of value which can be used to evaluate policies or issues.[7]

Attempts have been made to directly measure aspects of pleasure, for
example, by economists using the notion of 'utility'. These followed
experimental psychologists' attempts to measure aspects of sensation.
Thus, if a subject reacts to changes in a stimulus, one can develop a
functional relationship between the stimulus and response. If one can
measure the physical stimulus, then one can also derive measures of response
based on this functional relationship. However, although the measurement
of intensity of sensation in terms of physical stimuli led to much
activity in psychology, led by Fechner and others, such activity has not
been reflected in planning-related disciplines. Although it is possible
to obtain 'pleasure' scales based on preferences, or utility scales for
say apples and pears, the application of the same operations to objects
representing planning issues presents grave problems. In particular, one
has no control over what the respondent knows of the object, and hence
cannot control (in an experimental sense) the meaning which he applies to
the operation.

Further, if attempts are made to assess the amount of pleasure
experienced, unreliability increases proportionately as the content of the
stimulus (the object of response) becomes more complex or abstract - say,
for example, the 'unemployment situation'. Strategic planning issues as
stimuli, will therefore tend to distort any framework for measuring
'value'.

Because of these general measurement problems, the tendency has been
for practitioners to obtain measures of value by the direct response of a
person to a situation, whilst generally disclaiming an interest in the
internal mechanisms of response, that is, in the elements of knowing,
cognition and belief. They have concentrated, then, on the external

manifestations of values, on the <u>choices</u> and judgements which the respondent makes. More formally, one might say that they have concentrated on the behavioural dimension of choice, rather than the normative (concerned with values in the Parsonian sense) and structural (i.e. the pattern of social action) dimensions. These three dimensions together define a basis for a general theory of choice (Apter and Andrain, 1972).

However, the adoption of a crude behaviourism has not eliminated the need for introspection on the part of the respondent - it has merely mis-placed it. The need for introspection is passed on to the practitioner or researcher, who must then <u>interpret</u> the respondent's choice. The internal mechanisms, then, are now assumed to be represented by the behaviour that is observed, and indeed become the same thing.

The only way out of this dilemma is to devise operations and techniques which will <u>control</u> the choice situation (including the meaning/knowledge of the respondent) and the observers' interpretations of behaviour, as much as possible, and with regard to the <u>purpose</u> of the measurement. There are, then, no universal methods of using people's direct responses to ascertain values and the search for such methods is ultimately fruitless. There are, however, many operations/methodologies for doing so. The problems for practitioners, as mentioned earlier, lie in the fact that these operations reflect disciplinary stances which have developed independently of the needs of planning. It is, then, possible, for planners to measure the value of anything - even the 'intangibles'. The question is, what is the framework of controls and standards which has been used in the measurement, and what are the assumptions which underly it?

Meaning, Information and Motivation

The contention in the previous chapter (that is, in the discussion of 'conceived' and 'operative' types of response) was that the essentially

descriptive approaches to non-environment relations (e.g. economic and ecological models) are limited as tools for determining values regarding strategic environmental issues. This is also a reflection of the general trend in the contemporary study of motivation which is to question the validity of a mechanistic view of behaviour, the Stimulus-Response (S-R) model, and to replace it with a cognitive model which presents the formula S - Cognition - R, thus including higher mental processes. The antecedent stimulus is seen as a source of information rather than stimulation; and is then imbued with meaning which then determines behavioural response.

Thus, for example, Michelson (1970) notes the underemphasis given to "mental congruence" which "exists if an individual thinks that particular spatial patterns will accommodate his personal characteristics, values and life style". Further, a "knowledge of mental congruence is necessary to assess the public's predisposition to accept and make successful whatever may be proposed; to ignore this fact is to invite failure, no matter how objectively correct our future plans may be".

A recognition of cognitive elements is, therefore, a prerequisite to behavioural studies and both must be integrated into a planning process. More importantly, to maintain societal guidance, the personal values to which Michelson refers may have to be supplemented by ethical values. Thus methodologies and techniques for examining and eliciting response must accommodate the cognitive models of behaviour,[8] especially as in this case, when the focus of interest is on the use of survey methods in public participation exercises. The concern then, is with cognition, with knowledge, and with meaning.

In considering the problems of values and choice the first point to note is that practitioners have, a posteriori, considered some types of response to planning issues as being valueless. One example is the

universal reluctance to use attitude scales to measure response to large scale, strategic, issues. The public are not considered to have attitudes towards complex, interrelated strategic processes. This, as will be discussed later, is because of the limited nature of the concept of attitude, but more importantly it reflects an intuitive assessment by practitioners that such measures would be useless because members of the public do not ordinarily have well-organised, learned responses towards such concepts as overspill, decentralisation, etc. Whenever the value of an object, or course of action is attributed to a person, whether it is by observing his behaviour, by giving him choices in a questionnaire or by asking him to make judgements, the most important characteristic of such values are that they have meaning to that person.

If, for example, a person moves house from the inner city to a site outside a conurbation, can one say that the person is in favour of overspill from the inner city as a strategy to be adopted by a local authority? Of course one cannot. The meaning which he attributes to his action may have little relevance to his judgements on the desirability of overspill.[9]

If a stimulus has no meaning for an individual, then to attribute value to the stimulus on his behalf is unwarranted. A major question regarding the use of such values in planning is: what was the meaning which the respondent attached to the stimulus?

As well as the problem of meaning, there are two other problems which arise in considering the determination of values on the basis of man-environment interactions, for integration into a planning or design process. These problems arise out of the conceptual underpinnings of contemporary urban planning in the notions of rationality and choice. Chapter 2 contains an outline of the classical model of rationality and noted the underemphasis on psychological and ecological factors which

may influence the choice situation. The general problems arise with this scheme when considering individual decision makers and were mentioned in the earlier chapter. First, there are motivational questions - is the person motivated sufficiently, because of his values and needs, to act in certain ways and perform certain tasks? If so, why and how is he motivated, that is, in what way does he understand and perceive the situation? Secondly, and following on from the first, on which material will he operate this rational function, that is, what is the amount and type of information which he has access to?

Thus, if a direct response is required in the form of a decision/ choice amongst alternatives then there are, as well as the element of meaning, two other major elements required of the choice situation. First, that the chooser has a certain amount of valid information and second, that he is motivated to respond in a controlled way according to this information, and not for example on the basis of emotion or obscure information.[10]

The choice situation must therefore have certain characteristics regarding meaning, information and motivation:-

   (i)   the information and choices must be on strategic level issues

   (ii) the respondent understands the information

   (iii) the respondent understands it as information on strategic
         matters

   (iv) the respondent is motivated to respond in a controlled
         way, e.g. ethically.

These are essential characteristics of a Strategic Response Technique, that is, a technique which elicits a response to strategic planning issues, if the relation between meaning and value is to apply.

One can, using the characteristics above, examine some of the most prevalent response types (following the classification given in Chapter 3) and assess their suitability for determining public values with regard to strategic planning issues and problems. The major response types are behaviour, perceptions, attitudes and judgements.

Behaviour

Research on behavioural response-types emphasises the objective measurement of aspects of behaviour, often associated with an implicit mistrust of stated preferences. Exemplified by the work of B.F. Skinner in psychology, V. Poreto in economics and G.H. Homans in sociology, the approach is based on the proposition that values are best revealed in choice situations where the consequences for the chooser are 'real'. Travel behaviour models, house buying and residential mobility studies have all been utilised in planning as guides to preference and value.

However, although such approaches, exemplified perhaps by economic valuation studies, perform reasonably well within a set of parameters bounded by private goods and revealed preferences it is not well equipped to handle a situation bounded by externalities/public goods and unrevealed preferences.[11]

It can be seen that traditional behaviour measures do not give information vis-a-vis strategic issues. In everyday behaviour the information or stimulus to which people react is not specifically related to strategic concerns. Further, one cannot control the situation such that they would behave so as to indicate their value orientations towards strategic environmental issues. The structures of aggregation of behaviour in everyday environments, to strategic levels, is unknown if indeed there are such structures. The element of meaning is therefore missing and any attempt to adduce value is suspect.[12]

Behaviour is generally directed towards more immediate environments, an assumption underlying the work of sociologists on residential environments (e.g. Gans, 1962) and ecological psychologists such as Barker (1968) who are concerned with what Michelson (1970) calls "experiential congruence".

Though this does not prevent one from obtaining 'conceived' responses to strategic issues (indeed it is the raison d'etre) it does mean that there is no behavioural corollary. For example, a choice between a number of alternative structure plans does not necessarily imply that people will subsequently behave in certain ways (that is it does not necessarily have a conative element). This is true of all conceived responses, but certainly the link between response and behaviour is less direct and certain than it is with non-strategic stimuli.

Nevertheless, a concern for understanding an individual's meaning in relation to behaviour has been exhibited in attempts to obtain preferences which are not expressed in behaviour. The concern there is to devise situations which encourage the respondent to communicate his thoughts and beliefs about an object or class of objects. There is, then, a deliberate attempt to make the individual indicate his preferences, goals, etc. which are assumed to be indicative of values. Techniques range from simple questionnaire formats to sophisticated attitudinal scaling techniques. The major limitation, paradoxically, is that the respondent is not in a 'real' behavioural situation (e.g. where he may have to make trade-offs) and that the limitations in the presentation of stimuli may themselves result in a loss of control over the meaning which the individual gives to his response. Nevertheless, attempts to determine such 'conceived' values seem to offer scope for development, and are of course the only direction for development available in the search for Strategic Response Techniques.[13]

Perception

Central to measures of conceived value (following the S - C - R model
mentioned earlier) is the role of cognition and perception of environmental
stimuli. Much of people's behaviour is structured on the meaning they
give to a situation and this meaning is conveyed by symbols and symbolic
interaction. The field of cognition which has provided much work on the
nature of such symbols, is concerned with how one learns and what one
thinks about the world relative to experience (that is, relative to what
one 'perceives' by sensory processes). Thus, every perception or element
of experience, is "embedded in another organisation of other precepts -
the whole going to make up a specific cognitive structure" (Kretch and
Crutchfield, 1948). The relation of internalised cogniture representation
of the external environment to that environment is obviously an important
consideration for an understanding of meaning, especially with respect to
planning and design.

Downs and Stea (1973) cite two main approaches in this context -
that dealing with "fundamental spatial cognition"[14] and that dealing with
"macrospatial cognition"[15] both have relevance to planning activities,
albeit indirectly. The first is concerned with the developmental aspects of
cognition and thought, the second is primarily concerned with topological
representation of large scale environments. The internalised representations
of environments (e.g. 'cognitive maps') are pivotal because they can be
seen to process information relative to needs and values.[16] They
indicate those aspects of the environment most important to people.[17] Of
relevance also is the work on 'imagery', concerned not only with mental
visual 'pictures', but with the information processing mechanisms of
people related to all aspects of the environment.[18]

The main body of such studies is based very much on the physical/
spatial characteristics of cities. Yet if one accepts that a major

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difference is present between the symbols used by the public in cognising the city/metropolis and those used by practitioners, then the statistical data, land-use plans and other symbolic tools of planning may have little 'meaning' for the public.

Thus, although studies of imagery and cognition can indicate the value systems of individuals, being the basis upon which we act, decide and chose, the sophisticated measurement of values using imagery has not been attempted. This is certainly the case also with strategic environmental elements such as overspill, inner cities and green belt. Thus the tools of interpretation of, say, verbal descriptions of the metropolis, are not available. To add another problem, the tools for interpreting images of the future are also not available.[19] Nevertheless, the study of cognition does seem to be pivotal to any measurement of response if the meaning of the stimulus and the role of his response is to be understood by a respondent.[20]

Attitudes

It is but a short step from a consideration of cognition and perception as basic underlying psychological processes to the most well-developed field of measuring conceived values, attitude measurement.

The treatment of attitudes as unitary substances, following Thurstone's work in the early 1930's[21] did little to facilitate the treatment of the organisation of attitudes as being derived from a complex interrelation of elements of experience - they were treated as being learned or changed as a whole. However, it did lead to investigations of attitude change arising from differentiated stimuli, and attempts to decipher which elements of the stimuli were effective variables in changing attitudes.[22] Nevertheless, the accepted molar conception of attitudes continued to underemphasise the role of the individual himself in organising and changing his attitudes according to his personal needs and goals. This, of course, is essential

if attempts to obtain conceived values is to be successful.

It seemed, then, a natural evolution from the earlier theories to theories concerned with the processes of attitude formation within the individual, stressing the elements which make up attitudes, and the way these are organised. The conception of attitude had changed, therefore, from a unidimensional entity referring to the affect for or against an object, into a multidimensional structure usually treated as consisting of affective, cognitive and behavioural elements.[23]

This stimulated a deal of research, and the development of new measurement techniques but at the same time posed fundamental problems. With such a multidimensional conception of attitude, a stimulus object might fall anywhere on the three component dimensions, yet measurement techniques still concentrated on a single score.

Thus, one is led to the contemporary conception of attitude, belief and behaviour as separate and yet interrelated entities. For instance Fishbein (1976) adopts Thurstone's original unidimensional conception of attitude as "the amount of affect for or against a psychological object". Thus "beliefs and behavioural intentions are determinants or consequences of an individual's attitude".

However, whilst advocating that beliefs and behavioural intentions must be studied in their own right as independent variables related to attitude and behaviour, Fishbein says that one can measure 'attitude' by considering either beliefs or behavioural intentions. This may be true, but the contention here is that such an approach robs the latter entities of their characteristic nature, and underemphasises their power as conceptual tools.

For instance by underemphasising belief (that is cognition) one underemphasises both the respondent's knowledge of a situation, and its

corrollary - the meaning this has for him in terms of his personal goals. In other words, its importance for the investigation of 'value' is limited to the extent that it allows measurement of attitude.

Similarly, the role of conation, if underemphasised to the level of a measure of attitude (i.e. of affect) robs it of its power. Even if one accepts that there is little relation between behavioural intentions as measured and actual behaviour[24] in those situations where behaviour does not occur (i.e. in strategic environment), the values implicit in behavioural intentions (in the sense of behaviour advocated) may still provide a most powerful means of obtaining response. Very often, the only real access one has to a person's values is gained through his beliefs regarding the stimulus, and the policies he advocates with regard to it. These are the key to his values.

Thus a number of formulations of attitude (and associated measurement techniques) are available to the researcher, some of them being more pertinent to this study than others. However, for a proper assessment of the suitability of attitude measures (or rather the lack of it) as strategic response techniques one must consider the problems of content. For, although the definition of response made in attitude studies has been remarkably flexible (attitude comes to mean almost anything we measure using a questionnaire) the typical attitude object has not been.

Two characteristics of the typical <u>object</u> of an attitude are:

    (i)   it is uni-dimensional. Although there may be many components to the object (e.g. opinions on trade unions, socialism, nationalisation etc.), there is an internal consistency to the attitude object which makes an attitude <u>scale</u> the desired measurement;

(ii) it is specific, so that presentation of the components
of an attitude object does not pose intractable
problems.

In contrast, the object of an attitude to strategic planning issues is:

(i) multidimensional. For example a structure plan option
will include population, employment, transportation,
components, etc., with a coherence usually explainable
only in theoretical terms.

(ii) It is complex. The interrelation and interdependence
of the object components are of fundamental importance.
A series of questions on trade unions, socialism,
nationalisation, etc., is acceptable in measuring att-
itudes towards the Labour Party. However, in a plann-
ing context the transportation attributes presented
to respondents stand in a complex, interdependent
relation to employment, population, etc.

(iii) The attitude object and its components are highly
abstract. Presentation of the attitude object is
therefore hampered by lack of comprehension by
respondents, or by a superficiality which does not
represent the true complexity of planning problems.

Obviously the use of attitude measurement in strategic planning is
limited because of the nature of the attitude object and the difficulty of
presenting it symbolically. It can be used in narrow, specific problem
areas but cannot deal with more complex strategic issues. Further, and to
reiterate, the more abstract and complex the issue (that is, the more
strategic and removed from personal experience) the less is the likelihood
that respondents will have attitudes. More likely one is dealing with
beliefs and opinions.

Nevertheless, the literature on attitude measurement does provide a rigorous conceptual framework which can assess, and discriminate between, social survey techniques which might be used in strategic planning. More specifically, it can aid in the decision as to which technique is better employed in different situations or at different stages in the planning process.[25]

Judgements

The umbrella term of judgement, more than any other response-type, encapsulates the linkages between belief and knowledge in terms of choice situations, and is best seen in survey studies of preferences as conceived values. In studies of preferences/utility it is possible to create (experimental) interview situations where the stimuli refer to strategic elements, and also to make use of the notion of 'trade-offs' (though the meaning of such trade-offs has been the subject of much debate in utility theory).

Belief and knowledge are never meaningfully independent of the concept of value. 'Doubt' for instance, can be conceptualised as a person's 'value' for increased knowledge and the consequent measure for it, following Churchman (1961), is the intensity of belief. Further, the best context within which to relate the concepts of knowledge, belief and value is a situation of choice.

When is the measure of belief, or a choice that a person makes, most meaningful? It is argued here that it is most meaningful when all relevant information has been actively considered, that is, when the contradictions between a series of possible choices (i.e,, a set of alternatives relative to a set of objectives) are resolved. This is parallel to the notion of the 'judgement' of a group which must make a decision by resolving differences between its members, except that in this case it is an individual trying consciously to resolve internal mental contradictions.

Obvious factors affecting a person's judgement include the degree of conflict between his goals, or the degree of conflict in information presented to him which must be resolved.

Churchman comments that _group_ values, or "the values of objectives ... are the measures the observer used to predict the group's choices when the group, via judgement, knows the conditional probabilities and is free to make any of a set of choices". Similarly, for this study, an individual's values are the measures the observer uses to predict the individual's choices or judgements if the individual has certain information and freedom of choice. There is, of course, a circularity of concepts entailed in this scheme (noted by Churchman) but the scheme is nevertheless a rigorous one. A few comments are useful:-

a) If one is to impute an individual's values from an observed event, the value and event must be related, that is the individual must make a 'judgement' on the basis of specific information (and conditional probabilities). Conceived value is therefore often more realistic than imputing value from observed behaviour.

b) In a controlled choice situation (e.g., interviews) the choice itself is the measure of value though value regarding what is still a measurement problem and is determined by the nature and extent of controls used.[26]

c) There is a need, therefore, to provide controls/guidelines whereby one can develop a consistent picture of an individual's choices/ judgements and the knowledge/beliefs which were entailed.

d) The individual must 'know' the conditional probabilities. In other words he must be aware of (have information about) the nature of the alternatives.

e) Even though one requires true individual values rather than

individual's estimates of values, there is no way of disentangling belief from value. There is, then, no way of determining an individual's true value towards an object.

It seems then that the type of technique which best provides the controls one may require in terms of meaning, information and motivation are those concerned with judgements, and the latter will therefore provide the most suitable framework for the development of strategic response techniques. Yet, as we have seen, when one's concern is with complex, non-immediate stimuli, within the operational context of structure planning, respondents may not be in possession of a fully formed cognitive map which allows the translation of afferent patterns into efferent patterns, nor be aware of 'goals' or 'objectives' with respect to these stimuli. The problems of definition, content, presentation and associated techniques are thus of critical significance and are only to be resolved by the development of more responsive conceptual structures as the basis for the design of improved survey techniques.

But what about the techniques which are currently being used in planning and public participation practice? Although there has been a general increase in the use of all types of social survey techniques, as elements of public participation exercises,[27] even a cursory glance at 'public participation questionnaires' would illustrate that such techniques have neither been innovatory in nature, nor have they been responsive to changes in the methodological and conceptual foundations of social science research.[28]

We shall continue by considering one of the most well-developed techniques available for eliciting direct responses to planning issues - 'priority evaluation techniques' - and assessing its applicability at

strategic planning levels.[29] These techniques suffer in particular from problems of _presentation_ of strategic issues.

Priority Evaluation Techniques

S.C.P.R.'s 'Priority Evaluation Technique' is characteristic of a number of priority evaluation techniques which have been developed to extend traditional attitudinal survey measurements so that they allow 'trade-off preferences.[30] The aim is to create a situation where people behave in a responsible way when removed from the pressure of a real behavioural decision.

Such techniques seek to determine how people evaluate their present environments, determine preferred improvements from this base line and by limiting the number of improvements expose 'trade-offs'. By forcing respondents to trade-off some of their existing goods in order to gain other benefits, those methods approach the economist's use of indifference curves.

In the Priority Evaluation Technique (P.E.T.) people are asked to choose with respect to a mix of variables (attributes) which characterise a range of often competing alternatives. Using an electronic gaming device, respondents are asked to classify their existing environment in terms of the range of attributes illustrated, each attribute being presented pictorially on a 3-point (or on some versions, a 5-point) scale. Secondly, a price tag is attached to each scale position on each attribute (the price being chosen by the research team). The respondent is then asked to allocate the whole of a fixed sum accepting one 'standard' for each attribute (either the free base-line position or another 'bought' position). Choices can be amended subsequently, so that an optimum mix is produced. Examples of the presentation of attributes are presented in FIG. 1 below.

FIG.1 P.E.T. Presentation of Attributes

(Source: Hoinville 1971)

The general benefits derived from P.E.T., as summarised by Hoinville, are in providing information:

    (i)   regarding people's perception of a situation, and the attachment of 'weights' to a mix of attributes;

   (ii)   this involves establishing trade-offs via the manipulation of price structures;

 (iii)   the price can be found which makes the variables of equal value to respondents.

However, a number of problems remain. For instance, the range of responses is constrained by the researcher's choice of attributes and the way these are presented. The pattern of trade-offs is also constrained by the view that respondents have of their present situation, and the rates of exchange offered for the trade-offs (that is, price and budgetary constraints). More importantly, the growing use of P.E.T.'s in British structure planning merits analysis of their suitability to deal with <u>strategic</u> planning issues in the knowledge that this analysis may also provide some prescriptions regarding the design of strategic response techniques. The general problems associated with the application of such techniques at the strategic planning level concern the presentation of environmental attributes, the scaling of the attributes and the scaling of the response.

The Presentation of Attributes

In P.E.T.'s the number of attributes is refined and reduced to adequately represent the range of alternatives. Assumptions must therefore be made concerning the experience levels of respondents, respondents' perception of the attributes and the true relation between the attributes and the symbols used to present them.

For strategic problems/issues these assumptions become critical:-

a) P.E.T.'s deal with general, non-specific attributes for which a pictorial presentation on a three-point scale may be adequate (e.g.,

the P.E.T. includes sketches of different degrees of traffic in a street). However, when specific strategic problems facing the authority are the focus, such presentation is not adequate.

b) Respondents are asked to show their present position with respect to each of the alternatives being considered. Problems arise concerning whether the technique should be administered only to those who will be directly affected by changes or not? In strategic planning, personal preferences on non-specific attributes are, in themselves, inadequate. County-wide, strategic issues may also require judgements <u>for the community</u>, that is, ethical preferences.

c) Thus, the respondent's present position regarding the attributes should not be central to the analysis, for he should be asked for his judgements for the community, making these on the basis of information given to him which presents the complexity of strategic planning problems and not on his personal experience of his immediate problems.

d) P.E.T.'s present attributes which are not interrelated either in conception or presentation. The nature of strategic planning is such that the interrelation between variables and systems is of paramount importance, and must be mirrored in any technique which provides a meaningful 'choice'.

e) P.E.T.'s offer choices across attributes which are immediately comprehensible to the respondent (e.g. more, or less traffic) and where his present situation regarding the attributes is crucial in developing 'community values'. Strategic issues are not, however, immediately comprehensible to the respondent, therefore, a learning situation must be created within which the respondent is aided in his choice between strategic elements.

Therefore, with regard to presentation one must recognise the

conceptual difficulties mentioned previously and note that if the
respondent is likely to have an 'internal representation' of the stimuli
under consideration it may be possible to elicit a response with a minimum
of presentational material. However, this may not be the case with respect
to 'strategic environmental stimuli' and more extensive controls may have
to be incorporated; extensive dissemination of information will be
necessary, the process may have to be didactic (and therefore iterative)
in character, and the choice situations must be structured to account for
interrelations of choice.

The Scaling of Attributes and Response

In priority evaluations it is usually assumed that the attributes can
be represented pictorially or otherwise, by values on a linear interval
scale. For strategic problems, characterised by complexity and inter-
dependence of elements, this assumption may be unsupportable, thereby
limiting firstly the development of measures of intensity of preference,
and secondly the development of measures of the relative importance of
attributes for an individual or group.

The aim of P.E.T.'s using the differences between respondents'
present and optimum positions on each attribute, is either to develop
individual preference orderings which can then be aggregated, or secondly
to compare the differences on the attributes for each alternative in such
a way that the relative gains and losses can be aggregated directly to
distinguish between the alternatives (i.e. with no reference to individual
orderings of attributes). Both of these aims are subject to the difficulties
of social choice rules (rules of aggregating individual choices to provide
social choices) and especially the difficulties of assuming interpersonal
comparability, and scales above ordinal level.[31]

Characteristics of a Strategic Response Technique

For the moment, the separation between problems of eliciting individual responses to strategic planning issues and the problems of aggregating these for evaluation purposes will be maintained.

In summary, and on the basis of preceding sections, a number of requirements for techniques of eliciting strategic responses can be specified:-

(i) the structure of the technique should be of a form capable of presenting, in a survey situation, a number of complex strategic alternatives which have been developed mainly on the basis of technical data and survey. It should, therefore, be capable of illustrating the interrelations between components or attributes of the alternatives.

(ii) the content of these alternatives, upon which people are to make judgements or choices, should be strategic in nature

(iii) the components or attributes of the alternatives should be problem/policy specific to aid recognition of material and render meaning to responses, that is, people should respond to, for example, 'overspill in the W. Midlands' rather than 'overspill'

(iv) the alternatives should be as realistic and feasible (as opposed to utopian) as possible

(v) information dissemination should be an integral part of the process, and provide the background for each choice/judgement by respondents

(vi) consistency checks on choice, and feedback by an iterative mechanism should be incorporated wherever possible to illustrate the interrelation of choices and therefore to aid in the development of an 'overview'.

(vii) respondents should give social or 'ethical' responses, by making judgements 'for the community'

(viii) following on (vii), respondents present position on any attribute should not be an integral part of assessing his response, but analysis should show comparative responses between different social and spatial groups

(ix) thus the weighting of responses, in social choice situations or for evaluation purposes, should be done using exogenous information/data, that is, data derived from sources other than the choice technique itself.

The following chapter discusses a prototype survey instrument, labelled the Strategic Choices Game, which has been designed to meet these requirements.

NOTES

1. A seminal work on the operational practice of strategic choice in public planning is Friend J.R. and Jessop (1969), The second edition (1976) includes an extensive supplementary bibliography.

2. An excellent framework which identifies the complexity reduction processes involved in analysing the strategic changes in systems is provided by the social ecologists Emery and Trist (1972).

3. This is a necessary outcome of the law of requisite variety in cybernetics: "only variety can destroy variety". Thus a system of a number of distinct elements can only be controlled by a controlling system of comparable variety.

4. Two of the most important characteristics of symbols are, firstly, that they have generalised meanings, and secondly, as Rapaport points out they allow one to consider the abstract features of situations.

   The difficulty of detecting emergent processes in 'turbulent' environments has been investigated by Emery and Trist who detail the importance of changes in the state of symbolic systems.

5. This, as mentioned at the beginning of chapter 4, is part of the general problem of developing an integrated man-environment theory which would provide the principles for development and application of social response methods in planning situations, and developing a re-formulated theory or model of design which can incorporate the information provided. This is discussed further in Part 3 of the thesis.

6. See Harsanyi (1955).

7. A major problem of any methodology is its capacity to handle the uncertainty of pleasure or cost, and this is often overcome by reference to the maximisation of 'expected value', a function of the probability of the event occurring and the person's response to the event. The remainder of this chapter, considers only the problem of ascertaining values from a person's response to an outcome, independent of the probability of that outcome occurring.

8. See, e.g. Festinger, 1957, Osgood et al, 1957.

9. In this way the usefulness of ecological models is limited because the meaning/value to individuals of changes in the future is not validated by descriptive aggregative data. See, e.g. Simmie's (1974) criticism of human ecology for lacking explanatory power.

10. The definition of 'obscure' or 'irrelevant' is, of course, problematic, and must be accounted for in the control of the choice situation by the researcher.

11. Perhaps the most blatant example of the mis-use of the relation between behaviour and underlying values is voting. In voting for political candidates, for example, there is no control over what the voter sees as important in a candidate's platform, no measure of intensity of preference, etc. The 'meaning' of a populations' votes in terms of value is thus blurred beyond the most superficial comprehension.

12. This compounds the problems mentioned in Chapter 3 which arise when attempting to determine 'operative' values with regard to any environmental or planning issue. These are the problems caused by the ubiquitous constraints on behaviour in 'real' situations - the gap in our knowledge being characterised by the differences between actual behaviour and underlying preference functions. See, e.g. Ackoff and Emery (1972).

13. For a review of studies relating behaviour to aspects of environment see Michelson (1970) and (1977). For studies of economic behaviour, see Kain and Quigley (1970), Wilkinson (1973). For studies of migration behaviour see DoE (1972), Bird (1974) and Simmie (1972). For studies of constraints on moving behaviour (because of cost) see Kasl and Harburg (1972), Drettboom et al (1971).

14. See, e.g. Piaget and Inhelder (1948).

15. See, e.g. Lynch (1960), Appleyard (1969).

16. See Kaplan (1973).

17. See, e.g. Lynch (1969). Appleyard's (1969) work was an attempt to extend Lynch's work to incorporate meaning as well as function aspects of the city, indicating significant differences between different groups.

18. For example, in Boulding's (1956) "eiconics" - the science of images, five components of images are highlighted: spatial, temporal, personal/relational, value and affect. It can be seen that the present inquiry is primarily concerned with the value (evaluation of 'better' or 'worse' elements), affect (the motivational elements) and relational (relation to the social world) elements.

19. Indeed this maybe an essential task, for not only must planners understand images of the present and future, they must also recognise that they are also producers of the images of the future. The symbols which they use are increasingly disseminated to the rest of the population. If one accepts Polack's (1961) thesis that the rise and fall of cultures has been a result of a society's images of its future, then the proliferation of symbols of 'crises' (witness the 'inner cities' debate in academic, governmental and media publications) would, if accepted by the public, certainly make one increasingly pessimistic about the future.

20. For a model of the perception process see Pocock's (1973) adaption of Warr and Knapper's (1968) model. For a selection of research in planning see Lowenthal (1972), Lee (1970) de Jonge (1962), Kasl and Harburg (1972), Goodey (1971), Goodchild (1974).

21. See Thurstone (1931).

22. See Fishbein (1967).

23. See Upshaw in Blalock and Blalock (1968).

24. The classic illustration of this is La Pierre's (1934) study.

25. - For general works on attitude see Allport (1955), Lemon (1973)
    - On the difficulties of relating attitude to environmental elements
      see Menchick (1972) on scaling and aggregation problems; Bruvold
      (1973) on determinants of environmental attitudes (he suggests the
      major variables are information and experience); and for examples
      of specific findings relating environmental aspects, in this case
      noise and visual intrusion, see Landgdon and Griffiths (1968) and
      Hopkinson (1971).
    - For examples of different technique usage in practice see Jephcott
      (1971), Duncan et al (1971), Smith (1971) for open-question
      techniques; Lansing and Marans (1969) and Troy (1971) for rating
      scales; Hodgkins (1976) and Covel (1973) for magnitude estimation
      techniques.

26. This is the problem of specification Harrison and Sarre (1971).

27. See Linked Research Project, Interim paper 10 on Sample Surveys and
    Public Participation, Boaden and Walker (1976).

28. Though such techniques have not been adopted within plan-making, there
    has been a rapid increase in the use of measurement/response techniques
    in empirical research on man-environment relations, ranging from
    construct theory (Repetroy Grid) in building appraisal, to development
    of learning approaches. See, for instance, Baynes et al (1969),
    Reynolds et al (1967), Best (1970), Winkel et al (1968), Rivlin et al
    (1973). For a review see Canter (1974).

29. Since 1972 they have been used in the development of structure plans
    by Merseyside, Glamorgan, Nottirghamshire, South Yorkshire and
    Hertfordshire County Councils. The most advanced development of
    these techniques to date are seen in the 'Priority Evaluator
    Technique' (PET) developed by Social, Community, Planning Research
    (Hoinville 1971).

30. See Wilson (1962), Clarke (1974).

31. See, for example, Arrow (1951) and Sen (1969). Social Choice
    problems are discussed in more detail in Part 3.

CHAPTER 5

THE STRATEGIC CHOICES GAME

In chapter 4 it was shown that the nature of strategic planning issues poses a range of problems for the design and application of interview techniques for public participation purposes. However, it was possible to list some of the desirable components of any technique designed to elicit responses to strategic planning issues. In attempting to meet some of these requirements work was initiated on the design of a prototype survey technique for use in a real planning situation - the development of a structure plan for a metropolitan county.

With the co-operation of the West Midlands Metropolitan County first attempts at designing a 'Strategic Choices Game' were made. In fact these proved to be rather sketchy and impractical but were mirrored by a focussing of the conceptual and methodological problems underlying the work. As the development of the Strategic Choices Game progressed it became apparent that major changes were required. These were accomplished, firstly, through changing the content of the game from having its focus on the developing West Midlands structure plan to being based on a plan already submitted to the Secretary of State - the structure plan for Wolverhampton Metropolitan District. It was then possible to incorporate the type of technical information necessary for the game, information which was not available at that time for the West Midlands County. Secondly, the structure of the game was strengthened by the incorporation of discrete choice situations linked through a process of amendment and consolidation of choice. Thirdly, the choice situations themselves were reinforced through the inclusion of a powerful decision-aid, the 'multi-attribute utility technique' (MAUT).

The most important characteristics of the S.C.G. are:-

(i)   dissemination of information regarding strategic issues
       to provide the basis for decisions (rather than solely
       personal experience/knowledge)

(ii)   the interrelatedness of strategic issues in material
       presented to the respondent, necessitating a response
       which is structured accordingly;

(iii) the creation of a 'set' that is, controls which motivate
       the respondent to make certain types of judgement;

(iv)   guidance through a series of complex and related decisions,
       by the use of presentational material (maps, diagrams,
       figures, etc.) and an iterative mechanism, and the
       incorporation of decision aids (principally, a multi-
       attribute utility technique).

Utilising models and maps of the West Midlands County together with
diagrammatic and verbal material and choice cards to represent the
stimuli, the Strategic Choices Game (S.C.G.) presents the basic components
of the structure plan in kit form to the respondent under controlled
conditions. The respondent is asked to make a succession of choices/
judgements, each governed by the preceding choices which act as con-
straints, that is, it is of the form of an 'unfolding technique'. In some
cases the respondent trades-off some units of one good against units of
an alternative. good. Wherever possible choice and decisions are shown on
maps. Iteration is encouraged. The respondent is therefore asked to
proceed through a series of planning choices, asked to allocate counters
in a preference stage, and to allocate money to specific projects.
Throughout the 'game', figures (e.g. population estimates) and project
costs, and implications of one choice for another are presented by the
interviewer to the respondent in a standardised form with the data taking
as realistic and accurate a form as possible.

Figures 1 and 2 (below) illustrate the general form of the game. The game is in three parts; Part 1 dealing with the Internal Options, that is the patterns of development within the Metropolitan District; Part 2 deals with the External Options, that is development outside the Metropolitan District; and Part 3 deals with a consolidated strategy for Wolverhampton developed by the respondent on the basis of a consideration of both Internal and External issues.

FIG.1 illustrates principal stages within the game. In Parts 1 and 2 these are:-

(i) General description of the Options

(ii) Dissemination of more detailed information regarding the implications of choosing (and therefore implementing) each option,

(iii) the Mutli-Attribute Utility Technique (M.A.U.T.)

Within each of these three stages the respondent must make a choice, on increasingly complex information. The stages at which the respondent is expected to make option-choices are illustrated in FIG.2, which also illustrates where the respondent is encouraged to compare that choice with previous ones and to amend them if necessary.

The choices associated with the MAUT are delayed by the calculation and feedback of MAUT results, so that these choices are included in Part 3 of the game, where the respondent makes his/her final decisions on Internal and External patterns of development for Wolverhampton (see FIG.2).

Further details of the game are given in the following sections, utilising extracts from the interviewer's script to convey an impression of the mechanics and content of the S.C.G. The full script of the S.C.G. is contained in Appendix A.

FIGURE 1   Strategic Choices Game - the general form

PART 1

INTERNAL OPTIONS

(Patterns of development
in the Met. District)

STAGE I   General description of Options

STAGE II   Implications of Options for
           other policy and strategy areas

STAGE III

PART 2

EXTERNAL OPTIONS

(Alternative locations of
development outside the Met.
District)

STAGE I   General description of Options.

STAGE II   Implications of Options for
           other policy and strategy areas

STAGE III M.A.U.T.

Part 3

CONSOLIDATION OF STRATEGY

STAGE I   (Part 1) M.A.U.T. Feedback

STAGE II   (Part 2) M.A.U.T. Feedback

STAGE III   Amendment and consolidation
            of respondent's choices

FIGURE 2   S.C.G. - Choices and feedback of M.A.U.T. results

PART 1   General description of Options

          Implications of Options

          M.A.U.T.

PART 2   General description of Options

          Implications of Options

          M.A.U.T.

PART 3   (Part 1) M.A.U.T. Feedback

          (Part 2) M.A.U.T. Feedback

          Consolidation
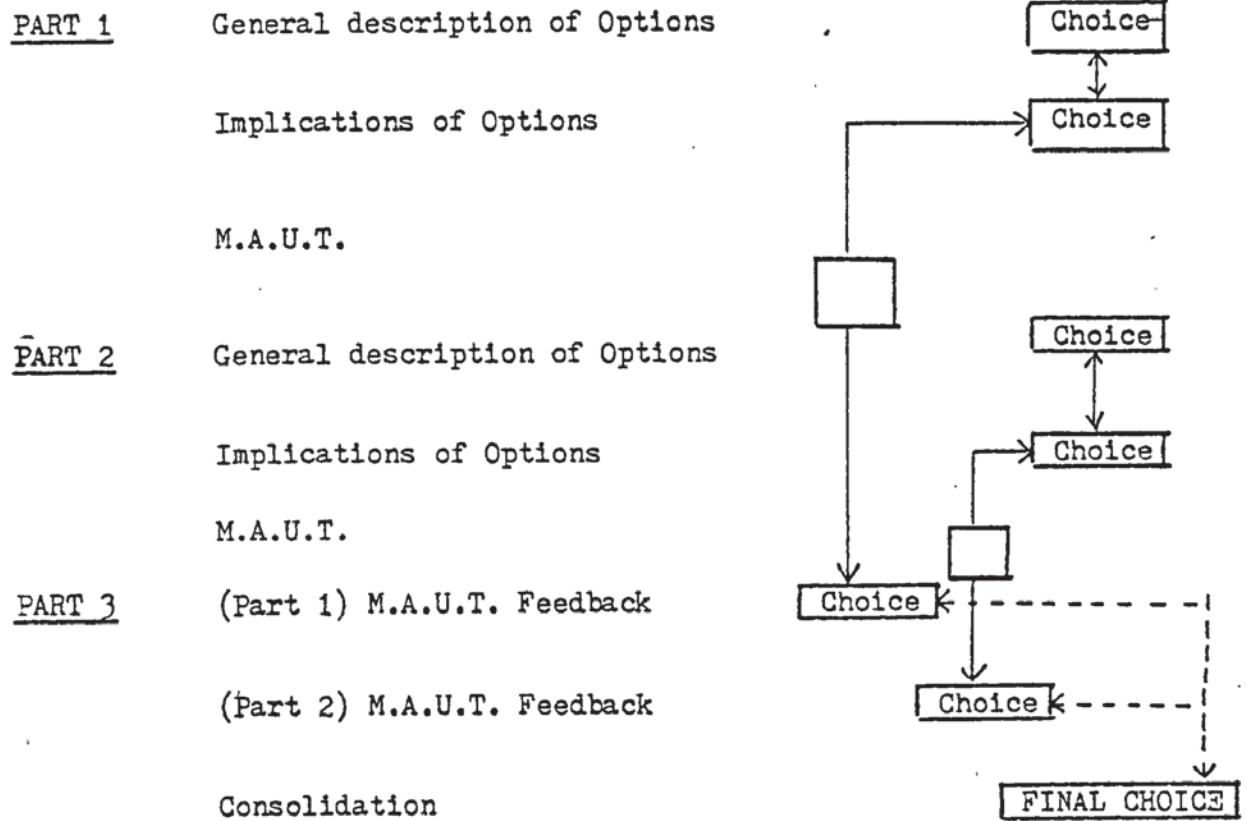
⬜   Calculation of M.A.U.T. results

⟷   Comparison and possible amendment of choice

⟵------⟶   Final comparison and amendment of choice

The Form and Content of the S.C.G.

·The italicized sections below are extracts from the interviewer's script. Small scale representations of the diagram used in the game are included as Figures 3-8 at the end of this chapter.

1.10 *"As you are probably aware, the strategies which the W.M.C.C. develop*

to deal with the county's problems are limited by the built up nature

of the county. This diagram (Fig. 3) shows the county's green belt

(i.e. open country, parks etc.) which surround the main residential

and industrial areas (i.e. the conurbation). Later, you may take the

view that we should try and protect the green belt as far as possible.

This area here is (Wolverhampton).

One of the most important general problems for the county is that there

is not sufficient land available in the conurbation to cater for the

likely increase in population. This diagram (Fig. 4) shows the

estimated population increases in areas outside the conurbation.

As far as Wolverhampton, (and the rest of the county districts) are

concerned, the County Council wants to estimate the likely capacity

of the district, and the consequent overspill of households into

areas outside the district. What we want you to do is to consider

the patterns of development within the district (the "Internal options")

and then the possible locations of overspill population outside the

district (the "External Options")".

"Estimates of housing need in the ditrict, arising because of replacement of old dwellings, natural increase of households and the relief of overcrowding, has been estimated at 27,500 households by 1986. I shall describe briefly the options available to the county to deal with the need (Fig. 5).

OPTION 1. indicates developments which the district is already committed to. As you can see, this option provides for 11,500 dwellings, which means that 16,000 households must be provided for outside the district.

Each of the other options provides for more dwellings within the district on top of the committed development and therefore causes less overspill.

OPTION 2. will allocate one large site and a number of smaller ones. The allocation of these sites will mean that the land available for business, education etc., will be reduced correspondingly but the effect will not be great.

OPTION 3. is identical to option 2, except that a number of large sites such as Goldthorp Park and Oxley golf course would be developed as well as some agricultural land.

OPTION 4. is identical to option 3 but includes the maximum of development within the district. Bushbury Hill, and the South Staffordshire golf course, for example, would be used for residential purposes, and even though no further capacity would be available, there would still be quite a large overspill requirements up to 1986".

1.12 *"What I would like you to do now is to consider the options*
I've just described and choose the one which you think is best
as far as Wolverhampton is concerned. You don't really have to
give it too much thought at this stage, because afterwards I'm
going to give you a few more details about the options (in terms
of employment, transportation etc.) and then of course you might
like to alter your choice.

Why did you choose that option?

1.20 The extracts above are taken from the early stages of the interview
technique. (Part 1, Stage I in Fig.1). The respondent has been
made aware of general population pressures and housing capacity
within the Metropolitan District, and has been asked to consider
the four internal options in a rather superficial way.

1.21 The next stage (Stage II) in the game consists of brief descriptions
of the implications of the options for a number of policy and
strategy areas, using cards and diagrams as aids where necessary.
The principle ones are:[1]

    Transportation

    Leisure/Recreation

    Location aspects:- access to employment opportunities

                        loading of radial road routes

                        townscape value

                        open space potential

                        residential environment value

                        agricultural value

1.22 An example is given below

"The interests of the people who live in these areas should also be taken into account. These figures are vague estimates of the number of people living within 1/3 mile of the sites, and who have no open space within the same distance. They therefore give some indication of how important the sites are for the area.

As you can see, Oxley golf course has a particularly high number of people whereas Penn and Portobello do not ..."

1.23 Subsequent to these descriptions the respondent is asked if he would like to alter his original option-choice in view of these implications

1.24 One function of the foregoing stages of the technique is to familiarise the respondent with the Options, and some of their consequences.

1.25 The primary function, however, is in providing a necessary acquaintance with the terminology which will be used in the later sections of the interview.

1.30 The third, and most important, stage comprises a Multi-Attribute Utility technique (MAUT) to determine the value of variables included in a mathematical model which covers the attributes listed in 1.21 (Details of the model are given in the following section).

The primary purpose of the MAUT is to 'force' the respondent to consider the options more carefully and in greater detail. The MAUT can be considered as a more powerful and sophisticated version of the

Priority Evaluator Techniques. By utilising a model which matches the respondent's value or utility output from the MAUT against the characteristics of specific sites in the area, the interviewer is able to feedback to the respondent the implications of his preference characteristics for specific sites.

The second purpose of the MAUT is as a decision aid to the respondent's option choice in stage I, Part 3. Thus, the output of the MAUT is not used directly, as a criterion, to determine the choice made in stage I Part 3, but is used as an aid for the respondent to make that choice and to amend it in the light of any inconsistencies illustrated by comparison with earlier choices. Thus the output of the MAUT is fed back to the respondent, thereby exposing inconsistencies between the respondent's earlier choice, made on the basis of relatively general information, and the choice made after considering more complex information in a structured way during the MAUT itself.

2.10 The second part of the game concerns itself with the 'external options' for development. Its form is similar to that of Part 1.

2.11 Again, there are a number of general strategies available to accommodate the district's overspill:-

    option 1   -   Peripheral development

    option 2   -   Development close in to (Wolverhampton)

    option 3   -   At locations further afield.

The options are represented on the board indicating general locations (Fig.6)

2.12 A brief description of each option is given. For example, in option 1 the peripheral development is regarded as committed, but further development would mean loss of open land on the edge of

the conurbation. Option 3, on the other hand, involves consideration of the relative merits of dispersal of employment (as well as population) as opposed to extensive commuting to jobs in Wolverhampton.

The respondent is asked to make a choice between the options.

2.20 Stage II consists of brief descriptions of the implications of the options for a number of policy and strategy areas:-

Locational Analysis

accessibility to jobs by public transport

accessibility of jobs by private transport

accessibility of jobs in Wolverhampton by public transport

accessibility to jobs in Wolverhampton by private transport

conservation of areas of landscape value

conservation of good agricultural land

2.21 The respondent is asked to reconsider his original choice bearing in mind that an area to the north of Wolverhampton is one of those proposed in the regional Study for industrial development (see Fig.7).

The results of surveys on access to labour supply and markets, access to major roads, access to railways and mobility of firms are represented on the board using an overlay (See Fig.8).

2.30 In Part 2, as in Part 1, Stage III comprises a MAUT covering the attributes listed under Locational Analysis above (2.20). The option-choice is again open to amendment.

3.10 In Part III of the game the respondent is asked to consider the relationship between his choice of internal and external options. The overspill requirements, resulting from his choice in Part 1, must be met by the location of population indicated by his choice of external options, taking into account committed schemes.

3.11 The ordering of external locations arrived at in Stage III of Part 2 will indicate which locations are preferred.

3.12 If the respondent's choice (for example, 'peripheral development') does not make available the capacity to meet the requirements of housing need quoted in Part 1, the respondent may have to include elements of the other external options.

If the discrepancy between internal and external option-choices is large, the respondent would be invited to change his choice of internal option to provide more dwellings within the district.

3.13 Thus, the respondent is encouraged to reconsider his choice of internal and external options in the light of housing need, the capacity of the district, and information which has been given to him concerning the various implications of specific sites and general strategies for development. A 'consolidated' strategy is produced (See Fig.1).

The Multi-Attribute Utility Technique

1.1 The main applications of multi-attribute utility theory have, hitherto, been as criterion functions for operations researchers, as selection models for personnel managers and for example as decision aids for managers considering product modification or project selection.[2] Such techniques have not, as yet, had any major use in British public participation practice.

The development of a technique for use in the S.C.G. based on multi-attribute utility theory, was conditioned by the need to obtain a utility model using a parameter-eliciting questionnaire as an _aid_ to the respondents' evaluation of alternatives. The model does not therefore, have to be as rigorous as in other applications where it is used as the sole decision criterion.

1.2 Before discussing the advantages/disadvantages of such use, a brief description of the form of the technique can be given:-

Let $X = X_1 \times X_2 \times \cdots X_n$ be a consequence space, where x_i is the ith attribute.

(The attributes, for example those regarding accessibility, have been mentioned briefly in 1.21 and 2.20.)

A specific outcome is designated by $\underline{x}$ or by the attribute vector $(x_1, x_2, \cdots x_n)$. These values represent the level of attribute for each alternative and are produced by technical valuation.

1.3 The aim is to assess the utility function over X (denoted by $u(x_1, \cdots x_n)$ or $u(\underline{x})$) which is valid in the von Neumann-Morgenstern sense (von Neumann and Morgenstern, 1947).

Thereby, in conditions of uncertainty, one would choose the alternative leading to the highest expected utility (or 'psychological value'). By implication, where there is no uncertainty $u(\underline{x}) = u(\underline{y})$ only when $\underline{x}$ is indifferent to $\underline{y}$. In this situation the preference structure and trade-offs between attributes can be specified once u is known.

1.4 By satisfying the Preferential Independence condition (that is, trade-offs between x_i and x_j do not depend on the other fixed attributes) and Utility Independence condition (that is preferences across different levels of an attribute are independent of the other

fixed attributes) one can deduce that the utility function must be either additive or multiplicative.

Satisfaction of the Marginal Equivalence condition (see Fishburn, 1970) implies that the multi-attribute utility function over the finite set of outcomes must be additive.

1.5 The basic result used for the technique if the conditions are met follows the THEOREM

Let $X = X_1 \times X_2 \times \ldots \times X_n$, $n \geqslant 3$

(i) then $u(\underline{x}) = \sum_{i=1}^{n} k_i u_i(x_i)$, if $k_i = 1$

(additive utility function)

(ii) or $1 + ku(\underline{x}) = \prod_{i=1}^{n} (1 + kk_i u_i(x_i))$, if $k_i \neq 1$

(multiplicative utility function)

where u and u_i are utility functions (from 0 to 1), the k_i are scaling constants with $0 < k_i < 1$, and $k > -1$ is a scaling constant. Thus, when the scaling constants are known, each alternative can be evaluated in terms of the respondent's utility function and the levels of the attributes of the alternatives.

The Assessment Procedure is as follows:-

2.1 Familiarisation of the respondent with the terminology of the assessment and the nature of the attributes. The latter occurs in Stages II and III of the game.

2.2 Verification of independence assumptions. This is done using indifference-pair comparisons and simple lotteries. The attributes are shown originally at their minimum and maximum levels across the whole range of alternatives.

2.3 Ordering the scaling constants (k_i's) by pair-comparisons across the attribute scales or by simple ranking followed by consistency checks.

2.4 Assessing the scaling constants by trade-offs between attributes.

For simplicity one scaling constant (k_j), is used as a base for all other k's. The 'absolute' values are then calculated after k_j's value has been assessed (again using a simple lottery).

If the utility function is multiplicative the scaling constant k must also be calculated.

2.5 Assessment of the single attribute utility functions. For quick computation these are treated as linear.

2.6 Consistency checks. These include using a different form of pair-comparison within the game. ·

2.7 The 'utility' of each alternative is assessed using the utility function given by equation (i) or (ii) above, the single attribute utility functions, and the values of the scaling constants (k_i's and k).

Advantages/Disadvantages

3.1 There are many types of multi-criteria decision aids each of which has a number of suitable application areas (For one classification of such models see Roy, 1975). The model used in this research has certain advantages and disadvantages other than those which apply to MAUT's in general (the latter arise mainly because of the assumptions inherent in the theory).

3.2 The major advantages which accrue to the technique arise through the decomposition of respondent's evaluations. Holistic judgements of complex alternatives are inadequate because of the limited information processing capacity of respondents. Further, such decomposition reduces the stochastic error which, in holistic techniques, tends to increase in proportion to the number of attributes.

3.3 Disadvantages arise from two main sources when applied in
circumstances as outlined above. Firstly, they arise from the
procedure itself. MAUT's can be cumbersome when applied in interview
situations - it should not be made so complicated that the respondent
becomes confused, nor should it be so time-consuming that it reduces
the motivation of the respondent.[3]

Secondly, the model must be an appropriate one otherwise it will not
illustrate errors which occur. It must include those attributes
required for an adequate evaluation (or 'judgement'). It must
cover attributes whose technical values over the alternatives can be
found or designated. Finally, it must include attributes which can
be presented to and comprehended by respondents in a meaningful way.

Some Comments on the S.C.G.

Thus, based on the structure plan for Wolverhampton, the S.C.G. asks
respondents to consider information regarding strategic planning issues
and then to make choices and judgements regarding these. These issues
relate to changes both internal and external to Wolverhampton. Throughout
the game the respondent is encouraged to compare and to amend choices, in
the light both of information given to him, and of feedback from the MAUT
regarding the implications of earlier choices. The outcome of the game
is a consolidated 'strategy' for Wolverhampton based on the desirability
of certain alternatives for strategic development and change, both
internal and external to Wolverhampton.

Two major problems arose with the game in preliminary testing which
have implications for its future application. The first concerns its
length. During preliminary testing it became apparent that some respond-
ents might take up to $2\frac{1}{2}$ hours to complete the game. Thus two   -
alternatives for application present themselves - either the technique
must be purposefully limited in its use to situations where time does not

adversely affect the motivation of respondents, for example, for use with community organisations or councillors, or secondly, its format could be shortened for use as a survey technique with the general public. Both of these alternatives will be discussed later.

The second major problem, which also has implications for the 'length' of the interview, arises from the mechanics of the MAUT. In order to allow the game to 'flow', an assistant to the interviewer is required to calculate the results of the MAUT whilst the game continues. These results are fed back to the respondent in Part 3 of the game. This has the effect of delaying feedback as well as imposing two interviewers on the respondent rather than one. The problem has been partly overcome (thereby also shortening the length of the game) by the use of a computer terminal during the game. A programme has been written such that, as the respondent makes choices on the MAUT, these are fed into the computer by the sole interviewer and immediate feedback is possible. This, however, is only a partial solution - an assistant is still required for household interviews. However, it does increase the possibilities of use with motivated/interest groups.

Thus two strategies for the application of S.C.G. have evolved. Firstly, it can be used (with or without the aid of the computer) on specific invited groups or groups who express interest. These might be, for example, a group of community representatives who require information regarding planning issues or who may wish to assess similarities and differences in their response to strategic issues. Secondly, the game can be modified for use either with or without an assistant for general household surveys. In the testing of the SCG (described in the following chapter) the game was administered both with the use of the computer terminal at the University, and with an assistant on respondents in wider household surveys.

It should be noted that the purpose of testing the S.C.G. was neither to examine people's broad value systems (or internal representations) nor to obtain support for specific structure plan strategies. Rather, it was to examine people's responses to strategic planning problems generally using a technique which would recreate specific planning choices in a situation which balances a requirement for reality on the one hand, with the need to retain the involvement of the respondent on the other.

It is clear that, in games such as S.C.G., where decisions/ judgements are based on both internal representations and on information given to the respondent during the game, the behavioural output is inevitably constrained, that is, it does not totally reflect the respondent's representation of desired 'futures' for Wolverhampton. It is in a sense a quasi-representation, being a product of both the knowledge and experience that the respondent brings to the game situation and the S.C.G. itself.

An important priority is therefore to test hypotheses regarding the nature of internal representations of strategic environmental processes in respondents. The interaction between internal cognitive processes and survey techniques themselves (in this case S.C.G. is the independent variable) is therefore considered to be of major importance in research into the use of social survey techniques in eliciting response to strategic environmental issues.

Finally it should be noted that survey techniques such as S.C.G. and others have a limited role with respect to the overall process of public participation in structure planning. S.C.G.'s will undoubtedly require supplementation with techniques and processes handling issues with greater immediacy and occurring at different stages in the planning process. However, an assessment of the potential role of strategic response techniques must await Part 3 of this thesis.

NOTES

1. The information regarding Implications of options is taken from Wolverhampton County Borough Structure Plan.

2. For early work in this field see Arrow (1952). For later work see Lee (1971). For applications of Multi-Attribute Utility Theory see Dawes (1971), Miller et al (1967) and Hoepfl and Huber (1970).

3. Time is also a problem in an operations sense, specifically regarding the calculation of k's. This is overcome by having an assistant to the interviewer, who calculates the results of the Part 1 MAUT whilst the interviewer introduces the respondent to Part 2 of the game. Feedback from the MAUT's and subsequent amendment of stage II choices is therefore carried out after the introduction to Part III (see Fig. 2).

FIGURE 3.

CONURBATION AND GREEN BELT: W.M.C.C.

WMCC Boundary

Green Belt
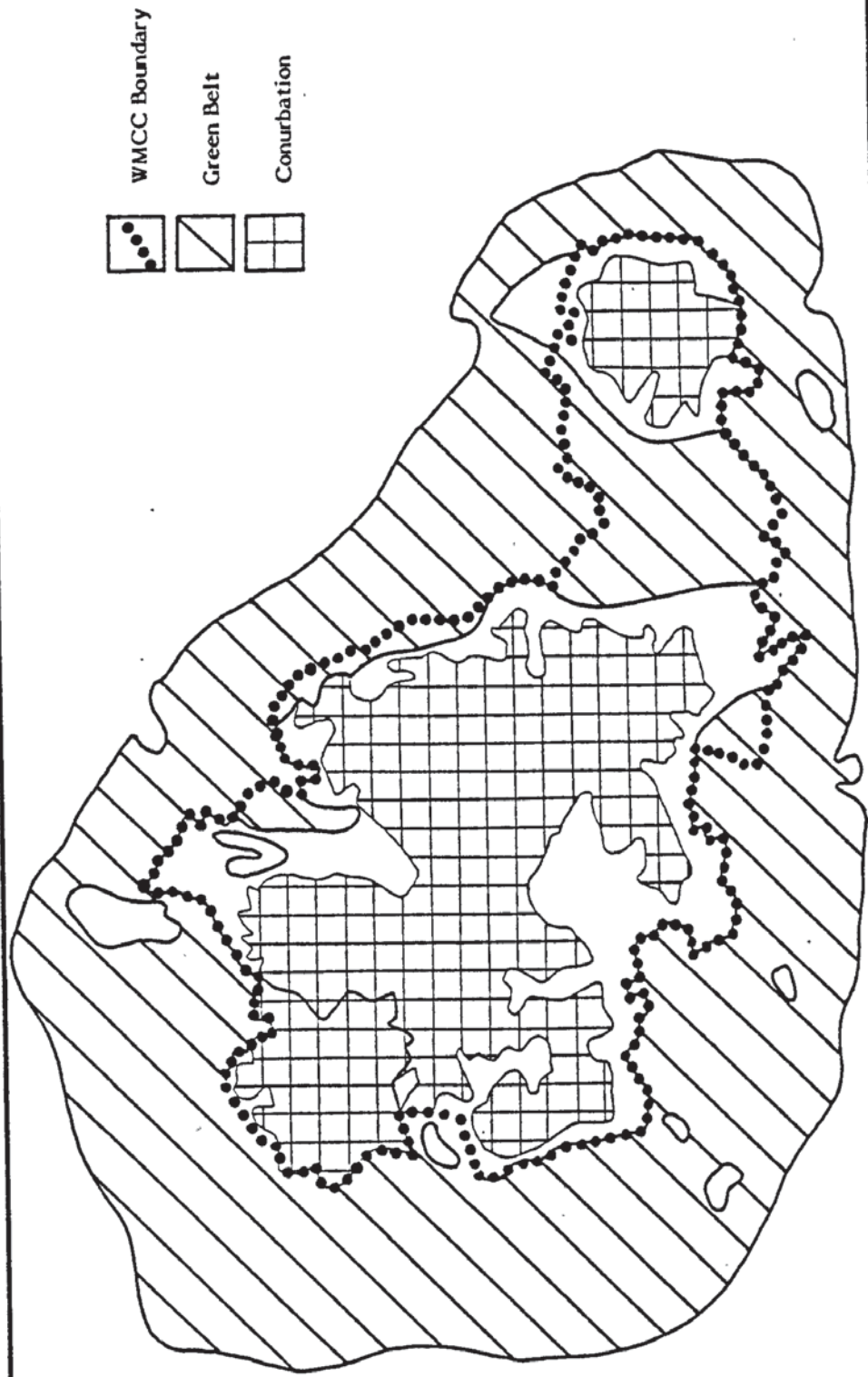
Conurbation

FIGURE 4. POPULATION INCREASE OUTSIDE THE W.M. CONURBATION (Source: W.M. Regional Study).

FIGURE 5. INTERNAL OPTIONS (Source: Wolverhampton C.B. Structure Plan).

FIGURE 6.   EXTERNAL OPTIONS

District Boundary

Green Belt

Option 1

Option 2

Option 3

STAFFORD

CANNOCK

WOLVERHAMPTON

TELFORD
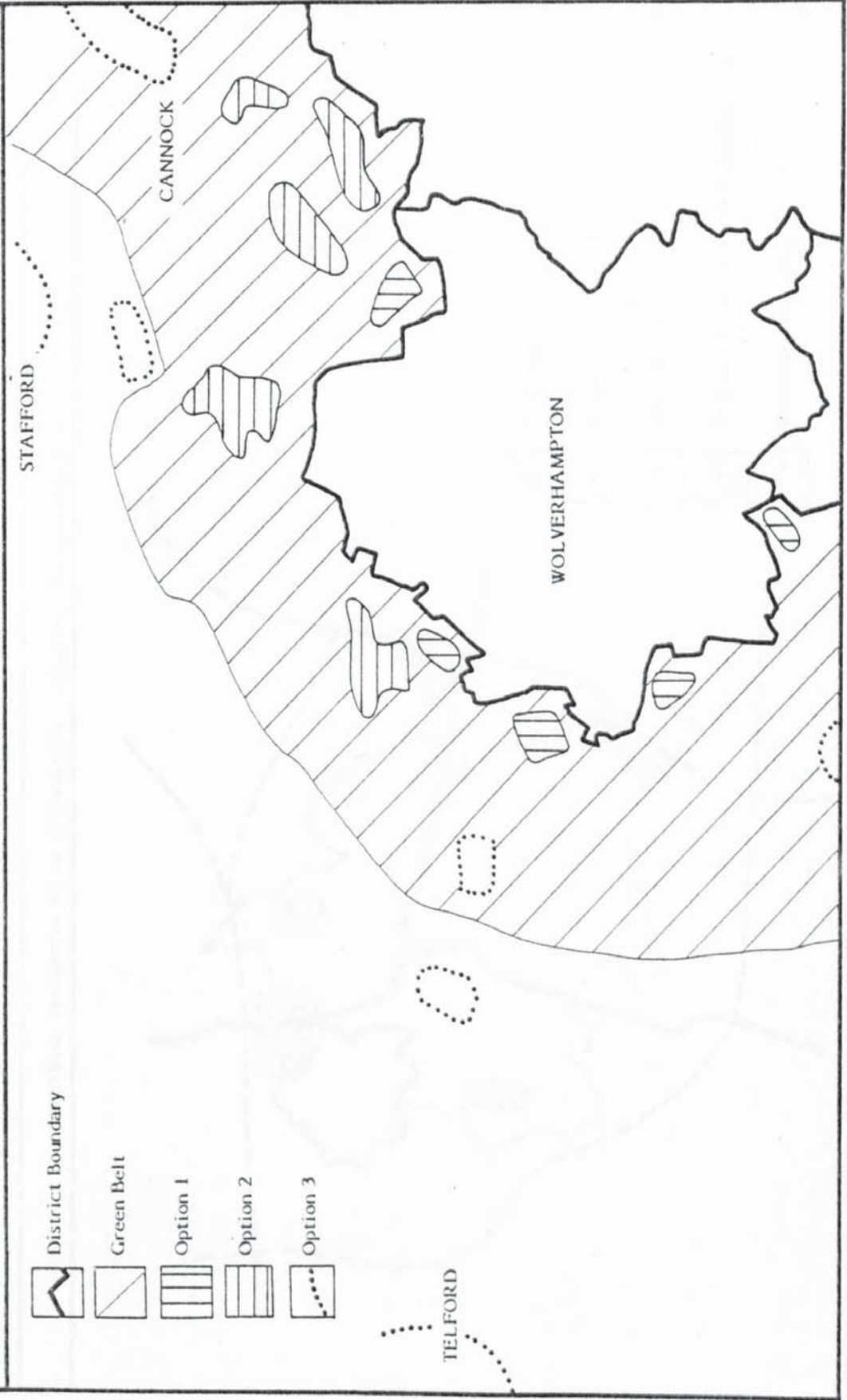
FIGURE 7. INDUSTRIAL RESTRUCTURING OF CONURBATION (Source: W. Midlands Regional Study).

FIGURE 8.   INDUSTRIAL LAND EVALUATION   (Source: Wolverhampton C.B. Structure Plan).

CHAPTER 6

ENVIRONMENTAL COMPLEXITY, INFORMATION PROCESSING AND TASK PERFORMANCE :

AN INTERACTIVE APPROACH TO THE TESTING OF THE S.C.G.

This chapter describes the general approach taken in the testing and
assessment of the S.C.G. . . This. constitutes the major part of the
fieldwork elements of the research. Because there are no comparable
techniques available at present, there are no precedents for testing the
S.C.G.. What was apparent in the testing of the S.C.G., however, was
that the conventional tests for psychometric and sociometric measures
would be of only limited use.

In considering Strategic Response Techniques such as the S.C.G., the
links between stimulus, cognition and response are extremely complex and
confused. Firstly, the 'conceived' responses elicited have only tenuous
links to everyday behaviour so that the extent to which one can utilise
an external criterion such as behaviour for ascertaining the meaningfulness
of responses derived from the S.C.G. is severely limited. The problem of
specification (Harrison and Sarre (1971)) in this context is therefore
primarily a problem of linking conceptually mental activity and associated
verbal behaviour.

Secondly, very little is known about the mental activity, that is
the cognition of strategic planning issues, which mediates stimulus and
response. However, for the purposes of testing a strategic response
technique there can be little doubt that one is dealing less with the
geometrical properties of an environmental image (as was, e.g. Stea, 1969)
than with the 'meaning' of strategic environmental properties to the
respondent.[1]

Thus, whereas the conventional tests for reliability (internal

consistency measures, crossform correlations) and stability (for example, test-retest) are available,[2] the tests for validity which utilise a behaviour criterion are not available.

Though one can use the less powerful validity tests (that is, face validity, intrinsic validity and content validity),[3] in order to make a stringent assessment of the Strategic Response Technique it is necessary to consider forms of construct validity oriented towards individual differences in cognitive capacity. One needs, therefore, to assess the understanding that a respondent has of the alternatives presented to him; the 'meaning' he attaches to his choice; and the type of mental activity that leads to choices within the S.C.G.

These measures must be linked to those of task performance during the game. For example, did the respondent consider all the detailed information presented to him; did he deal with it in a very complex and interrelated fashion or in a very simple way; did the respondent offer consistent judgements during the game.[4]

Thus, although most respondents can complete the game by making the necessary choices between Internal and External alternatives, it is the process by which they reach these choices which is important and which has to be the focus of an evaluation of the S.C.G. Further, the way in which people play the game is itself a reflection of the experience and abilities and motivation which respondents bring to the game.

The testing of the S.C.G. therefore revolved around measures of task performance built into the game (such as consistency of judgements made, amount of information considered, complexity of decision-making undertaken) and an analysis of individual differences in capacity to perform the tasks. The latter reflect general differences between individuals who, given the same information in their environment, use different conceptual rules in searching for and accepting that information, in organising it,

and in interrelating its elements.

The general framework for testing the S.C.G. centred around the proposition that those who have more information and think in more complex ways about the large-scale environment (e.g. professional planners) would play the game or perform a task in a more complex way, with a deeper understanding, and with greater consistency. Thus, those elements of mental process which were of concern could be placed in a framework which was causally linked to behaviour (i.e. task performance) in the S.C.G. This approach led logically to measuring techniques for quantification of certain mental characteristics and provided empirical illustration of the behaviour-linked parameters.

In the test battery utilised in the fieldwork individual differences were treated under the headings of Information Level and Integrative Complexity, and were investigated in an interactive way with performance on the S.C.G. The fieldwork involved, firstly, an investigation of the effects of information level and cognitive organisation on task performance during the S.C.G., and secondly, an investigation of the effects of playing the S.C.G., viewed as a source of information on strategic planning issues, on information levels and cognitive organisation elements of respondents.

The Effects of Cognitive Organisation on Task Performance

The ways that people adapt to information from their environment can be placed into two analytical categories - that concerned with 'content' variables such as magnitude and direction of response, attitudes and norms; and that concerned with 'structural' variables which illustrate the information processing aspects of thinking.

The tests within the battery are derived from two theories concerned with cognitive structure - Kelly's Personal Construct Theory (Kelly, 1955)

and Harvey et al's Conceptual Systems Theory (Harvey et al, 1961). The theories have a number of shared characteristics. They can both be utilised to investigate how people deal with complex information. Both theories centre on the cognitive elements which mediate environment (stimulus) and behaviour (response). Both rest on the view of man as an agent who conceptualises and interprets his environment within the constraints of an existing cognitive organisation, and who also searches for environmental stimuli and information, that is, he is an active agent.

Four features of individual differences in cognitive organisation highlighted by these theories are of concern:-

(i) <u>Knowledge and information</u> about strategic level issues and processes which affect the Metropolitan County.

(ii) <u>Differentiation</u> within the respondent's cognitive structure. Individuals who exhibit high levels of differentiation (i.e. have a large number of concepts within the cognitive structure) will provide more complex descriptions of stimuli and would cognise stimuli in a multi-dimensional fashion.

The two elements of cognitive structure, differentiation and discrimination are derived from Kelly's construct theory.

(iii) <u>Discrimination</u>

The second element of cognitive structure reflects the extent to which a person can discriminate along the cognitive dimensions. With strategic environmental processes the ability to discriminate finely between stimuli may be of critical importance.

(iv) <u>Integrative Complexity</u>

Whilst Kelly chose cognitive <u>structure</u> as the main focus of attention, Harvey et al have emphasised the <u>complexity</u>

of the structure and the relation of complexity to adaptability/flexibility in the face of complex information. In fact, complexity can be understood as the complexity of rules which link the elements of cognitive structure. A number of dimensions (characteristics of links) can be drawn by the experimenter and applied to data given in (i) above to arrive at a measure of the conceptual linkages between perspectives of the stimuli developed by the respondent.[5]

It is the contribution of structural variables[6] to our understanding of task performance (i.e. performance on S.C.G.) which is emphasised in this work - the most important variables being the differences in complexity of individual information processing systems.[7] In testing and assessing the S.C.G., it is insufficient to accept that two people make the same decisions during the game, one needs to understand the adaptive processes which underly the content variables. One is less concerned, then, with what a person thinks than with how he thinks.

Human beings have the ability to attach alternate meanings to the same stimulus, and to develop patterns of relationships between aspects of the stimulus. Unlike lower-order information processing systems such as insects or computers, where the information processing structures are static, humans are capable of generating complex perspectives of a stimulus, and of generating new information processing rules when faced with novel information, particularly for decision making purposes. In the model utilised (following, for example, Schroder et al 1967 and Barker 1974) cognitive organisation was treated as consisting of two interdependent properties - the dimensions of content which allow judgement, attitudes and decisions, and the dimensions of structure or the integration of the dimensional properties. Figs. 1-3 represent low to high integration levels for three dimensional structures.

Fig. 1

Dimensions

Organisation
(Generating Single Perspective)

JUDGEMENT
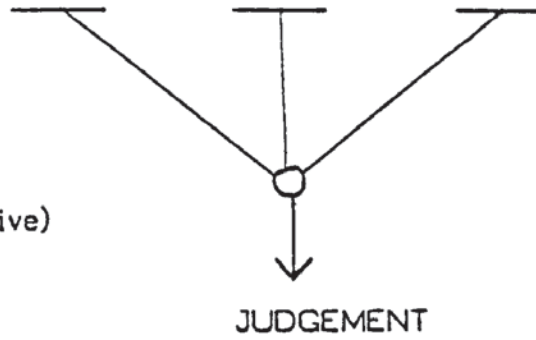
Fig. 2

Dimensions

Organisation
(Generating two perspectives)

Conceptual Rules for relating
perspectives

JUDGEMENT
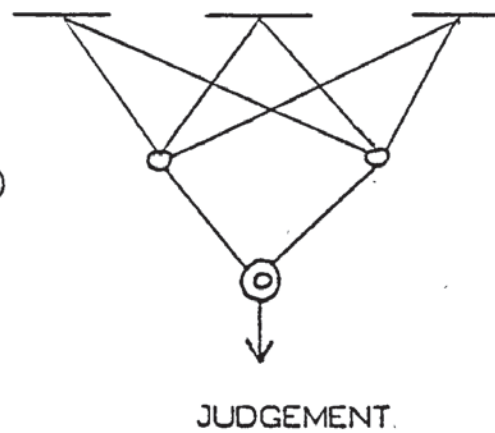
Fig. 3

Dimensions

Organisation
(Generating three
Perspectives)

Conceptual Rules for
relating perspectives

JUDGEMENT
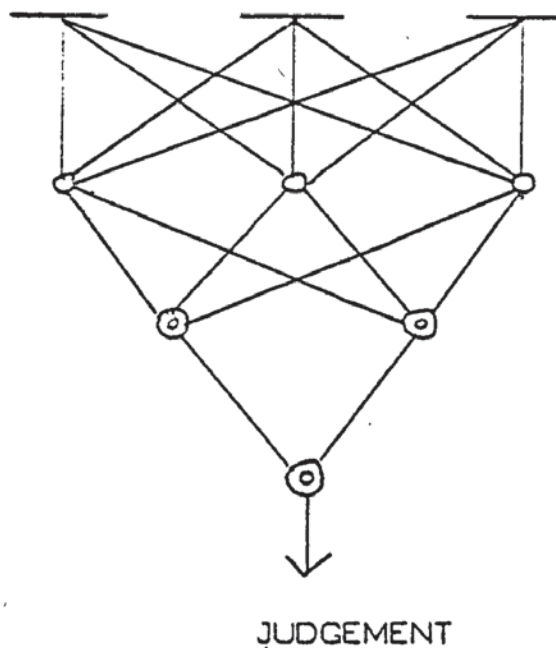
Obviously, the greater the number of dimensions, the greater the capacity for an integratively complex structure. Such a structure would facilitate alternate perceptions of the same stimulus, or in decision-making would allow greater conception of possible outcomes. Thus, though two people might have the same attitude, or reach the same decision amongst a range of alternatives, the way that the attitude is expressed (in either physical or verbal behaviour) and the cognitive background to the decision might be very different between integratively simple and integratively complex people. For similar views on the significance of structural variables see Piaget (1954).

Schroder et al (1967) suggest that an increase in the number and complexity of mediating structures is accompanied by "(a) an increase in the degree of diversity the system can generate and handle, in the number of schemata and dimensions, and in the complexity of their organisation; (b) greater discrimination between stimuli within dimensions; and (c) an increased potential for the structure to generate alternate patterns of interaction and new schemata without the imposition of new external conditions".

In line with Schroder et al it must be noted firstly, that integrative complexity is not a personality trait, secondly it is not independent of content area (e.g. a person might have low complexity on planning subjects but high with regard to soccer), and third, level of information processing is not static but is subject to changing environmental conditions such as stress.

In administering and testing the S.C.G., the output of interest was a function of the cognitive organisation of the respondent and the environmental conditions of the 'game situation'. Games such as S.C.G. necessitate the respondents' engagement in complex decision-making. Yet even though an integratively complex and an integratively simple person

might produce the same decisions, the former may be assumed to have considered the information in more depth, to have considered more facets of the problems, and their interrelations, and a greater range of possible solutions. The purpose of the testing of the SCG was to develop the game such that respondents can offer responses at their _optimal_ level of information processing. Such developments are therefore dependent on an investigation of the interaction between _different formats_ of the game, each incorporating different information loads, and performance during the game of individuals exhibiting different information processing capacities.

The Game Situation and Task Performance

The term 'game situation' represents all the environmental conditions present when a respondent plays the S.C.G. Obviously, such a situation is extremely complex and difficult to control. It includes, for example, the amount of light in the room, the orientation effects ('set') produced by the interviewer, and eucity (amount of reward offered by the environment).

However, for the purposes of this work, the most important properties of the situation to consider are those which arise from the structure of the game itself. These include (a) the information load placed on respondents during the game; (b) the fact that the tasks set for the respondent have no single correct answer but rather entail alternating goals, which emerge as the game progresses; and (c) the novelty of the situation, and in particular the level of experience that the respondent has concerning the information given to him, and the types of manipulation of information that are expected of him.

Each of these variables can be controlled to a certain extent, thereby determining the effects of changes in the game situation on response. The variables, of course, are interdependent but one can characterise different forms of the S.C.G. as providing more or less complex environments.

. In order to determine a method for choosing which form of the S.C.G. is better suited for different response groups, the U-curve hypothesis formulated and tested by Schroder et al (1967) was utilised. U-curve relationships have been much used in the literature (see, e.g., Miller, 1960) and reflect the fact that, very often, stimuli are seen to be both positive and negative to an organism. An example is the 'dual effect' of anxiety-induced conditions which in some people cause better orientation to the task at hand, whilst causing others to break down.

Such a relationship exists between level of information processing (in this case performance on the S.C.G.) and environmental complexity. Thus task performance reaches a maximum level of information processing at some optimal environmental complexity level (X in Fig. 4) so that increasing or decreasing the latter from that point (e.g. by manipulating the information load in the game) lowers the level of information processing.

Fig. 4
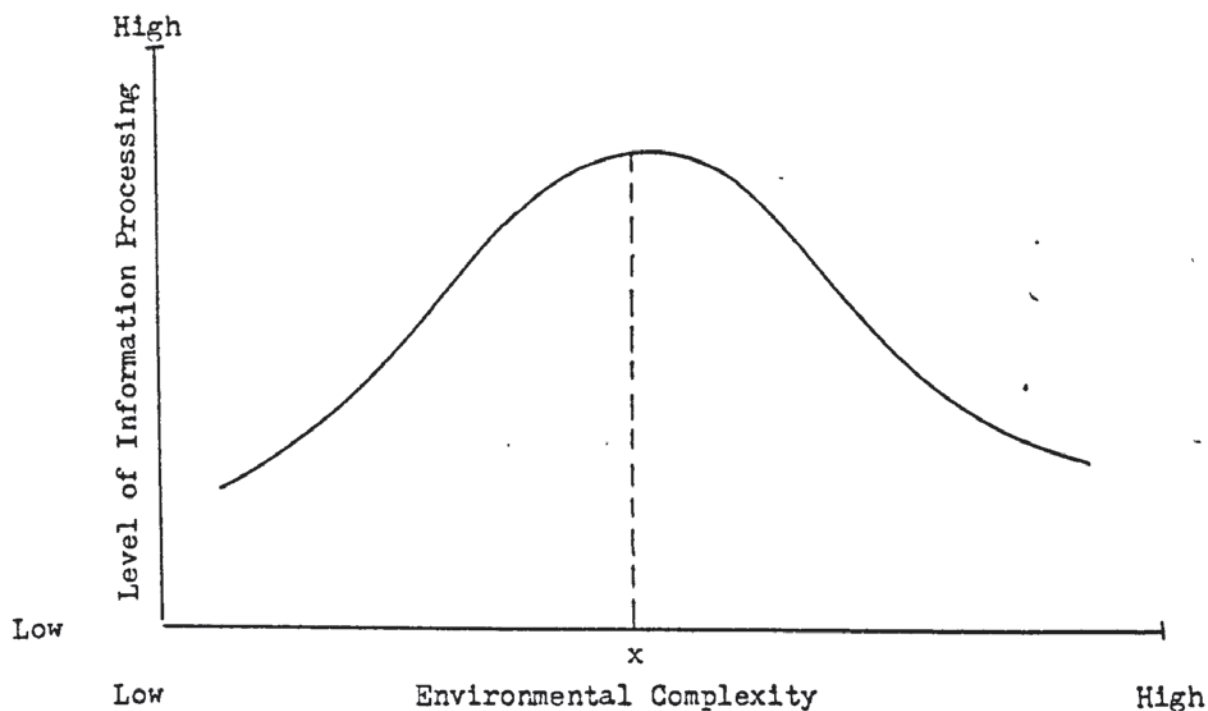
If one considers U-curves for individuals of low complexity (L) and
high integrative complexity (H) they would follow the pattern below such
that (a) curve H is always above curve L except at extremes of environment-
al complexity; (b) H reaches its optimal point at higher levels of
environmental complexity; and (c) the maximal difference in task
performance would occur at the optimal level of environmental complexity
for the high complexity individual. One can note that the curves in
Fig. 5 also have important characteristics for testing the validity of the
complexity measures - the HC group will always score higher than the LC
group for particular tasks.

Fig. 5
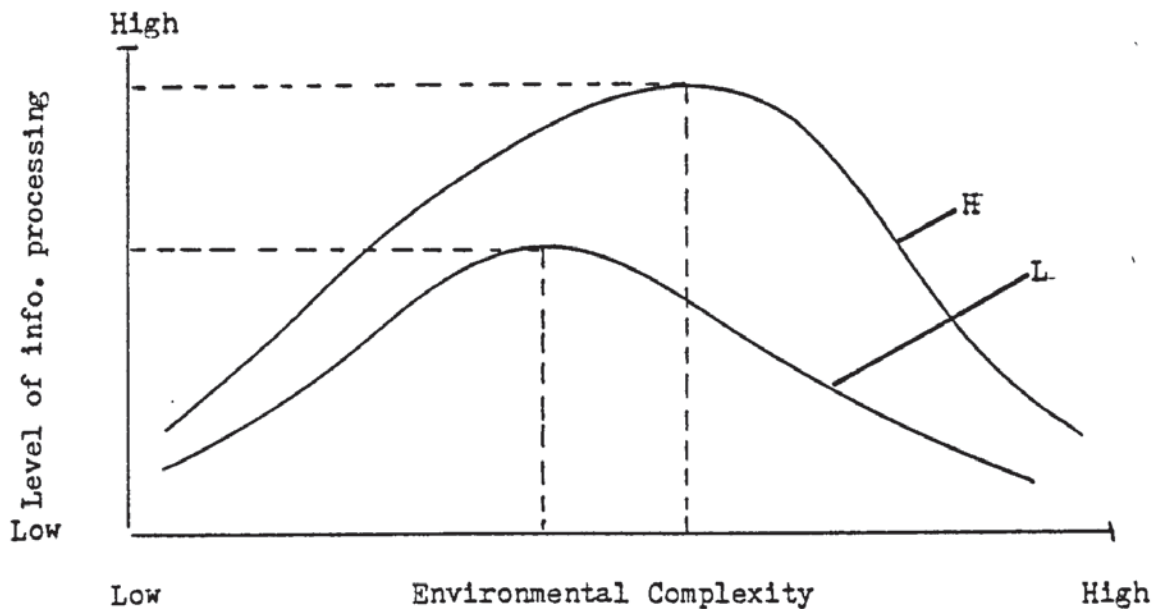
The Testing of Alternate S.C.G. Formats

The S.C.G. incorporates arelatively complex decision technique
(the M.A.U.T.) and has as one of its primary functions the presentation of
large amounts of complex information, so that the amount of variation
that can be imposed on its form is severely limited. Further, the precise
relation between environmental parameters (i.e. the three game situation
variables mentioned above) was not known. Overall, then it is not
possible to control environmental complexity very closely. Nevertheless,
the aim must be to minimise load on the responding group without moving

away markedly from their optimal level of information processing (where decisions are most meaningful) and without distorting the game so as to make it unrealistic with respect to the context area at hand - strategic planning.

Whereas each individual has some level of task complexity which produces an optimal performance, the aim of the research was to develop a standardised game which will allow most of a responding group to perform at or near their optimal levels of information processing. However, in testing the S.C.G. for different groups it was not known at which level of environmental complexity the game lay in Fig. 5.

In fact, the characteristics of the curves above can be utilised to overcome some of these problems. This was achieved by using a number of versions of the S.C.G., each differing in levels of environmental complexity. Thus the curves in Fig. 5 can refer to either an individual's scores across a range of environmental complexity, or to the average task performance scores for a group of people across that range. If the group members have similar levels of integrative complexity then the diagram becomes:-

Fig. 6
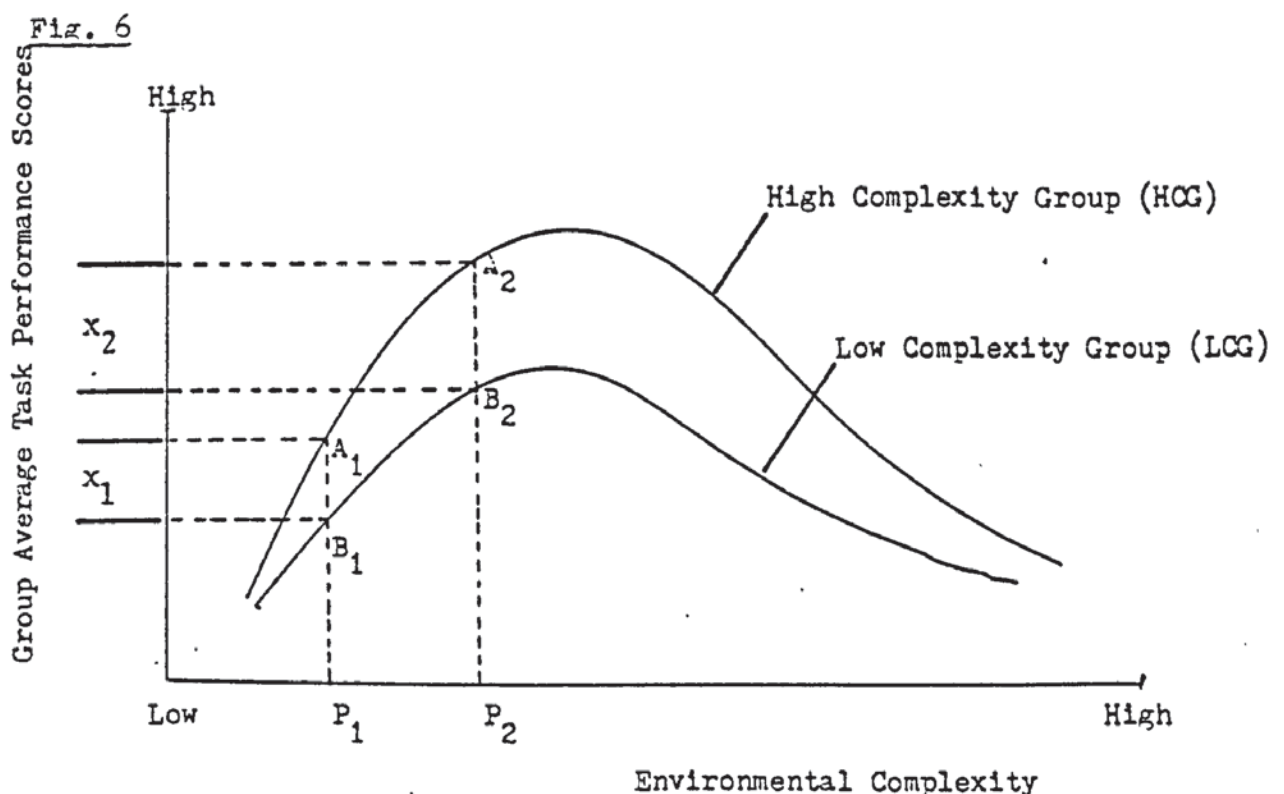
If one considers two forms of the S.C.G., represented at environmental complexity levels P_1 and P_2, where P_2 is the highest, then one can formulate guidelines for the choice of S.C.G. format based on group average performance scores, (i.e. A_1, A_2, B_1, B_2) and on the differences between average performance scores for different groups (i.e. x_1, x_2).

For example, if one requires the S.C.G. for a survey of a specific group then one would use that format which gave highest mean task performance scores. For HCG this would be format P_2.

Alternatively, if one requires the S.C.G. for a survey of the general population, which exhibits a large range of integrative complexity levels, then one would choose that format which allowed most groups to be near their optimal task performance. One would consider both the group average scores, and the differences between these for different formats. One might also choose to use different formats for different groups.

The framework above therefore provided a basis for the testing of the S.C.G., and for an investigation of the effects of different forms of the S.C.G. on the performance of groups exhibiting different levels of integrative complexity. The general aim of this element of the fieldwork was to test different S.C.G. formats on groups exhibiting a range of information processing capacities, thereby allowing one to locate some of the points on Fig. 6. It would then be possible to evaluate, to a certain extent, the compatability of the S.C.G. for the sample groups under investigation and to trace the general form of the curves in Fig. 6.

The Effects of Abstract, Complex Information on Cognitive Organisations of Respondents

One of the prime purposes of the fieldwork testing of the S.C.G. was to assess the extent to which it acted as a learning instrument. If the success of the S.C.G. was to be evaluated, it was therefore necessary

to determine how much and what type of information was accepted by respondents during the game, and what effects the game had on the way in which they cognised environmental processes. This was done by administering the test battery prior and subsequent to the S.C.G., and investigating differences in information levels and integrative complexity.

In order to develop hypotheses which could be tested regarding the nature and direction of expected changes, it was necessary to consider some of the assumptions prevalent in contemporary study of conceptual systems.

It is the relation between the complexity and flexibility of conceptual systems which provides the focus of this and many other studies. Psychologists have assumed, firstly, that integrative complexity and information about a stimulus are connected. The level of complexity affects the search for information and level of information is assumed to be an important element of complexity (for such research findings see Schroder et al, 1971). Secondly, other empirical findings suggest that high levels of complexity would lead to higher levels of flexibility, that is, to the maintenance of the level of complexity (see Harvey et al, 1966).

In fact, there seems to be a contradiction in this conceptualisation, complexity being dynamic whilst at the same time creating its own stability.

The root of the apparent 'contradiction', however, lies in the conceptualisation and definition of elements, and its resolution lies in the acknowledgement of the role of information in a model.

Information will obviously have a dynamic influence on cognitive organisation if it is accepted. However, there is a stabilising influence - that of cognitive structure. Although integrative complexity might influence the search for stimulating information, it is the

cognitive structure (that is, the concepts/dimensions a person uses to assess information) which determines the nature of information accepted by the organism. To gain a response, the stimulus must lie within some cognitive dimension of the respondent.

To be specific, the assumption made here is that when individuals are confronted with information such as that given in S.C.G., they will not show dramatic changes either in cognitive structure, complexity, or information levels. The source of stability is assumed to be the relative invariability of cognitive structures, and the 'filtering' and 'acceptance' functions of cognitive structure and complexity. These functions are, it seems, inexplicably intertwined. However, individuals who differ in integrative complexity may show significant differences in task performance on the S.C.G.

In terms of the fieldwork, a number of propositions were set which related to the explanatory power of links within a model for 'more' or 'less' integratively complex individuals. From these, hypotheses could be developed which reflect the fact that those people who have little information on strategic environmental issues would not suddenly increase their level of information, and that those with relatively complex conceptual systems would not show a great increase in complexity.

Propositions Concerning the Model

A number of theoretical propositions could therefore be developed, each representing characteristics of the model which could be investigated in the light of data obtained during the fieldwork surveys.

Proposition 1   Those individuals with low integrative complexity will accept less information, but will have a greater relative change in integrative complexity.

Proposition 2   Those individuals with high integrative complexity will accept more information but will have relatively low changes in integrative

complexity.

These two propositions reflect the 'contradiction' outlined above concerning the dynamic influence of information, and the stability effect of integrative complexity.

Further propositions (or sub-propositions) can then be derived:-

<u>Proposition 3</u>   Those individuals with low integrative complexity will register a relatively high increase in complexity (that is, they are less 'flexible').

<u>Proposition 4</u>   Those individuals with low integrative complexity will accept relatively little information, determined by associated low levels of discrimination and differentiation.

<u>Proposition 5</u>   Those individuals with high integrative complexity will register a relatively low increase in complexity (i.e. more flexible).

<u>Proposition 6</u>   Those individuals with high integrative complexity will accept relatively high increases in information, determined by associated high levels of discrimination and differentiation.

Thus the relation between complexity and change in complexity is important to the analysis. Changes in complexity are assumed to be in inverse relation to the original level of complexity. Thus, when information (i.e. the environment) changes, a person with greater linkages between concepts will be able to assimilate more information because of the conflicting perspectives already present in his complex cognitive organisation, whilst still maintaining a certain level of integrative complexity. An integratively simple person might accept relatively little information (because of low levels of discrimination and differentiation) but will show a relatively greater change in complexity, that is, new or changed links in the cognitive organisation will occur.

This chapter has outlined the general features of the approach taken to test the S.C.G., highlighting the relations between task complexity in the game and the cognitive abilities of respondents which together inter- act to determine the way in which the game is played, i.e. task performance. The following chapter offers a more detailed description of the S.C.G. formats and the test battery utilised.

NOTES

1. The problems of meaning are central to the possibility of eliciting meaningful responses from the public to problems which have been defined and represented with all the vagueries of language, category and concept common to the planning profession. They are 'planners problems'.

2. See, for example, Heise (1969).

3. See, for example, Cattell (1966).

4. At its simplest this would be consistency between Internal and External Option choices.

5. Diagramatic representations of cognitive structure are given in Figs. 1-3, following.

6. See Piaget (1954).

7. See, for example, Schroder et al (1967) and Barker (1974).

CHAPTER 7

THE S.C.G. FORMATS AND TEST BATTERY

The different formats of the S.C.G. were developed to produce different levels of task complexity and information load. It was felt that these were necessary if one was to understand the ways in which individuals with different abilities and experiences play the game, and especially important in attempting to determine which form of the game is most suitable for particular groups within the population of interest.

The test battery was developed specifically to meet the requirements of the test sequence. Administered prior and subsequent to the S.C.G., it consists of measures of two ideographic variables - the information level of respondents and the integrative complexity of cognitive organisation of respondents regarding strategic planning issues.

The S.C.G. Formats and Task Performance Measures

It is impossible to obtain detailed measures of information load in the S.C.G. of up to, say, ratio scale. Further, the variation in the structure and content of the S.C.G. must not be such that its meaningfulness regarding the content area, strategic planning issues, is reduced.

There are, however, a number of task characteristics which offer scope for variation in the game, and which produce four or five formats of the S.C.G., each representing a discrete point on a scale from low to high environmental complexity. These formats then, are in ranked order. These task characteristics are:-

(i) tasks requiring tracking (differentiation) of different quantities of information

(ii) tasks requiring different levels of decision-making. These range from simple ranking procedures to multi-attribute choices

(iii) tasks requiring development of different levels of strategy. These ranged from low-level strategies (choice across a range of alternatives) to higher-level strategies (interrelation of a series of such choices to produce an overall strategy).

Characteristics (i) to (iii) correspond to the omission or presence of specific elements of the S.C.G., following Figs. 7 and 8 in Chapter 5. These are, respectively, (i) 'implications of options', that is, by not giving details of these implications the need for tracking is reduced; (ii) 'M.A.U.T.', that is, by omitting the M.A.U.T. a lower level of decision-making is required, in this case the <u>ranking</u> of attributes in the game; (iii) 'comparison and amendment' processes. By omitting the need to consolidate choices and relate them to one another, the game becomes a series of discrete choices, with no motivation for the respondent to produce an overall strategy.

During the initial testing of the S.C.G. it became apparent that the most difficult section of the game for respondents to handle (although <u>all</u> were capable of completing the exercise) was the M.A.U.T. sections. This is probably because these sections require a higher level of decision-making <u>and</u> necessitate the tracking of very complex, technical information. In fact, irrespective of the presence or absence of the other variable elements, the inclusion of the M.A.U.T. in the game format always provides greater environmental complexity than when it is not included. The recognition of the pivotal role of the M.A.U.T. facilitates a number of combinations of the three elements in formats which can be ranked in terms of environmental complexity. In Fig.1, below, the variation in game formats depends on the presence or absence of the M.A.U.T., the consolidation exercises, and the giving of information regarding implications of choices.

FIG. 1 VARIATION IN S.C.G. FORMATS

| GAME FORMATS | MCI | MC | MI | M | CI | C | I | - |

$\longleftarrow$ ─────────────────────────────────────

HIGHEST   LOWEST

ENVIRONMENTAL COMPLEXITY
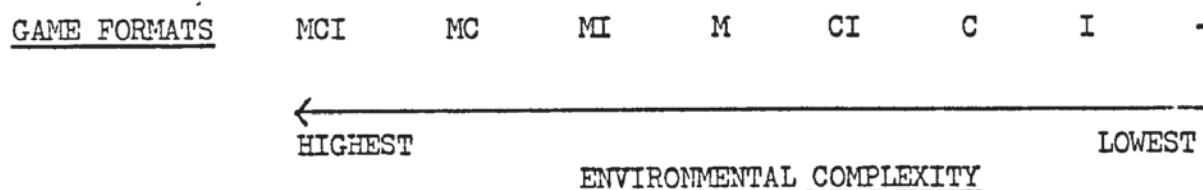
M - MAUT

C - CONSOLIDATION/AMENDMENT

I - IMPLICATIONS

The highest ranked in terms of environmental complexity is format MCI which is the full version of the S.C.G. The lowest ranked is where all three elements are absent from the game so that the S.C.G. becomes a technique consisting of a description of issues, and the ranking of attributes of these issues by respondents in terms of importance. In fact this low level of environmental complexity is characteristic of many of the 'preference surveys' traditionally conducted in public participation exercises.

Because of limited resources, only four formats were chosen for initial pilot testing of the S.C.G. The ones chosen were MCI, MI, CI, and I. Note (Fig. 2 below) that reversing the positions of I and C (representing a change in their ranking as sources of environmental complexity during the game) does not alter the respective ranking of the game formats chosen for the fieldwork. In the fieldwork proper, three formats were used, MCI, MI, and CI.

FIG. 2

GAME FORMATS	MCI	MC	MI	M	CI	C	I
CHOSEN FORMATS	*		*		*		*
CHOSEN FORMATS	*	*			*	*	
GAME FORMATS	MIC	MI	MC	M	IC	I	C

←——

HIGH   LOW

ENVIRONMENTAL COMPLEXITY
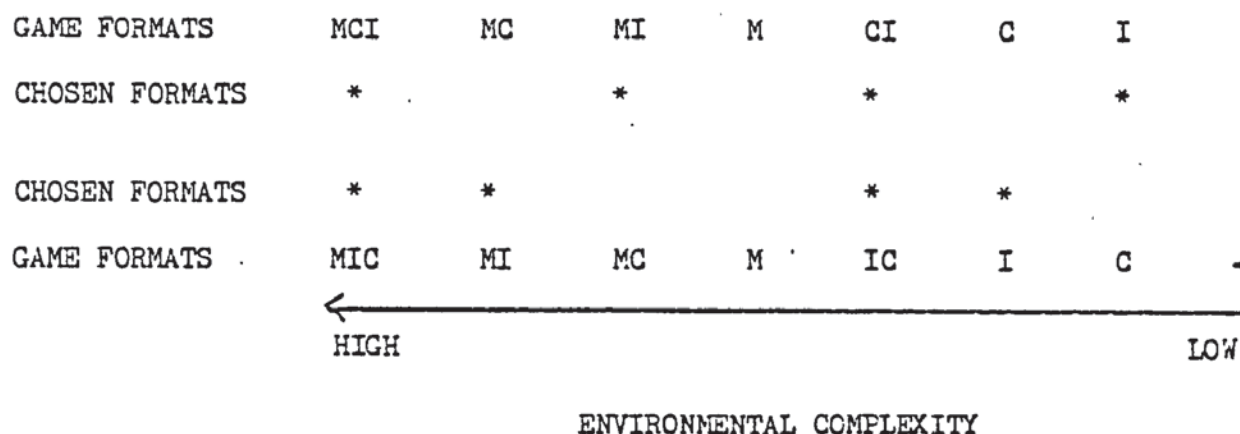
Element I is included in all formats because the game was always intended as an information-giver, and the 'implications' section of the game is the most important source of information. One can also note the importance of the other elements in the original conception of the game:- the M.A.U.T. because it forces people to consider, in depth, the relationships between environmental attributes; and the consolidation/ amendment process because it forces people to think in terms of an overall strategy whose elements are mutually compatible. This indicates the power of the full version of the S.C.G. as a research tool in public participation, and simultaneously illustrates that in application, the full S.C.G. may prove to be too complex for certain groups.

Task Performance

During the preliminary testing of S.C.G. all respondents were found able to complete the general task which is to decide on future strategies for a metropolitan area. The measures of task performance used therefore related to information processing and specifically to the integration of information during the game to reach final judgements.

The measures to be used to assess performance were:-

(i) number of integrations, that is "self-generated information", made during the game. This was assessed by asking the

respondent 'how' and 'why' he made certain choices,

(ii) multiplexity of decisions. This refers to the number of integrations per decision. Some respondents would wish to amend choices during the game and therefore make more decisions. Also the different formats of the game entail different numbers of decision points,

(iii) mean time span per decision,

(iv) time-weighted multiplexity, that is, multiplexity weighted by average time per decision.

Whilst there is no criterion for judging which of these task performance measures is best, one might employ criteria to suit specific circumstances, for example minimum overall time taken. In the analysis then, all measures in the fieldwork were considered and agreement between them assessed.

It can be seen that the four measures outlined are necessary if one is to control for the different game formats. For example, the information contained in the M.A.U.T. is not available in some formats so that decisions might be made on self-generated integrations (task performance measure (i) above). The four formats also involve different numbers of choices depending on the presence or absence of the consolidation/amendment process and the M.A.U.T. Hence the use of a multiplexity measure. Finally, the length of the game varies between formats and this must be controlled using time-weighted measures (measures (iii) and (iv)).

Information Level and Integrative Complexity Measures: The Test Battery
Test Content

Perhaps the most well-known measure of integrative complexity is that developed by Schroder et al (1967) to measure integrative complexity as a general trait. It consists of a sentence completion task based on

sentence stems such as 'Rules ...', 'When I am not sure ...' etc. The respondent is asked to <u>write</u> his answers, which are subsequently content analysed. As was mentioned earlier, the approach taken in this research is to study integrative complexity with respect to a specific content area, and the contents of the test reflect this. Thus the stimuli offered to respondents in the integrative complexity measure reflect strategic planning concerns.

Another characteristic of the integrative complexity measure is that the respondent must be allowed to judge what he thinks is important regarding the content area (strategic planning) and to structure his response in the way that he would normally do. This is unlike a Strategic Response Technique which is organised around planners' conceptions of problems and planners' criteria for response.[1] There must, however, be a certain imposition of stimuli (e.g. a 'set' must be 'created' wherein he realises that he must consider strategic planning issues) and certain response criteria are implied by the set (for example, instructions to think about 'problems' regarding the stimuli). Nevertheless, a feature of the measures is the minimal structuring, by the interviewer, of the test stimuli and the response.

There are two main requirements of the test stimuli. The first is that they be related to the information given during the S.C.G. In fact, the stimuli were chosen so as to represent the major content elements of the S.C.G., in addition to a number of general items. Unlike the Schroder test, the stimuli are in the form of single sentences or topics, to which the interviewee must respond verbally. It was thought that to expect written responses is both impractical and a source of bias. Although in the testing, for example, of students, a written test might be more appropriate. Secondly, as the same interview is used for measuring information level and integrative complexity, the test stimuli

must give as little information as possible to the respondent, as this would influence the measurement of information levels.

The interviews were conducted in the respondents' homes, each was tape-recorded and content-analysed later. After initial contact, the interviewee is shown a series of statements, one at a time, and asked to talk about them at length, and from as many different perspectives as possible. He is also asked to consider each topic in terms of problems and symptoms associated with the topic; a diagnosis of the problems; and possible solutions to the problems. The topics include statements such as 'The Green Belt in the West Midlands'; 'Overspill from Wolverhampton'; 'The Problems of the Older Residential Areas'. The tapes are then analysed for information level and integrative complexity.

As far as the interviewee is concerned the task is quite simple and unstructured. He must talk at length about a number of topics which are presented to him. However, the role of the interviewer is structured to a large extent in line with the interviewer instructions (see Appendix B). These allow a certain number and type of prompt. Although no elaboration on the topics is allowed (as this would influence the respondents' information scores) a brief statement is provided for use by the interviewer if the respondent stalls. These prompts are designed to give some idea of the nature of the topic, whilst at the same time giving as little information as possible. The only other comments which the interviewer is allowed to give are those which encourage the respondent to continue, or to expand his views. Although it may seem that the role of the interviewer is too rigid, inspection of the early tapes indicated that after initial training the interviewer does not impose himself on response as much as in, for example, a traditional questionnaire format. In fact the interviews are surprisingly free-flowing and frequently assume the flavour of a casual conversation.

Test Scores and Manual

Information Level

A critical element in any psychometric test is the scoring manual.
Perhaps more than anything else, it is this which determines the output of
the test. The aim of the information test is, quite simply, to assess
the level of information the respondent displays when discussing
strategic issues in the West Midlands County.

In the development of most tests and measures a number of stages
are usually present. First, the main observable differences in the
general phenomena which is of interest are noted. Secondly, these are
often transformed into categories which are discernable and which very
often are linked along some dimension. Third, these categories are
represented in a set of instructions so that placement of the phenomena
is possible, facilitating scoring. Fourth, the manual is tested and
revised such that anyone who uses it, when following the instructions,
will arrive at the same placement of the phenomena within the categories.
Fifth, the significance of the categories, which are related to the
entity being measured (in this case information level, and integrative
complexity) is assessed against some criterion of performance. This
criterion might be, for example, observed behaviour, or another test
score.

It was decided to develop a more rigorous scoring procedure than
those used in many similar experiments.[2] The scoring is on an eight-
pointscale with a score of 0 for no response or failure to understand the
topic. The categories after this relate to the content of the response
in terms of information (irrespective of, for example, complexity or
originality), and are given progressively higher scores. A score of 1
is given if the interviewee responds after a prompt (that is, after
explanation of the stimulus) but at the same time gives either no

information or incorrect information. Scores above 1 increase as the
respondent exhibits greater familiarity with the topic, gives full rather
than partial descriptions of the topic, is able to talk in general as well
as specific terms (i.e. is able to give information regarding the general
nature of the topic) and introduces reference to figures/data from
official sources or from the relevant literature. Appendix B contains
the interviewer instructions and scoring manuals.

Most important, the scoring manual (see Appendix B) is supplemented
with examples which indicate to the scorer the scope of each category
and thereby specify the requirements for scoring for each topic. An
inter-scorer reliability score of 0.90 was obtained for the information
test during preliminary testing on two samples of students (see
Appendix B).

Integrative Complexity

Whilst the development of a test to measure information level is not
particularly difficult (except perhaps in the fifth stage, that concerned
with 'validity'), the development of an integrative complexity measure is
extremely so. The greatest problems arise from the need to link the
measure conceptually to its theoretical foundations for the purpose of
validation. One must be constantly aware of the nature of the categories
used and their limits, and of their 'meaning' in theoretical terms.

Sufficient has been written in previous sections on the notion of
integrative complexity. In a research context, however, the 'meaning' of
integrative complexity is determined, in an operational sense, by the
technique developed to measure it, and the insight into the subject area
that this provides. Although a scoring manual will indicate what is
assumed to be measured and how, it does not tell one why it is so
measured. It is therefore proposed to describe the scoring manual in
this section, and to discuss the mechanics of the test in proceeding.

First one can recount the general instructions contained in the manual:-

" ... 1. We are concerned with the respondent's cognition of problems
        associated with the topic (stimulus).

    2. Do not confuse complexity with the amount of information
       given by the respondent. A response only fails to score
       if it is a restatement of the topic.

    3. Thus, a response is scored as soon as one element/
       aspect of a problem is identified, or where an analysis
       or description of the topic is offered.

    4. Any simple statement (e.g. description) of the topic
       will show many of the characteristics of complexity
       under consideration (see Type A and Type B, below).

    5. The topics under consideration are only stimuli. There
       are no right or wrong answers. If the respondent
       wanders from the theme of the topic it does not matter
       - we're only interested in the complexity of what he
       says ..."

Scoring is based on a number of five-point scales applied to each
topic. There are 8 scales in all, each based on simple distinctions or
dichotomies between types of response. Responses are taken to indicate
general tendencies to view topics in accordance with two cognitive styles,
these styles being represented by the distinctions.

Thus one can discern a tendency to respond in different ways to
planning issues, illustrated by the following distinctions:-

	Type A	Type B
1.	Physical/Material	Cultural/Behavioural
2.	Individual (personal)	Social (ethical)
3.	Static	Dynamic
4.	Specific	General
5.	Concrete	Abstract

6.   Unrelated   Interrelated

7.   Simple   Complex

8.   Descriptive   Analytic

The differences between type A and type B can be described thus:-

"... 1. A. When reference is made to physical/material aspects
of the topic

B. When reference is made to cultural/behavioural aspects
of the topic

2. A. When topic is discussed from the point of view of
the respondent, that is, in terms of his personal
situation

B. When topic is discussed from the point of view of
the community as a whole, or sections within it

3. A. When reference is made to a topic or situation, <u>as</u>
<u>it exists</u>

B. When reference is made to the processural or historical
nature of a situation

4. A. When reference is made to a specific entity, for
example, the West Midlands

B. When reference is made to general categories, for
example, 'conurbations'

5. A. When reference is made to elements which might be
observed, for example, socialist parties

B. When reference is made to elements which can only
be deduced by inference and conceptualisation, for
example, socialism.

6. A. When reference is made only to the topic itself

B. When reference is made to the interrelations
between the topic and other areas of interest

7. A. When reference is made to only one aspect of the

    topic or one element of a problem associated with

    the topic

    B. When reference is made to different aspects of the

    topic or different elements of a problem associated

    with the topic

8. A. When response is only in terms of a description of

    the topic or identification of problem(s) associated

    with it

    B. When response is in terms of identification of

    problem(s), diagnosis of the causes of the problem(s),

    and solutions to the problem(s) ..."

The five-point scales mentioned earlier are based on combinations
of these styles and indicate differences in response between integratively
simple and integratively complex persons.

The general scale is of the form:-

"...

SCORE:	1	2	3	4	5
	Uses only Style A	Specifically uses style A but indication of style B	Uses only Style B	Specific use of styles A and B, separately	Interrelated use of styles A and B

Integratively ←————————————————————→ Integratively
Simple   Complex

..."

In the manual these categories are expanded to indicate the meaning
of the scales for each topic. Three examples are given below:-

..."

	Physical/Material		vs	Cultural Behavioural	
SCORE	1	2	3	4	5
	Physical/ Material Only	Intermediate	Cultural/Be-havioural Only	Intermediate	Physical/ Material and Cultural/ Behavioural Interrelated

	Simple		vs	Complex	
SCORE	1	2	3	4	5
	One element of problem	One element specifically but indicates others	Specific reference to a number of elements (separate)	Indicates relations between elements(eg orderings)	Specific interrelation of elements of a problem

	Descriptive		vs	Analytic	
SCORE	1	2	3	4	5
	Problem. Identifica-tion/descrip-tion	Problem id-.entification but indicat-ion of diag-nosis and solutions	Specific reference to diagnosis and solutions/ separately	Indication of relations between problems identified, diagnosis and solution	Specific interrelations between problem identification, diagnosis and solutions

..."

Finally, example statements from recordings are given for the scorer's guidance, indicating the use of the categories.

The test therefore utilises a five-point scale of integrative complex-ity based on the degree to which respondents tend to use two cognitive styles, A and B, characterised by simple distinctions in verbal behaviour. The scoring sheet for the manual is illustrated below in Fig.3. Each box on the sheet would have a score from 1 to 5. During preliminary test-ing (see Appendix D3) an inter-scorer reliability of 0.82 was found.[3]

FIGURE 3 INTEGRATIVE COMPLEXITY: SCORING SHEET

SCORE:	1	2	3	4	5
	Uses only Style A	Specifically uses Style A but indication of Style B	Uses only Style B	Specific use of Styles A and B separately	Interrelated use of Styles A and B

	Topic															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Physical/Material																
Cultural/Behavioural																
Individual																
Social																
Static																
Dynamic																
Specific																
General																
Concrete																
Abstract																
Unrelated																
Interrelated																
Simple																
Complex																
Descriptive																
Analytic																

An Outline of the Fieldwork

This final section consists of a description of the surveys which were undertaken. Chapter 8 below, offers a description of findings.

In a research situation such as this, the surveys must be tailored to suit limited financial and manpower resources. The scope of the surveys in terms of sample size is further constrained by the in-depth nature of the techniques themselves (for example, it takes three hours to interview and score <u>one</u> person for information level and integrative complexity). In recognising that over a period of time some people were interviewed for information level and integrative complexity twice <u>and</u> played the S.C.G., the time-consuming nature of the test sequence becomes apparent. However, this is certainly off-set by the extensive data provided.

The samples were taken randomly from the electoral register of two areas in Wolverhampton and two areas in Birmingham. The two areas of Wolverhampton were chosen for their expected differences in approach to strategic planning problems, arising from different social-structural characteristics, and for their different spatial position regarding certain strategic issues facing Wolverhampton. Thus one is an inner-city area, predominantly working class with a high proportion of immigrants; the other is an estate near to one of the areas of open space considered in the game as having potential for housing development and consists of predominantly middle class, professional households.

Two Birmingham samples were drawn from an area near to the university, thought to be equivalent to the inner-city area of Wolverhampton, but with major differences between the two in that one of the Birmingham samples was from an area of new council housing with high rise development.

A number of representatives of community organisations in Birmingham constituted the third Birmingham sample though there was no

possibility of developing a rigorous sampling frame. Finally, two samples of students were used, one of postgraduate planning students, the other of undergraduates in non-planning subjects.

For the information level and integrative complexity surveys (Phase 1 of the test sequence), the sample sizes are as follows:-

		Nos. of Respondents
Wolverhampton	A	40
	B	40
Birmingham	C	20
	D	18
	E	30
Students	F	15
	G	15

From these samples, random sub-samples were selected to play the S.C.G. (Phase 2 of the test sequence). Of these as many as possible were subsequently tested a second time for information level and integrative complexity (Phase 3A).

Phase 3 of the test sequence also included sub-samples which were used as control groups undergoing tests for information level and integrative complexity a second time, but with no intervening S.C.G. (Phase 3B), thereby controlling for any external changes during the test period (e.g. publicity which might be undertaken for the West Midlands Structure Plan).

The total numbers of interviews are detailed in FIG. 4, arrows from left to right in the Wolverhampton sample illustrating the test sequence for sub-samples. One can note that the total number of man-hours necessitated by the 380 interviews is in the region of 1,100 prior to any scoring and analysis.

FIGURE 4

Test Sequence		PHASE 1 Complexity/Information	PHASE 2 SCG	PHASE 3 Complexity/Information A	B
SAMPLES					
Wolverhampton	A	40 ⟶	20 ⟶10		10
	B	40 ⟶	20 ⟶10		10
Birmingham	C	20	15	5	5
	D	18	13	5	0
	E	30	20	10	5
Aston University	F	15	10	10	5
	G	15	10	10	5
		178	110	60	40

TOTAL: 388

Samples of students were used in the preliminary testing of the techniques (described in Appendix D3).

Superimposed upon this survey structure were the different formats of the S.C.G. used in Phase 2. The three formats mentioned earlier were used with or assistant to the interviewer. A very small number of respondents in the Birmingham sub-samples were invited to play the S.C.G. at the University with the aid of a computer, making a fourth, but for much of the analysis this is treated within the category relating to the full format (i.e. MCI) as its structure and content are exactly the same.

Format 1 (MCI) is the full format of the S.C.G. Format 2 (MI) was chosen because the M.A.U.T. should always be combined with an 'implications', that is, feedback process. Sample size for Format 3 (CI) was relatively small because the aim of the fieldwork was to study the more complex game formats, i.e. those with M.A.U.T.

Thus in Phase 2, the numbers playing different formats of the game were as follows:-

Phase 2: Numbers of Respondents

Sub-Sample	Format 1 MCI	Format 2 MI	Format 3 MC
A		16	4
B		16	4
C	5	5	5
D	5	4	4
E	15	5	
F	10		
G	5	5	

The survey arrangements above therefore enable one to investigate the effects of the S.C.G. on integrative complexity and information level; the effect of cognitive organisation on task performance across a range of formats; the differences between use of a computer terminal and an assistant on the S.C.G.; correlations between information level and integrative complexity; the differences between diverse groups'cognition of strategic issues; as well as giving valuable general information on the respondent's choice of future strategies for Wolverhampton. As well as undertaking split half tests of reliability, the survey arrangement also facilitated the testing of the Test Battery measures for reliability over time (that is, test-re-test).

NOTES

1. This is an important distinction and is discussed in detail in Part 3 (Chapter 9) where a distinction is made between those techniques which impose stimuli and response modes on respondents, and those which do not.

2. One test, used in a well known study, scored information level according to the scheme: 'no information', score 0
    'partial information', score 1
    'complete information', score 2 or 3
    (Barker, 1974)

3. One might also have compared these scores with general complexity scores from the Schroder test on the same sample. However, time/ resources did not permit.

CHAPTER 8

RESULTS

The main objective of this chapter is to discuss the substantive results of the surveys as they relate to the research strategy described in previous chapters. These results provide a basis for the broader conclusions and recommendations of the research which are dealt with in Part 3, where the general themes formulated in Part 1 of the thesis are again examined.

Rather than outline all of the results in detail, many of the technical elements have been placed in Appendices. The chapter is therefore intended to provide a summary which will give an impression of the breadth and depth of the testing procedure and its output in terms of assessing the SCG.

The discussion of results is undertaken in four parts:- firstly, an analysis of the output of the SCG in terms of the Options (that is, strategies) chosen for Wolverhampton by respondents; secondly, a discussion of the test battery (that is IC and IL) results from Phase I surveys which illustrate the different abilities and experience that respondents bring to the 'game situation'; thirdly, an analysis of the effects of these different abilities on respondents' task performance on the SCG; and fourthly, an assessment of the effects of playing the SCG on these individual characteristics, based on the Phase III (IC and IL) surveys. The chapter concludes with a summary and preliminary assessment of the SCG.

These four general directions to the testing and assessment of the SCG can be illustrated further by a number of brief questions, and it is around these that the chapter is specifically organised:-

1.1 What was the relative importance given to the individual attributes of SCG Options by respondents?

1.2 What were the Internal and External option choices made by respondents during the SCG?

2.1 What sub-sample differences were found in IC and IL?

2.2 What is the relation between IC and IL?

3.1 What are the general sub-sample differences in task performance on the SCG?

3.2 Does task performance differ significantly between different formats of the SCG?

3.3 Do some sub-sample groups perform better on some formats than on others?

3.4 Do some IC and IL levels perform better on some formats than on others?

3.5 What is the relation between Task Performance, and IC and IL?

3.6 Is there a function containing the relation between Task Performance, IC and IL, and Task (i.e. Format) Complexity?

4.1 What are the effects of playing the SCG on the IC and IL levels of respondents?

4.2 How much is this change due to Format, original IC and IL levels, and Task Performance?

Before commencing with the discussion of results and the examination of these questions, it is appropriate first of all to give the reader some details on the samples used in the fieldwork (statistical details of sample characteristics are presented in Appendix D1).

The Samples

The primary aim of the fieldwork was to assess the usefulness of the
SCG as a tool for eliciting responses to strategic planning issues, and to
do this with specific reference to the cognitive capacities of respondents
to handle the type of information and tasks necessitated by the SCG. The
choice of sub-samples, and indeed the research design generally, was
conditioned by the fact that these aims entailed neither the need to deter-
mine the representative response of the population of Wolverhampton to the
components of the Wolverhampton Structure Plan, nor to investigate the
relations between the cognitive variables and other population character-
istics (such as IQ or SEG). The latter research aims were beyond the scope
of this study, and certainly beyond the resources available to it.

The samples were not chosen, then, in order to draw inferences regard-
ing the characteristics of some wider population, but rather in accordance
with an experimental research design which required selection on the basis
of expected differences in cognitive abilities and values regarding strat-
egic planning issues.

It was decided to select two discrete areas of Wolverhampton with
relatively homogenous conditions within each in terms of environmental
conditions (age, type and tenure of dwelling was used as an indicator of
selection) and associated social and economic characteristics, in the
expectation that the differences between the two would be reflected in
different desired strategies for Wolverhampton arising out of the SCG.
One of the areas, Parkfield, is an area of pre-World War I terraced housing.
Typical of many inner residential areas of large cities, it can be character-
ised in terms of poor social and environmental conditions, lack of amenities,
high unemployment, 'social disorganisation' resulting from population loss
to outer areas and corresponding influx of culturally heterogenous groups
and ethnic minorities.

The other Wolverhampton area, Blackenhall, is a suburban area, near to a golf course mentioned in the Structure Plan as having potential for housing development. The houses are pre-World War I and inter-war semi-detached and detached, with large front and rear gardens, mature trees and shrubbery. It can therefore be characterised as possessing high environmental quality, is inhabited by professional and middle income groups, and is not subject to the range of social, economic and environmental disadvantage which characterises Parkfield.

An inner area of Birmingham equivalent to the inner area of Wolverhampton was also chosen. The generalised nature of the tasks within SCG (see Chapter 4) would not make the game any more difficult for inhabitants of urban areas facing problems similar to Wolverhampton, and indeed in terms of the opportunity for eliciting judgements based on relatively abstract information (i.e. little information from personal experience), would facilitate valuable comparisons within the research design. These judgements would approach what might be termed 'ethical judgements' in that Birmingham respondents would not gain or lose as a result of particular choices.

The Birmingham area chosen was itself composed of two quite distinct areas, of different social and environmental qualities, and one example was drawn from each. The first, named here Saltley I, is equivalent to Parkfield and is characterised by pre-1919 terraces, with a high proportion of New Commonwealth Immigrants. The second, Saltley II, is an area of 1960's council housing, with some high rise development and lies, as does Saltley I in the shadow of Saltley Gasworks. The two areas are separated by a major radial route from the city centre which is approximately $1\frac{3}{4}$ miles away, yet they share a similar position with respect to many strategic problems, such as accessibility to employment, as well as having local facilities and problems in common.

The sampling frame used for these four areas was the electoral register. A disadvantage often experienced with the latter is that housewives predominate among respondents. This bias. was reduced as far as possible by also extending interviews into non-working hours, though bias in terms of age (i.e. no-one under 18 years was interviewed) still enters into the design.

Three other sample groups were used in the fieldwork, though random samples from a rigorous and complete sampling frame were not possible. The first, a number of members of community organisations, tenants associations and local action groups was chosen to reflect those groups which might be expected to make representations to the planning authorities regarding the contents of a structure plan. They were, however, asked to respond individually rather than as representatives of their respective organisations.

The final two groups, of postgraduate planning students on the one hand, and non-planning undergraduates on the other, were again chosen in the expectation that comparisons in terms of SCG choices and task performance could be controlled. Although cultural background and general ability (e.g. IQ) would be similar in these two groups, differences could be expected between the groups arising from differences in disciplinary background and training. Thus differences between the two often illustrate differential access to planning concepts and language, and are drawn on specifically in the following sections.

Thus the samples were chosen in the expectation that the Phase II surveys (SCG) if successful, would be able to pick up differences in choices/preferences made by the different groups, as well as offering the possibility of wide differences in task performance. As has been mentioned, this latter variable is important to the experimental design as it links the SCG to the major independent variables which are of concern - those

related to Information Level (IL) and Integrative Complexity (IC). It was expected, for example, that the planning students would have the highest measured levels of information level and integrative complexity regarding strategic planning issues, and that those in inner city areas would have the lowest, and that this would be reflected in task performance. The aim of the development and testing of the SCG was, of course, to develop a game which could cater for these differences whilst maintaining the necessary levels of complexity, abstraction and interrelatedness of issues which characterise strategic planning levels.

The items in the test battery were designed to be of a generalised nature (e.g. the "problems of inner city areas", or "the Green Belt in the W. Midlands"), with more specific items being controlled according to place of residence (e.g. those in Wolverhampton are asked for "the most important problems facing Wolverhampton" whereas those in Birmingham are asked for "the most important problems facing Birmingham"), thus accommodating residential differences and making comparison possible.

The surveys were carried out during the period June 1977 to February, 1978. In order that the effect of playing the SCG on information level and integrative complexity could be reasonably measured, a maximum of three weeks was allowed between Phase 2 and Phase 3 interviews for any single respondent. The Phase 3A interviews were arranged by appointment with the interviewee during the Phase 2 visit, all other interviewers were preceded by a letter of introduction. Attempts were made to contact persons for interviewing at least three times before the interview was abandoned.

1. The Output of the Strategic Choices Game

The choices made by the different sub-sample groups regarding strategic alternatives for development is obviously of importance to this analysis, as this would constitute the principal output of the SCG if used in participation practice. Analysis focussed on two main areas - on

respondents' detailed choices regarding the specific attributes which characterise the broad strategic Options, and on the general Option Choices themselves, both internal and external to Wolverhampton.

1.1 Choices on SCG Attributes

During the SCG, and specifically in the MAUT sections of the game, a detailed measure of the relative importance to the respondent of changes in specific attributes of the general options was obtained. In the absence of the MAUT, respondents still had to consider the attributes, but were only required to rank them. The structure of the SCG enabled the interviewer to feed-back to the respondent the implications of these attribute-values for specific sites which were considered for development by Wolverhampton District Council. On the basis of this feedback the respondent would be asked to consider again his general option choices.

It must be noted, however, that the MAUT was not used as a decision-criterion in the SCG, but rather as a decision-aid. Thus although assumptions can be made about the cardinal nature of the MAUT data, these will not be made here. Of course, this negates the use of any social choice rules utilising interpersonal comparability and intensity of preference assumptions. However, the raison d'etre for inclusion of the MAUT in the SCG was structural - it was used to decompose very complex policy options so that they were easier for the respondent to handle and so that detailed information about specific attributes can be presented to respondents for their use. In this section, then, only information on ranking of attributes is used, for illustrative purposes.

The attributes which respondents were asked to consider (for more details see, again, the SCG scripts in Appendix A) were:-

INTERNAL - SCG PART 1

x_1 Access to Employment

x_2 Radial Route Loading

x_3 (Present) Townscape Value

x_4 (Present) Open Space Potential

x_5 (Future) Residential Environmental Value

x_6 Agricultural Value

EXTERNAL - SCG PART 2

x_1 Access to jobs by public transport

x_2 Access to jobs by private transport

x_3 Access to jobs in Wolverhampton by public transport

x_4 Access to jobs in Wolverhampton by private transport

x_5 Development of areas of high landscape value

x_6 Development of areas of Grade I and II Agricultural land and forest

In order to examine group differences in the data, a form of lexi-cographic ordering of group scores, modified to make it responsive to the transitivity of individual orderings, was utilised. (For full details of the method see Appendix D2). The output from this method is contained in Tables 8.1 (overleaf) which illustrate the order of importance of specific attributes in each sub-sample group's consideration of sites for development. 1 indicates the highest ranked attribute, 6 the lowest ranked.

One can make some general comments on the group differences in response to the SCG.

Of the attributes of Internal Options, x_1 (access to employment) was generally ranked highest, that is it was treated as being of relatively greater importance by respondents in evaluating options. The only exceptions were the Blackenhall and Saltley II sub-samples which ranked x_3 (present townscape value) highest and x_1 second. The Blackenhall scores are, perhaps, to be expected as a concern for preserving present townscape would

Table 8.1   Group Lexicographic Orderings of SCG Attributes

INTERNAL - SCG PART 1

| | Group Ranks | | | | | |
| | Highest | | | | | Lowest |
	1	2	3	4	5	6
Parkfield	x_1	x_5	x_4	x_3	x_2	x_6
Blackenhall	x_3	x_1	x_4	x_2	x_5	x_6
Saltley I	x_1	x_5	x_4	x_3	x_2	x_6
Saltley II	x_3	x_1	x_5	x_2	x_4	x_6
Community Reps	x_1	x_5	x_4	x_2	x_3	x_6
Planning Students	x_1	x_3	x_2	x_4	x_5	x_6
Non-Planning Students	x_1	x_3	x_5	x_4	x_2	x_6

EXTERNAL - SCG PART 2

| | Group Ranks | | | | | |
| | Highest | | | | | Lowest |
	1	2	3	4	5	6
Parkfield	x_3	x_1	x_4	x_2	x_5	x_6
Blackenhall	x_2	x_1	x_4	x_3	x_5	x_6
Saltley I	x_3	x_4	x_2	x_1	x_5	x_6
Saltley II	x_3	x_4	x_2	x_1	x_5	x_6
Community Reps	x_3	x_2	x_1	x_4	x_5	x_6
Planning Students	x_3	x_1	x_2	x_4	x_5	x_6
Non-Planning Students	x_3	x_1	x_2	x_4	x_5	x_6

reflect the socio-economic make-up of the area and its proximity to a major area of open land (a golf course) considered for possible residential development. No similar explanation is available for the Saltley II results, although it should be noted that the Saltley ranking between x_3 and x_1 was marginal, being a revised ranking under the lexicographic method adopted (for further details see Appendix D2).

Of the Internal attributes, x_6 (present agricultural value) was ranked lowest by all sub-samples, and ranked fifth or sixth by 57% of all respondents. Transportation effects (x_2) were also placed generally low by most sub-samples in their consideration of internal options.

In considering the attributes of External Options, similar patterns were evident. Attributes x_5 and x_6 were consistently ranked low, 55% and 54% ranking them fifth or sixth, respectively. Attributes x_5 and x_6 covered development of land of high landscape or agricultural value.

The highest ranked External attribute was x_3, access to jobs in Wolverhampton by public transport from overspill areas, with the exception again of Blackenhall which ranked access to jobs by private transport within the overspill area (x_2) highest, with x_3 ranked fourth.

Access to jobs in the overspill areas by public transport was generally ranked second by the sub-sample groups, except for the two Saltley samples which ranked access to jobs in Wolverhampton by private transport second.

These general findings indicate that the distance between Wolverhampton and the overspill areas is perceived as being problematic, especially when considering access to employment, and that the main way in which the structure plan should ease the problem, as far as respondents are concerned, is through the provision of public transport.

The discussion of results can now proceed to examine in more detail the External and Internal Options chosen by respondents, on the basis of the

in-depth consideration of attributes undertaken by them during the middle
sections of the SCG.

1.2 Option Choices in the SCG

The four Internal Options for development were, briefly:

Option 1 committed development

Option 2 allocation of one major site for residential development,
plus a number of smaller ones

Option 3 as in option 2, plus a number of large sites, including a
park, a golf course, and some agricultural land

Option 4 maximum of development within the district.

The three External Options were, briefly:

Option 1 peripheral development

Option 2 development close in to Wolverhampton

Option 3 at locations further afield.

The percentage of people within each sub-sample choosing specific
options were as follows:-

	INTERNAL OPTIONS				EXTERNAL OPTIONS		
	1	2	3	4	1	2	3
Parkfield	10	24	45	25	35	50	15
Blackenhall	15	50	25	10	35	45	20
Saltley I	20	33	40	7	40	48	12
Saltley II	13	48	26	13	40	40	20
Community Reps	25	30	30	15	30	50	20
Planning Students	30	40	20	10	30	70	0
Non-Planning Students	50	40	10	0	50	30	20
% of Total Sample	21	36	30	13	36	47	16

Table 8.2   Percentage of sub-samples choosing Internal and External Options

A number of general comments can be made about these choices.
Firstly, with regard to internal options there was a tendency to choose
options other than Option 4. The inner area of Parkfield showed the
highest proportion choosing this option. The main proportion of respond-
ents, however, chose either Option 2 or Option 3. However, there were
significant differences between sub-sample groups. For instance, a much
higher proportion of Community Reps and the two Student samples chose
Option 1 (minimum of development within the district) whilst the four
area samples obviously chose options with a greater amount of development
in the Wolverhampton District.

Secondly, there was a general tendency with sub samples to choose
External Options 1 or 2, with a low proportion of respondents choosing
Option 3. This is exemplified by the Planning Students who showed least
inclination to choose option 3, 70% of them choosing Option 2.

Clearly, then, people did not choose Internal Options 1 or 4, or
External Option 3, in great numbers. A general conclusion, then, is that
respondents did not favour either the minimum or maximum of development
within Wolverhampton District, nor did they favour the development of
residential sites at locations some distance from Wolverhampton.

The internal and external choices that respondents made are of
interest not only in themselves, but in the combination of the two. This
is important mainly because one of the avowed aims of the SCG is to get
people to make a consolidated choice. In fact, some combinations of
internal and external choices are incompatible and provide one of the
'consistency' measures used in the examination of task performance
described later in the chapter. The combination of Internal Option 1 and
External Option 1, for example, could not provide the residential develop-
ments necessary to meet projected population increase and housing need.

In all there are 12 possible combinations of option choices that

respondents can make. The numbers choosing each of these combinations are illustrated below in Table 8.3.

	OPTION CHOICE COMBINATIONS											
	1-1	1-2	1-3	2-1	2-2	2-3	3-1	3-2	3-3	4-1	4-2	4-3
Parkfield		2		3	1	1	3	5		1	2	2
Blackenhall	2	1		3	6	1	2	1	2		1	1
Saltley I		2	1	1	3	1	5	1			1	
Saltley II	1		1	4	2	1	1	3			1	2
Community Reps	2	3		2	3	1	2	3	1		1	2
Planning Students		3		2	2		1	1			1	
Non-Planning Students	2	3		3		1			1			
TOTAL	7	14	2	18	17	6	14	14	4	1	7	6
% of TOTAL	6	13	-2	16	15	-5	13	13	4	1	6	-5

Table 8.3   Sub-Sample Combinations of Option-Choices

Clearly, the larger proportion of respondents favour the combination of either Peripheral Development or Development at sites close in to Wolverhampton, with Internal Option 2 (allocation of a major site and a number of smaller ones in Wolverhampton for residential development). These are combinations 2-1 and 2-2.

Substantial proportions of the total sample also chose the following combinations:- 1-2, 3-2 and 3-1. However, as the first of these includes Internal Option 1 which was not chosen by a great number of respondents, the other two combinations seem more important. Again these would combine either Peripheral Development or Development close in to Wolverhampton, but this time with Internal Option 3 which involves greater allocation of land in Wolverhampton for residential development than Option 2.

As mentioned earlier, during the final stage of the SCG the respondent

chooses an Internal and External option for development for Wolverhampton.
Although the procedure which leads up to this final choice can be very
complex and includes decisions on, for instance, employment and on
location of specific sites for development, these secondary decisions were
not considered to be the substantive output and have not been discussed in
detail here.

Thus the principal output from the SCG is, for the purposes of this
work, a choice or judgement of a nominal order, between alternative options.
The cardinal data provided by MAUT on detailed policy issues is not
utilised here, although this would be perfectly valid if the assumptions
concerning the scaling of utilities, and individual trade-offs between
attributes which underly that use were made explicit. However, concentrat-
ion on final choices only places more emphasis on the procedures which led
up to those choices and our assessment of them. Before discussing the
assessment of task performance in more detail it is intended to continue by
describing the output of the test battery.

2. The Test Battery Results: Integrative Complexity and Information Level

2.1 Sub-sample differences in IC and IL

Sub-sample differences in information level and cognitive complexity
with regard to different strategic issues is important to this study in
that the differences may reflect different abilities to perform the tasks
which are contained within the SCG.

Analysis focussed on the differences between groups on the overall IC
and IL scores; and also on the differences in scores on specific items
(strategic issues) in the IL test and on the different elements of
integrative complexity.

The scores for information level range from 0-70 (average score per

topic X 10). The scores on integrative complexity range from 0-40 (total scores across the range of topics). The mean and standard deviations for all sub-sample groups on the measures are listed below.

	Information Level		Integrative Complexity	
	Mean	S.D.	Mean	S.D.
Parkfield	10.1	5.0	12.4	4.0
Blackenhall	18.5	5.6	15.4	4.8
Saltley I	10.5	4.8	12.8	4.5
Saltley II	14.2	4.0	13.6	3.5
Community Reps	27.3	7.8	22.2	8.5
Planning Students	37.0	6.3	21.2	3.4
Non-Planning Students	26.0	5.5	18.2	2.7

Table 8.4   Sub-sample scores on IC and IL

As expected, mean scores for IC and IL were higher for Planning Students than for any other group with the exception of Community Representatives who scored a little higher on Integrative Complexity. These were followed by Non-Planning Students, Blackenhall and Saltley II respectively. The lowest mean scores were exhibited by the two equivalent inner areas, Parkfield and Saltley I. These results more or less follow the mean scores ranking which was expected, and therefore indicate the choice of sub-samples on the grounds of expected differences in IC and IL.

Statistical tests were conducted to determine whether the samples came from populations with significantly different means. These illustrated that the expected similarity between Parkfield and Saltley (t- scores of 0.29 and 0.34 on IL and IC respectively), and the expected differences (for example, t- scores for Planning and Non-Planning students on IC and IL were 2.5 and 4.0 respectively - significant at the 0.05 level) were well founded.

Having considered the overall scores for IL and IC, analysis was then focussed more finely on the nature of the differences between the sample groups, by disaggregating the results to specific elements/components within the tests. Profiles were thereby produced indicating the differences between the sub-sample groups. The group profiles for Planning and Non-Planning students are presented in Fig. 8.1 (below) in order to illustrate these.

Details of the analysis are to be found in Appendix D3. An important general feature of the findings is that planning students who obviously have greater access to theoretical and technical information regarding strategic planning issues, always score higher on information level on those problem areas where this type of information can be brought to bear. In contrast, respondents from the inner area samples tended to illustrate low Information Levels on those problem areas where a technical/planning input is required, and highest on those where input from immediate social, economic and physical environment is possible (i.e. on the basis of personal experience). However, these scores were themselves <u>low</u> in comparison with the lowest scores of planning students (see Appendix D3 for further details).

These results, which illustrate social differences in cognitive complexity and level of information with regard to strategic planning issues, have important implications for the application of SCG and Strategic Response Techniques generally. For instance, they illustrate that when a respondent has very little information about strategic issues, extensive information dissemination will have to be a central feature of the structure of the strategic response technique. These implications are examined both in the summary to this chapter and also in Part 3 of the thesis.

2.2 The Relation between Integrative Complexity and Information Level

The degree of correlation, and the relation, between IC and IL is

FIG. 8.1   GROUP PROFILES ON INTEGRATIVE COMPLEXITY

(AVERAGE SCORES)
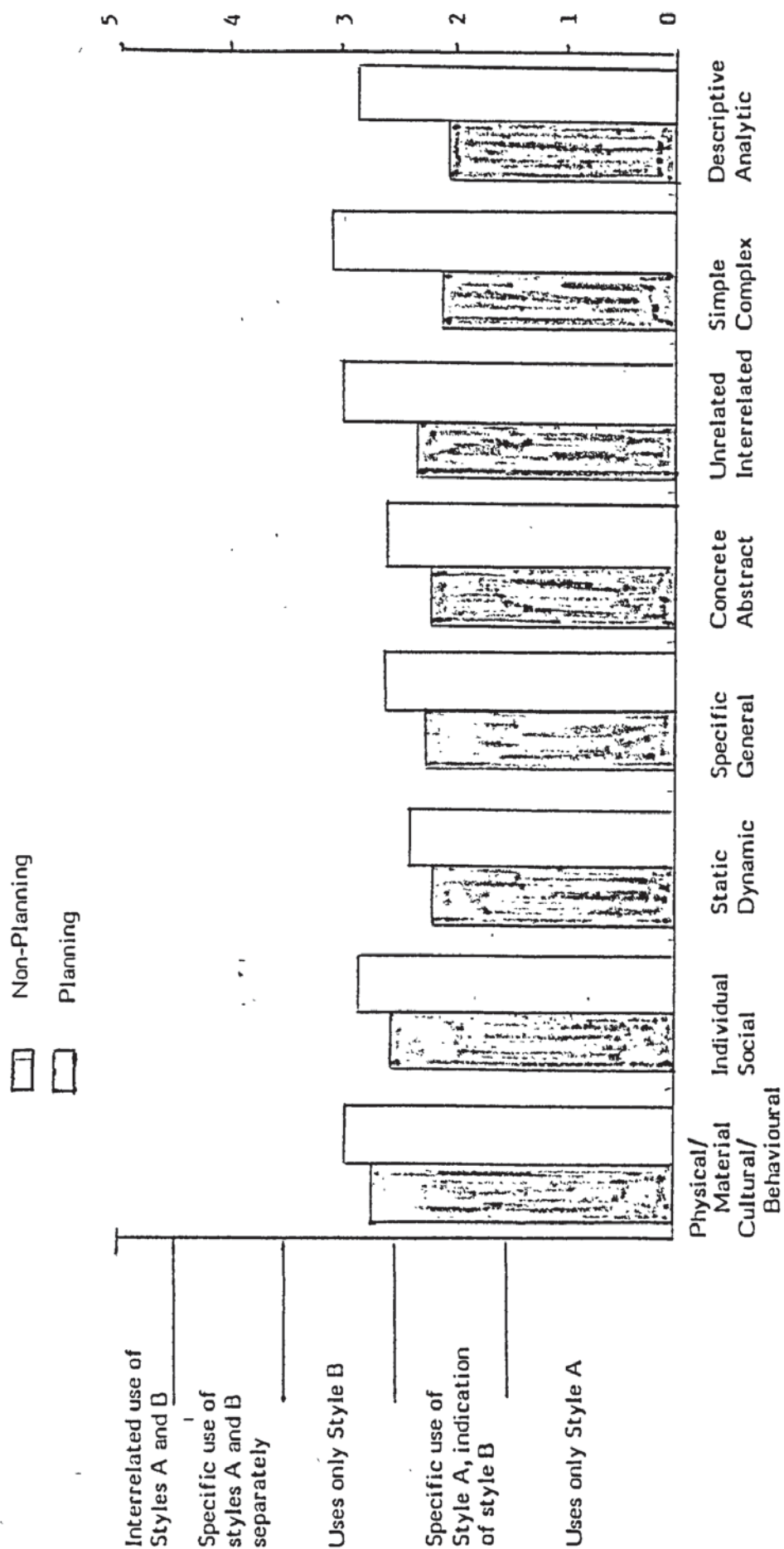
	Physical/ Material Cultural/ Behavioural	Individual Social	Static Dynamic	Specific General	Concrete Abstract	Unrelated Interrelated	Simple Complex	Descriptive Analytic
t =	0.85	1.62	0.90	0.86	1.50	2.43	3.69	4.01

FIG. 8.1 (Contd) GROUP PROFILES ON INFORMATION TEST

(AVERAGE SCORE PER TOPIC)
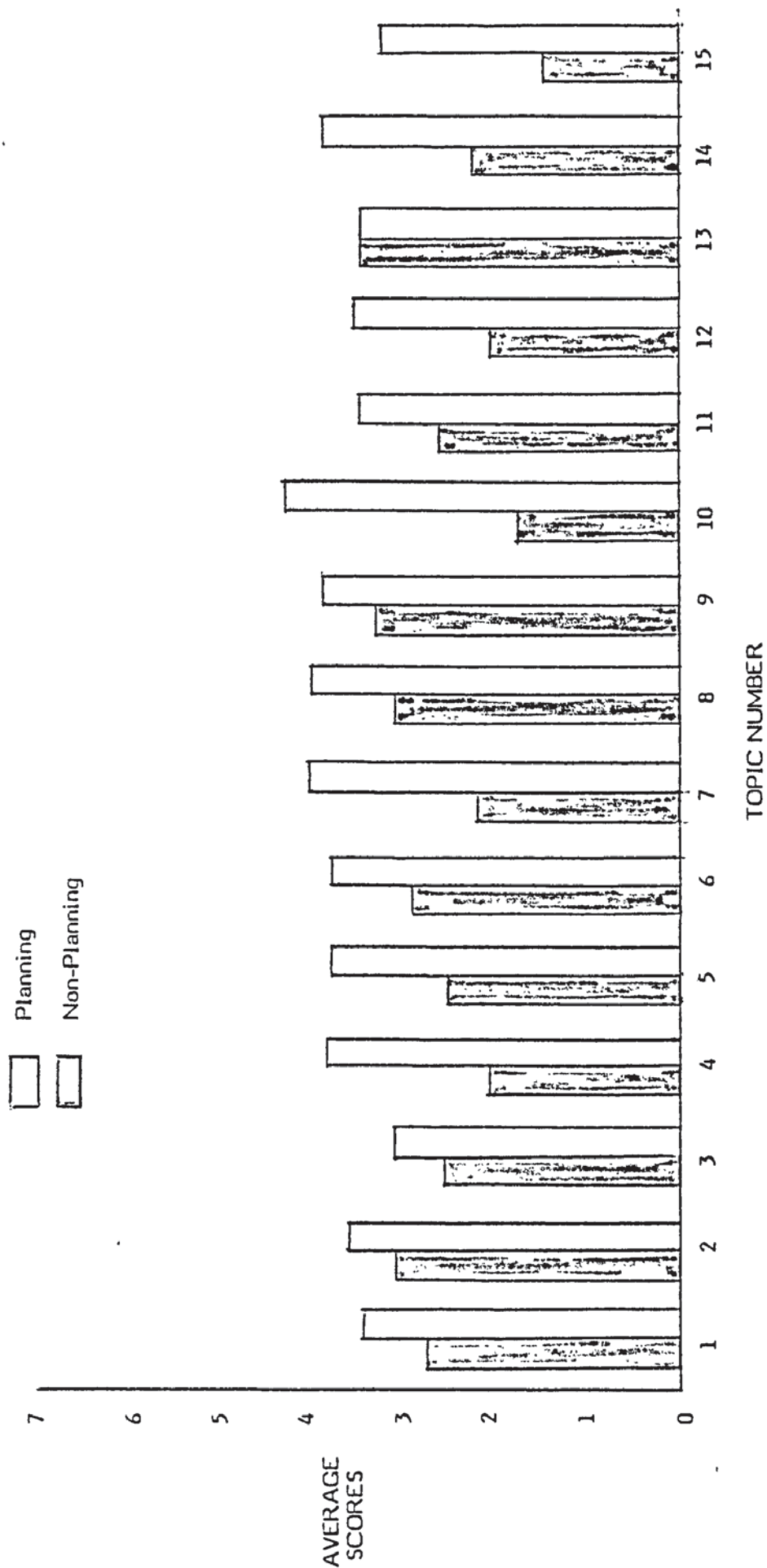
1.04	0.51	1.31	3.08	2.58	2.39	3.49	1.55	1.37	5.34	2.22	2.61	0	2.98	5.25	t scores
			*	*	*	*			*	*	*		*	*	(* significant t-scores at 0.05 level)

central to the model posited earlier and has important implications for the extent to which didactic/instructional elements of gaming techniques (and response techniques generally) can improve performance on tasks which require tracking of unusual information and complex decision making.

During the analysis, linear and non-linear correlation and regression analyses were undertaken, not only into the relation between IC and IL, but also into the relations between specific elements of IC and IL, and into the differences in these relations for different groups (for an elaboration and discussion see Appendix D3).

The most important general finding was a linear correlation of 0.69 between IC and IL. When a power function model was applied to the data, by taking the log. values of IC and IL, a correlation of 0.8 was found between them (note the changed co-efficient of determination). Figure 8.2 below illustrates the form of the regression function.
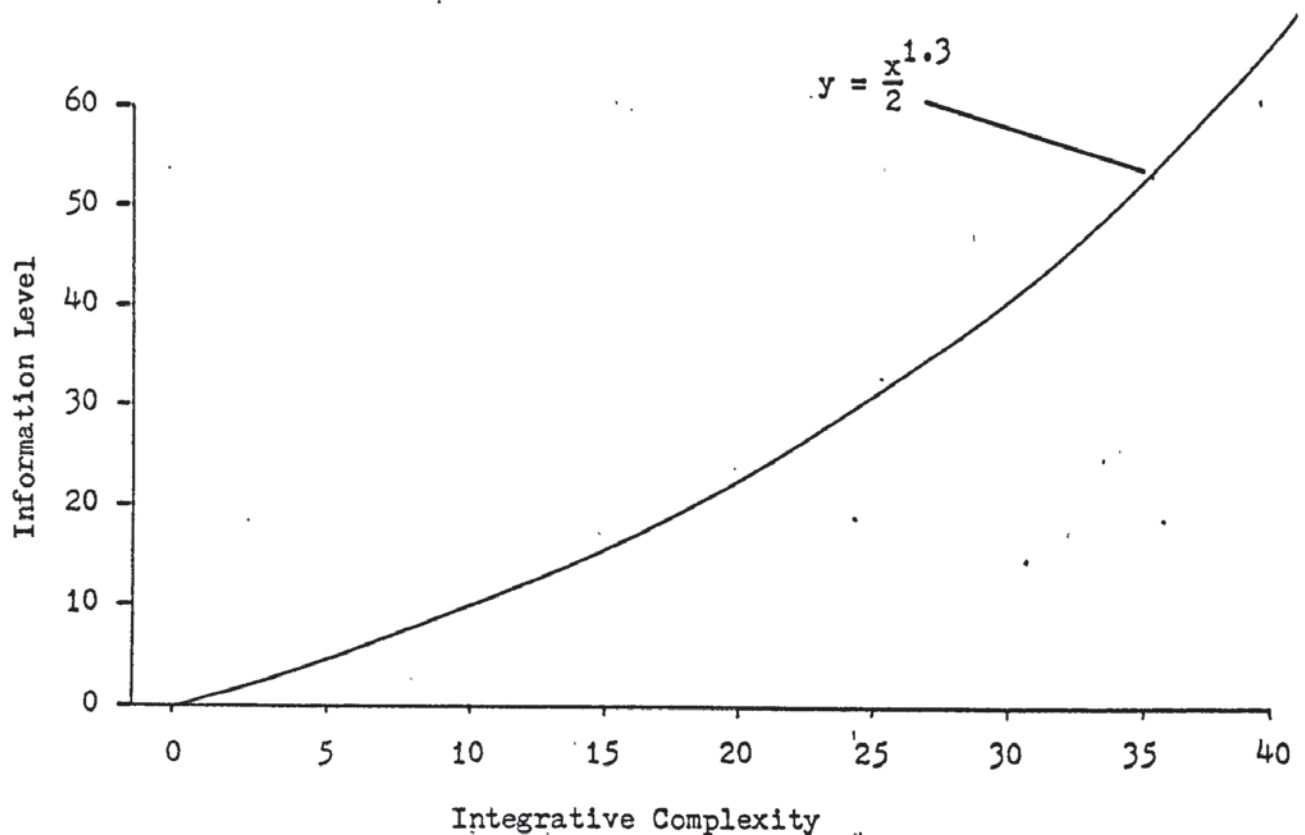
FIGURE 8.2 The Relation between Integrative Complexity and Information Level of Respondents

Thus those who deal with information on the basis of personal exper-
ience and immediate environments only (rather than technical information on
'strategic environments') illustrate associated low levels of Integrative
Complexity.

In particular it was found that information levels are highly
correlated with scores on the following integrative complexity dimensions:-
physical/cultural
individual/social
simple/complex
descriptive/analytical

Thus low information levels tend to be associated with tendencies to
think in terms of physical conditions rather than cultural manifestations;
in individualised terms rather than with respect to social or community
problems; at a low level of complexity; and in primarily descriptive fashion
rather than in an analytical way. This was illustrated in particular by the
inner area samples where low information levels were associated with
cognition characterised by a concern for immediate personal and family
problems, for simplistic issues (e.g. 'law and order') and based mainly on
descriptions of these problems and issues rather than analytical approaches
to them.

This again has implications for the design of Strategic Response
Techniques in that it illustrates the need for them to be structured (for
instance, by including iteration principles) so as to disaggregate or
decompose the more complex choices as far as possible to match differences
in cognitive styles. It also has implications for designing techniques in
that the low IL levels mentioned previously necessitate substantial
information dissemination, and yet paradoxically the associated low levels
of IC may limit the degree of information assimilation by respondents. Thus
the possibility that IC and IL reinforce one another (this is Harvey's link

between complexity and 'flexibility') must be taken into account during the testing of such techniques.

3. <u>Task Performance on the SCG</u>   .

The importance of the points above for the development and testing of techniques was illustrated in the assessment of the SCG, outlined in this and following sections, wherein an evaluation was made of the effects of different cognitive abilities on task performance in the SCG; and of the effects of playing the SCG on these individual characteristics.

The first elements of the analysis (3.1 and 3.2 below) covered the differences in the range of performance scores generally, and on different SCG formats, irrespective of the 'ability' of the interviewee.

3.1 General Sub-sample differences in Task Performance

Four basic measures were used to assess task performance:-
(i)   Time taken to complete the SCG (T)
(ii) The number of Extra Decisions/Amendments made by the respondent, over and above those required to complete a particular SCG format (E)
(iii) The level of Integration, being the difference between the number of positive and negative integrations exhibited during the game (P-N)
(iv) The number of Inconsistencies (In) in response. An example already given is the combination of certain Part 1 and Part 2 choices. .

The breakdown on these measures for sub-samples is illustrated in Table 8.5 overleaf. (At some points in the analysis, the normalised z-scores were utilised on a 50± 10 scale. These are indicated by (z) in the table. It can be seen that Community Representatives took far greater time to complete the SCG, on average, than did Parkfield, associated with higher levels of Extra Decisions and higher Integration levels. In fact, there seems to be a general correspondence between the sub-sample scores on Level

	Parkfield	Blackenhall	Saltley I	Saltley II	Community Reps.	Planning Students	Non-Planning Students
Time (%)	41 (1)	45 (2)	50 (3)	51 (4)	61 (7)	53 (6)	52 (5)
Extra Decisions	1.4 (6)	1.8 (4)	1.3 (7)	1.5 (5)	3.0 (2)	3.1 (1)	2.3 (3)
Level of Integration (%)	42 (5)	55 (3)	42 (5)	42 (5)	59 (1)	59 (1)	54 (4)
Number of Inconsistencies (%)	76 (7)	51 (4)	53 (6)	51 (4)	47 (2)	44 (1)	47 (2)
Time per Decision	40 (1)	47 (2)	51 (4)	55 (6)	61 (7)	49 (3)	53 (5)
Multiplexity	26 (7)	34 (4)	27 (5)	27 (5)	38 (2)	39 (1)	35 (3)
Time-weighted Multiplexity	38 (5)	49 (4)	32 (7)	33 (6)	66 (2)	81 (1)	60 (3)

Table 8.5   Sub-sample mean scores on Task Performance measures

(Ranks in parenthesis)

	Parkfield	Blackenhall	Saltley I	Saltley II	Community Reps.	Planning Students	Non-Planning Students
Time	62 (3)	68 (5)	70 (6)	73 (7)	66 (4)	53 (1)	61 (2)
Extra Decisions	.09 (5)	.12 (4)	.06 (7)	.08 (6)	.16 (1)	.15 (2)	.13 (3)
Time Weighted Multiplexity	29 (5)	37 (2)	25 (6)	25 (6)	37 (2)	42 (1)	36 (4)

Table 8.6   Sub-sample mean scores on Format-weighted Task Performance measures

(Ranks in parenthesis)

of Integration and on Extra Decisions, with the inner area samples
(Parkfield, Saltley I and II) performing less well. Further, these areas
along with Blackenhall, took less time on average to complete the game with
corresponding high scores on number of Inconsistencies.

In order to obtain a more balanced view of task performance it was
necessary to treat Time, Extra Decisions and Level of Integration together.
Thus the following 'combined' scores were also used:-

(v)   Time Per Decision, that is the time taken divided by the total number
       of decisions made in the game $\frac{T}{F+E}$, where F is the number of dec-
       isions in a particular format.

(vi)   Multiplexity, - the number of Integrations per Decisions, weighted
       by the number of decisions in the basic format, that is, $\frac{P-N}{F+E}$ F_x .

(vii) Time-Weighted Multiplexity - a function of Multiplexity and the
       number of extra decisions per unit time taken (i.e. weighted by $\frac{E}{T}$)

Again, these are illustrated in Table 8.5. For Multiplexity and T-W
Multiplexity there is an exact correspondence between the four highest
ranked mean scores (Planning Students, Community Representatives, Non-
Planning Students and Blackenhall respectively), with the lowest mean scores
on the two measures alternating between Parkfield and Saltley I, - the
inner areas. The rankings on these task performance scores are still,
however, diametrically opposite to those on Time and Time Per Decision,
illustrating perhaps that those groups who made more decisions and with
less inconsistency were taking a disproportionate amount of time to do so.

One limitation of scores (i) to (vii), described above, is that they
are dependent to a certain extent on the SCG format which was played, for
example some formats require greater time (because they have a higher
number of decisions to be made) and also each format provides the opportunity
to make a different number of extra decisions (through the processes of
amendment and consolidation). Therefore the three principal task perform-

ance measures were weighted in order to take account of these differences in format. This produced measures for:-

(i) 'Format-weighted' Time, that is $T \cdot \dfrac{F_1}{F_x}$ where F_1 is the number of decisions in Format 1 (MCI), divided by F_x, the number of decisions in the format actually played (these are 41, 30 and 19 for Formats 1, 2 and 3 respectively). Thus, those playing Format 3 (CI) would be weighted by $\dfrac{41}{19}$, to take into account the lower number of decisions in Format 3. See Appendix D4 for assessment of F_x and E_x.

(ii) 'Format-weighted' Extra Decisions, i.e. $\dfrac{E}{Max.E_x}$ where $Max.E_x$ is the maximum number of extra decisions which it is possible to make during the game.

(iii) 'Format-weighted' Time-Weighted Multiplexity, i.e. Time-Weighted Multiplexity weighted according to differences in the number of possible decisions in a format, where the weight is $\dfrac{1}{Max.E_x}$

The mean scores on each of these three measures for the sub-samples are shown in Table 8.6 above. One can see that by taking into account format differences the four area samples (Blackenhall and the inner areas) do comparatively less well on the Time measure than when scores were unweighted. The scores for each sample on different measures now look more consistent, with Community Representatives, Planning and Non-Planning Students always being consistently higher ranked, and with closer correspondence between rankings (note, for example, the scores for Saltley I on Time and Extra Decisions before and after format-weighting).

What this section has done is to outline the broad distribution of task performance scores for the different sub-samples. The general findings are that the two student samples showed consistently higher scores on most measures, but at the expense of a greater amount of time taken. The inner area samples scored consistently lower, again with the exception of time taken where they performed comparatively highly.

In the analysis that followed a deeper examination of the relations
between variables which underly measured scores (e.g. the changes in
inconsistency levels or decision levels as time changes) was undertaken,
as well as a closer look at differences in task performance on the differ-
ent SCG formats. Appendix D5 gives a detailed account of the analysis of
the relations between the task performance measures.

What was evident at this stage, though, was that analysing differences
in terms of sub-sample groups is limited. Although these are useful when
discussing, for example, the strategies chosen in the SCG by respondents -
and this is the principal output of the game itself - a more controlled
or definable independent variable is required for much of the analysis.
The ones used are, of course, Integrative Complexity and Information Level.

3.2 Task Performance on Different Formats of the SCG

Although the model posited earlier necessitates a consideration of
task performance as a function of both task complexity (format) and
Integrative Complexity and Information Level, it was necessary first of all
to examine task performance on each format of SCG, irrespective of the
cognitive 'ability' of the interviewee. The mean task performance scores
on each format are presented in Table 8.7 overleaf.

A more detailed discussion of the results is contained in Appendix D6.
However, one can generalise the differences in task performance on differ-
ent formats, as illustrated by the analysis, as follows:-

Format 1 (MCI) Respondents seemed to make a greater number of Extra Dec-
isions (weighted and unweighted for format), with fewer Inconsistencies (as
was hoped) but at the expense of higher Time spans Per Decisions, and
perhaps lower levels of Integration per decisions as illustrated by the
relatively low average levels of format weighted Time Weighted Multiplexity.

		Extra Decisions	Inconsistencies	Time Per Decision	Multiplexity	Time-Weighted Multiplexity	FORMAT WEIGHTED		
							Time-Weighted Multiplexity	Time	Extra Decisions
Format 1	Mean	55.8	46.3	58.5	34	63	33	61	.13
	S.D.	11.0	6.5	10.5	7.6	23	12	8	.07
Format 2	Mean	48.6	55.0	45.3	31	47	33	61	.11
	S.D.	8.1	7.3	7.1	5.3	11	8	6	.08
Format 3	Mean	42.8	59.6	47.6	28	26	29	87	.09
	S.D.	5.7	12.8	4.8	4.1	5	6	4	.08

Table 8.7   Mean Task Performance scores on different formats of the SCG

<u>Format 2</u> (MI) performance is characterised by lower mean Time Per Decision scores than F1 , but the number of extra decisions/amendments generated was on average lower than on F1 even when weighted for format differences. Also, the short Time spans Per Decisions and lower numbers of decisions lead to an increased number of Inconsistencies in response.

<u>Format 3</u> (CI) respondents had the lowest mean number of Extra Decisions (even when format weighted) and therefore of total decisions, and with higher mean Time taken when weighted for format. These account for the low Multiplexity and Time Weighted Multiplexity scores. There was also a much greater variance in the number of Inconsistencies among respondents' choices, whilst the mean level of Inconsistencies was highest of the three formats.

It seems then, that each format leads to particular sorts of trade-offs in terms of Time, Decisions, and Inconsistency measures of performance, though an elaborate analysis required the introduction of controls for different sub-groups and for Integrative Complexity and Information Level (see following sections).

3.3 Sub-sample Task Performance scores on SCG Formats

The next stage in the analysis was to examine sub-sample differences in task performance on the different formats of the SCG. Some of the main results are indicated in Table 8.8 overleaf, and a full discussion of these is contained in Appendix D6. The main general findings are as follows.

Firstly, significant differences were found in task performance by different sample groups. For example, planning students performed better than other groups on the general range of measures, but did so at the expense of greater time taken.

Secondly, significant differences are found in performance <u>within</u> any sub-sample group depending upon the format used (that is, depending on task

	Format	Extra Decisions (2) Mean	S.D.	Integration (2) Mean	S.D.	Time Per Decision Mean	S.D.	Multiplexity Mean	S.D.	T-W Multiplexity Mean	S.D.	Format Weighted Measures T-W Multiplexity Mean	S.D.	Time Mean	S.D.	Extra Decisions Mean	S.D.
Parkfield	1																
	2	46.9	6.8	48.2	8.7	39.5	2.6	26	3	419	74	30	5	49	7.3	0.09	0.06
	3	40.6	4.5	53.8	14.3	43.6	2.3	25	1	238	18	26	2	58	6.1	0.06	0.06
Blackenhall	1																
	2	49.9	9.3	50.1	10.9	46.1	2.2	34	5	525	123	38	9	68	-6.7	0.12	0.09
	3	46.5	7.5	53.8	14.3	49.2	3.1	32	5	324	58	36	7	76	11.1	0.14	0.11
Saltley I	1	42.9	6.5	48.6	8.2	69.0	6.3	25	4	305	86	16	5	125	15.8	0.04	0.04
	2	44.5	7.8	51.5	13.3	40.0	1.4	28	2	417	87	30	6	49	5.2	0.07	0.07
	3	41.4	4.3	57.5	14.9	44.6	2.4	27	4	253	32	28	4	61	7.9	0.07	0.06
Saltley II	1	47.6	7.0	45.6	6.7	69.0	6.4	24	3	327	86	17	5	127	16.7	0.07	0.05
	2	46.1	6.5	51.5	13.3	42.3	3.9	28	4	430	98	31	7	56	10.1	0.09	0.06
	3	42.9	6.5	54.5	12.5	52.6	4.4	27	3	245	42	27	5	84	15.0	0.09	0.09
Community Reps.	1	61.1	10.2	42.6	7.3	61.5	8.3	39	5	711	144	37	8	112	18.0	0.17	0.07
	2	52.3	11.0	45.6	6.7	57.7	3.1	36	3	510	124	36	9	100	12.2	0.14	0.10
	3																
Planning Students	1	58.5	10.0	44.1	4.7	48.7	2.2	39	6	806	168	42	9	76	8.0	0.15	0.07
	2																
	3																
Non-Planning Students	1	55.4	7.0	45.6	6.7	47.8	1.4	35	4	696	101	37	5	73	4.8	0.13	0.05
	2	52.3	5.5	48.6	8.2	57.4	4.2	35	3	495	56	35	4	97	11.6	0.13	0.08
	3																

Table 8.8   Task Performance for Sub-sample groups on SCG Formats

complexity). For instance, the four area samples perform better generally on Format 2 than on Format 1 or Format 3. The main differences surround the level of Integration, the number of Decisions made and the Time taken by respondents. It is important to note also that for all sub-samples, the level of Inconsistency was least on Format 1 and highest on Format 3. This was reflected also in the higher Time Per Decision taken in Format 1.

Thus it seems that those formats where choices are guided, where more information is available and where consolidation/amendment is possible, provide the best context for making strategic decisions. This is particularly true for the Planning Students, Non-Planning Students and Community Representatives sub-samples, whose scores were always better than the four area-samples, irrespective of format.

However, one can note that the two Saltley sub-samples did worse on Format 1, illustrating perhaps that it was too complex (it includes, e.g., the MAUT), whereas the greater complexity of information and didactic guidance of Format 2 over Format 3 facilitated improved performance on Format 2 at a level which is, perhaps, closer to an optimum level of task complexity. In particular, the mean score on T-W Multiplexity (format weighted) achieved by Blackenhall on Format 2 was higher than that of Community Representatives and Non-Planning Students.

However, as was mentioned in the discussion in Chapter 7, some tasks may be too 'simple', and one can note that no sub-sample group performed better on Format 3 than on the other formats - illustrating perhaps the inadequacies of simpler formats when dealing with complex decisions and the tracking of unfamiliar information.

3.4 Task Performance on SCG Formats for different IC and IL groups

In order to investigate task performance for different levels of Integrative Complexity and Information Level, the standard scores of IC and

IL were calculated on a 50 ± 10 scale. The following categories of IC and IL were then utilised:-

IC/IL Categories	z - score
1	35 and less
2	36 - 45
3	46 - 55
4	56 - 65
5	66 and more

Table 8.9 illustrates the resulting breakdown of mean task performance scores for a number of measures on each format.

The two most important general findings, the significance of which is illustrated in the following sections, were firstly, that respondents always take longer Time on Format 1 than on Format 2 and 3 respectively, but that on Time Per Decision respondents irrespective of IC and IL levels, consistently do better on Format 2.

Apart from these observations, however, the performance measures are confused and often contradictory, even accounting for irregularities expected in accordance with the U-curve hypothesis mentioned earlier. For instance, the number of Inconsistencies on Format 1 follows no apparent order.

It was apparent then, that the information obtained by relatively broad 'bands' did not indicate any regular patterns from which to draw detailed conclusions. Thus although there are obvious differences in Task Performance for different IC and IL bands, the directions of these were difficult to discern using arbitrary bands of IC and IL scores.

3.5 The Relations Between Task Performance, IC and IL

In order to take the analysis further, a much finer linear and non-

Measure	Format	IC 1 Mean	IC 1 SD	IC 2 Mean	IC 2 SD	IC 3 Mean	IC 3 SD	IC 4 Mean	IC 4 SD	IC 5 Mean	IC 5 SD	IL 1 Mean	IL 1 SD	IL 2 Mean	IL 2 SD	IL 3 Mean	IL 3 SD	IL 4 Mean	IL 4 SD	IL 5 Mean	IL 5 SD
Time	1	57	5	70	3	63	8	59	8	67	0	59	10	69	5	63	8	59	6	56	7
	2	44	4	41	0.2	43	2	47	5	47	3	49	9	43	2	46	4	48	5	49	0
	3	39	2	41	2	40	2	40	0			40	2	41	2	40	2				
Inconsistencies	1	47	7	53	9	45	6	46	7	43	0	43	0	50	8	46	7	46	7	45	6
	2	51	7	43	0	49	9	49	9	53	13	43	0	73	9	49	10	53	12	58	0
	3	58	21	56	12	51	12	72	0			48	.9	56	12	58	17				
Time Per Decision	1	57	12	72	2	60	10	54	8	68	0	56	14	70	6	61	10	56	9	52	8
	2	44	6	39	0	41	4	49	9	48	6	51	15	42	4	47	7	51	8	53	0
	3	45	5	50	6	46	3	47	0			48	5	48	5	47	3				
Extra Decisions	1	55	12	45	8	58	13	57	10	52	0	56	6	46	9	58	13	58	9	56	15
	2	47	7	45	0	47	7	49	7	53	12	56	6	46	7	51	9	48	11	52	0
	3	41	6	44	7	43	5	37	0			42	5	43	6	43	7				
Time-W Multiplexity	1	654	208	264	46	590	236	735	180	555	0	620	288	317	137	577	244	718	147	604	203
	2	467	100	383	37	416	74	487	82	411	152	545	3	395	67	530	105	504	84	574	0
	3	249	36	241	31	288	64	289	0			273	68	244	32	309	57				
Weighted format: Time	1	57	5	70	3	63	8	59	8	57	0	59	10	69	5	63	8	59	6	56	7
	2	60	5	56	0.2	58	3	64	7	64	4	67	13	58	3	63	6	66	7	67	0
	3	85	4	89	5	86	3	86	0			87	4	88	5	87	4				
Weighted format: Time-W Multiplexity	1	33	11	14	2	31	12	39	9	42	0	33	15	17	7	30	12	38	8	42	11
	2	34	7	27	3	32	5	35	6	40	11	39	0.3	28	5	38	8	36	6	41	0
	3	28	4	27	3	30	7	32	0			30	8	27	4	34	6				

Column groups: IC = INTEGRATIVE COMPLEXITY BANDS; IL = INFORMATION LEVEL BANDS

TABLE 8.9   Task Performance for Integrative Complexity and Information Level Bands on SCG Formats

linear correlation analysis was performed on the relations between IC, IL and task performance for different formats and also for all respondents irrespective of format.

The most significant correlations, irrespective of format were found between IC and IL and the task performance measures of Integration and Time-weighted Multiplexity. The log transformations were slightly higher than linear correlations, as illustrated in Table 8.10 below.

DEPENDENT VARIABLES	INDEPENDENT VARIABLES			
	IC		IL	
	Log	Non-Log	Log	Non-Log
Inconsistencies	0.09	-0.07	0.14	-0.12
Time	0.42	0.40	0.41	0.38
Integration	0.61	0.46	0.70	0.70
Time Per Decision .	0.33	0.33	0.30	0.24
Extra Decisions	0.38	0.33	0.43	0.44
T-Weighted Multiplexity	0.56	0.45	0.67	0.73
Format Weighted Multiplexity	0.42	0.31	0.53	0.56

Table 8.10   The Relations between Task Performance and IC and IL:

Pearson r's

When the correlations were performed for each format it was found that they were generally lower for Format 3 (see Table 8.11 overleaf). However, these correlations are still not particularly high. It was clear, then, that IC and IL alone were not good predictors of task performance, but that the latter was more likely to be a combination of both IC and IL and format complexity. The next stage in the analysis was therefore to introduce the measure of format complexity (E_x) into a multiple regression analysis.

3.6   The Relations Between IC, IL, Format Complexity and Task Performance

This analysis was concerned with whether or not there is a significant

DEPENDENT VARIABLES	INTEGRATIVE COMPLEXITY						INFORMATION LEVEL					
	Log			Non-Log			Log			Non-Log		
	F1	F2	F3	F1	F2	F3	F1	F2	F3	F1	F2	F3
Inconsistencies	-0.25	0.06	-0.03	-0.18	-0.02	0.02	-0.15	-0.06	0.13	-0.14	-0.11	0.14
Time	-0.21	0.45	-0.12	-0.07	0.45	0.17	-0.60	0.58	0.22	-0.65	0.60	0.16
Integration	0.60	0.66	0.53	0.30	0.65	0.56	0.69	0.81	0.69	0.70	0.79	0.71
Time Per Decision	-0.20	0.44	-0.09	-0.04	0.44	-0.14	-0.58	0.56	0.27	-0.62	0.59	0.20
Extra Decisions	0.36	0.18	-0.07	0.18	0.20	-0.12	0.36	0.23	0.01	0.29	0.24	0.01
Time-W Multiplexity	0.55	0.46	0.43	0.23	0.45	0.42	0.72	0.56	0.50	0.70	0.52	0.54

Table 8.11   Format Differences in the Relations between Task Performance and IC and IL (Pearson r's)

function containing a relation between IC, IL, Format and task performance. Or more realistically, how much is the variation in task performance explained by Format, and by IC and IL?

A multiple linear regression and correlation analysis was performed. This process can best be explained with regard to T-W Multiplexity, for which the most significant results were obtained. The principle independant variables are Format (x_2), IC (x_3) and IL (x_4), with the range of task performance measures as the dependent variables (x_1).

A series of partial correlations were calculated. $R_{1.23}$ was found to be 0.77, with a coefficient of multiple determination of 0.59, illustrating that format and IC as independent variables provide a very good estimate of Time-W Multiplexity. The introduction of the third independent variable, IL, provides an $R_{1.234}$ of 0.88 thereby increasing the amount of variation in task performance (t-W Multiplexity) explained by the independent variables from 0.59 to 0.77, the latter being the coefficient of multiple determination. Thus variations in Format, IC and IL accounted for 77% of the variation in Time-Weighted Multiplexity.

A similar analysis was undertaken for the other task performance measures, with the independent variables (IC, IL and Format Complexity) entered step-wise into the regression. The results of this are contained in Table 8.12 below. (A similar regression analysis was undertaken with log. values but with no significant differences in results. See Appendix D7 for details.)

The most significant correlations were found between the independent variables and the task performance measures of Time taken ($R_{1.234}$ of 0.85) and level of Integration ($R_{1.234}$ of 0.80).

Independent Variables		Dependent Variables						
		Time	Level of Integration	Extra Decisions	Level of Inconsistencies	Time Per Decision	Time-W Multiplexity	Format-Weighted Multiplexity
STEP 1	Integrative Complexity	0.40 (0.40)	0.46 (0.46)	0.33 (0.33)	0.07 (-0.07)	0.33 (0.33)	0.45 (0.45)	0.32 (0.31)
STEP 2	Format Complexity	0.85 (0.80)	0.52 (0.21)	0.49 (0.46)	0.09 (-0.08)	0.50 (0.48)	0.77 (0.63)	0.31 (0.12)
STEP 3	Information Level	0.85 (0.38)	0.80 (0.70)	0.52 (0.44)	0.13 (-0.12)	0.51 (0.25)	0.88 (0.73)	0.59 (0.56)

Table 8.12   Relations Between IC, IL, Format Complexity and Task Performance; Multiple coefficients of correlation

(Simple correlation coefficients are in parentheses)

As expected, a consideration of partials and simple linear correlations indicated that a high degree of the variation in task performance is determined by format - though adding IC and IL does give much greater explanatory power to the regression equations. In particular, it can be noted that Time has no significant correlation with IC or IL, and one must therefore suppose that the most important link is between Format and Time (indeed the simple r is 0.80). One can also note the very low simple r between format and _format-weighted_ T-W Multiplexity (r=0.12) indicating the success of the weighting to reduce the effect of format for parts of the analysis.

Further, it is clear that there is no relation between the number of Inconsistencies, and Time Per Decision, and the independent variables. However, high correlations were found between these and other task performance measures, that is, Time Per Decision and Time (r=0.85), and Inconsistency and Total Decisions (r=-0.72). The unexplained variation here undoubtedly arises from individual differences in the capability and motivation of respondents, which have not been brought in as independent variables. These reflect the issues of why people 'choose' to take more time or to make less/more decisions.

It seems, then, that Format differences account for significant variations in task performance, particularly by determining the amount of time it is necessary to take. However, one must note the previous sections where it was shown that _within_ any single format, IC and IL differences account for a number of task performance characteristics, specifically the close correlations with level of Integration and T-W Multiplexity. This explains why T-W Multiplexity, which is in part a combination of Time and Integration measures, has the highest correlation with IC, IL and format complexity.

4. The Effects of Playing the SCG on Respondents

4.1 The Effects of Task Performance on IC and IL

It was first necessary to determine whether playing the SCG has any effect at all on IC and IL. It was found that it did have significant measurable effects:-

	Those who played SCG		Those who did not play SCG	
	Mean	S.D.	Mean	S.D.
Change in IC	0.79	0.65	-0.007	0.22
Change in IL	4.25	1.90	-0.005	0.19

Secondly, it was necessary to determine whether the effects were greater for some original IC and IL levels than for others. It was hypothesised earlier (Chapter 7) that the higher the original IC, the lower the change in IC. Thus the formula would be of the form

$$y_1 - y_2 = a + by_1$$

where y_1 is the original IC level

and y_2 is the IC level after playing the SCG.

If the hypothesis was not disproved then b would be negative.

Further, our interest needed to be focussed on the marginal change in IC rather than its absolute change, and here the function would be of the form

$$\frac{y_1 - y_2}{y_1} = \frac{a}{y_1} + b \quad \text{where b would be negative}$$

To the extent that the correlations are perfect, these two formulae are exactly equivalent. Differences in actual outcomes of the regression are the result of other factors. The formulae for IL would be of opposite direction.

Linear regression analysis was therefore conducted on the relations between IC and change in IC, and on IL and change in IL. The correlation coefficients are indicated in Table 8.13 below, with their log.equivalents in parenthesis. The sign of the regression coefficients in Table 8.13 also indicates that the directions of changes in IC and IL were as hypothesised earlier.

Independent Variables	Dependent Variables	Pearson r (r for log values in parentheses)	Regression Constants	Regression Co-efficients
IC	Change in IC	-0.51 (-0.71)	$a_1=3.0$	$b_1=-0.13$
	Marginal Change in IC	-0.69 (-0.68)	$a_2=0.25$	$b_2=-0.012$
IL	Change in IL	0.71 (0.79)	$a_3=1.6$	$b_3=0.17$
	Marginal Change in IL	0.58 (0.62)	$a_4=0.3$	$b_4=-0.001$

Table 8.13 The Relations between IC and IL and Changes in IC and IL

Following this analysis, it was then possible to plot the form of the linear and non-linear regression equations arising from the analysis of marginal and absolute changes in IC and IL. Figure 8.3 overleaf indicates the scatter of raw scores for IC against Marginal Change in IC, and the regression equations. The equivalent regression equations for IL are illustrated in Figure 8.4.

However, the correlation coefficients, especially relating to IC and Change in IC, are not particularly strong. The next stage in the analysis was therefore to extend the calculations to include measures of Format Complexity and Task Performance within a multiple regression analysis.

FIGURE 8.3 The Relation between IC and Marginal Change in IC (Raw Scores and Regression Functions)
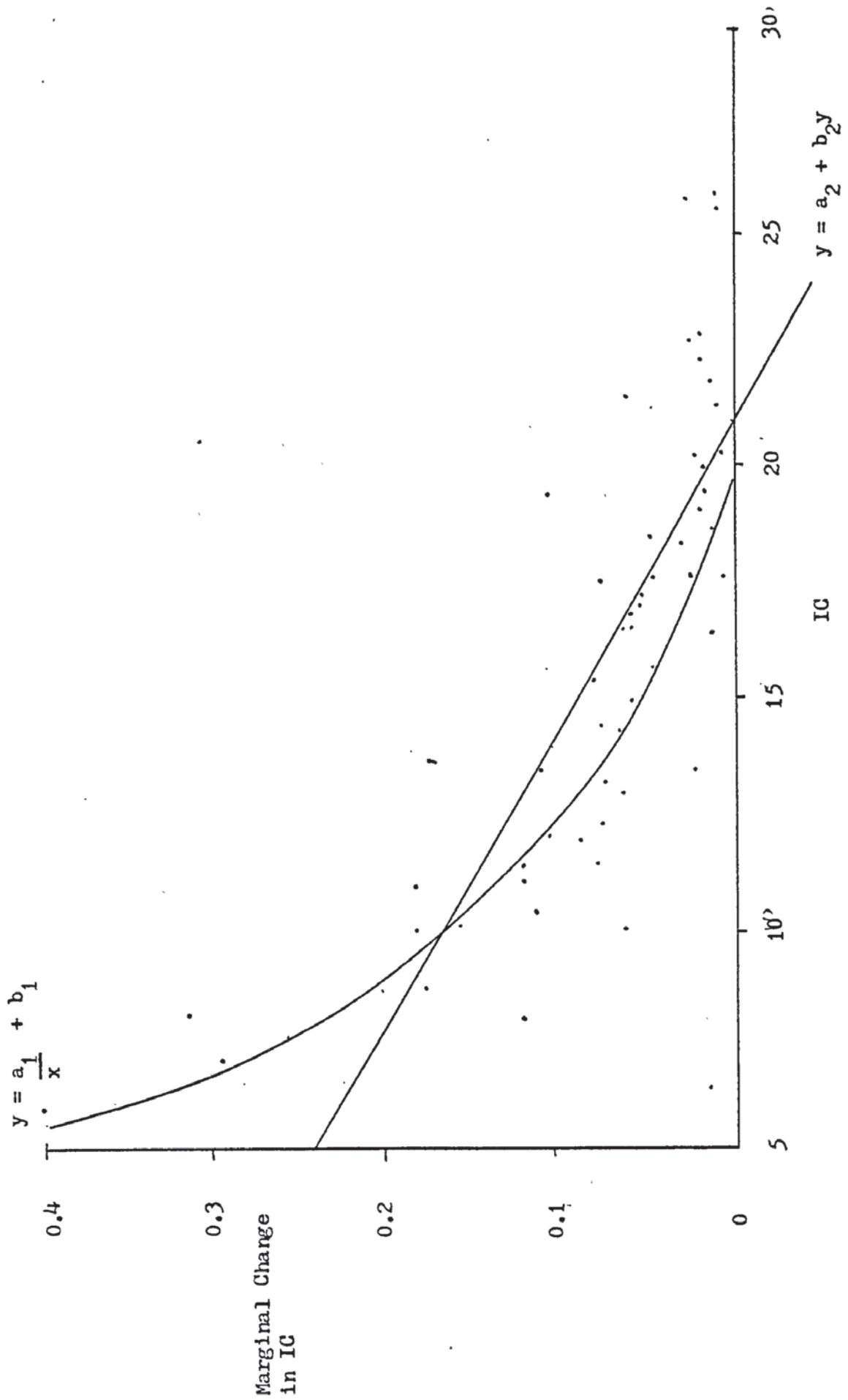
FIGURE 8.4   The Relation Between IL and Marginal Change in IL (Regression Functions)
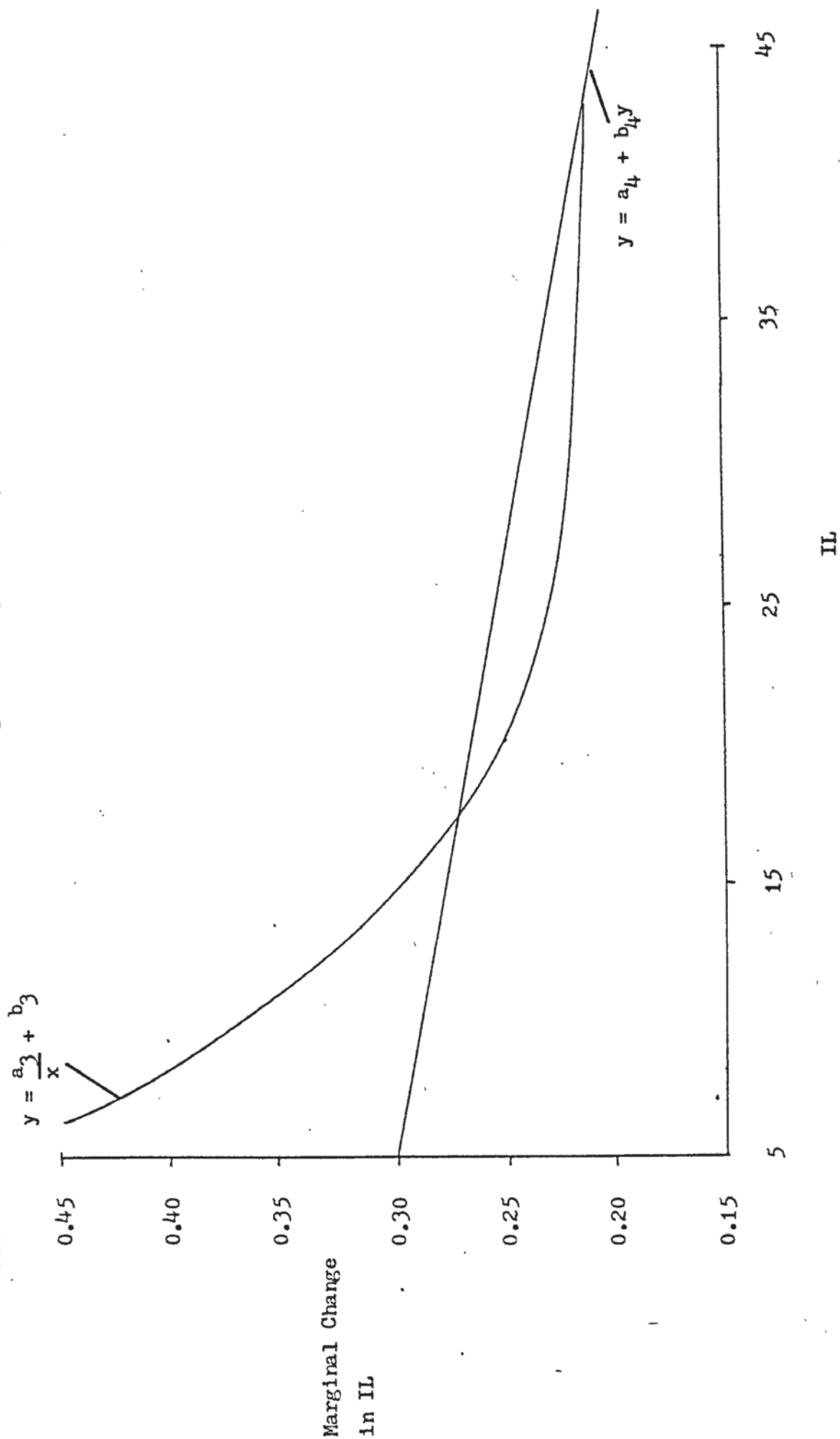
4.2   The Relation between Format Complexity, Task Performance and Changes
      in IC and IL

It was envisaged that variation in changes in IC and IL resulting from
playing the SCG would need to be understood as arising not only from origin-
al levels of IC and IL in respondents, but also from the complexity of the
SCG Format played (e.g. some formats involve more information dissemin-
ation than others) and from the level of task performance which is a
reflection of a person's motivation to accept and search for more infor-
mation and complexity.

Table 8.14 below indicates the outcome of including Format and Task
Performance measures in the analysis. The latter were introduced in a
step-wise fashion thereby highlighting those variables which accounted for
most variation in the dependent variables. The IL scores are based upon
those task performance variables which contribute most to the correlation,
whereas the IC table is used to indicate the correlations obtained when
the whole range of task performance variables are introduced (Appendix
contains the individual multiple r's for this range of variables).

One can see that the multiple regression of log values gives the
highest correlations. These are of the form:

$$\text{Log } y = a + b\log x_1 + c\log x_2 + d\log x_3$$
$$\text{i.e. } y = ax_1^b x_2^c x_3^d$$

Again, one can note that the degree of variation explained by the
regression equations was increased significantly by the addition of format
and task performance variables. Of the latter, the ones which account for
most variation for both IC and IL, in raw scores and their log equivalents,
are the level of Integration, the number of Extra Decisions made, and Time-
weighted Multiplexity (see Appendix D8 for further details).

Dependent Variables	Independent Variables (Entered Step-wise)	Multiple r	
		Log	Non-Log
Change in IL	IL	0.79	0.71
	Format Complexity	0.80	0.71
	Task Performance Variable	0.82[a]	0.73[b]
Marginal Change in IL	IL	0.62	0.58
	Format Complexity	0.64	0.60
	Task Performance Variable	0.68[a]	0.63[b]
Change in IC	IC	0.71	0.51
	Format Complexity	0.71	0.59
	Task Performance Variables*	0.80	0.72
Marginal Change in IC	IC	0.68	0.69
	Format Complexity	0.69	0.76
	Task Performance Variables*	0.82	0.82

[a] - highest correlated variable is Extra Decisions

[b] - highest correlated variable is level of Integration

* - Appendix D8 contains multiple r's for all variables

Table 8.14 · Correlations between Format Complexity, Task Performance and Changes in IC and IL

The analysis therefore indicated that there are significant and measurable effects on IC and IL levels of respondents as a result of playing the SCG. For instance the average marginal increases in IC and IL as a result of playing the game were 7% and 23% respectively (S.D.'s of 0.06 and 0.09 respectively), indicating a particularly significant increase in Information Level of respondents.

Further, the analysis indicated that it was possible to locate the sources of much of the variation in these effects. For instance the different formats of the SCG did not produce significantly different

effects on IC and IL levels, although the simplest format seems to produce greater effects than the most complex one (see Table 8.15below).

	Marginal Change in IC		Marginal Change in IL	
	Mean (%)	S.D.	Mean (%)	S.D.
FORMAT 1	5	0.09	20	0.08
FORMAT 2	8	0.09	22	0.10
FORMAT 3	7	0.06	23	0.23

Table 8.1.5   Mean Percentage Changes in IC and IL

Indeed, a partial correlation analysis indicated that when one controls for differences in format complexity, the partial correlation coefficients for IC against change in IC, and IL against Change in IL are -0.80 and 0.78 respectively. Thus the very act of playing the SCG leads to increases in IC and IL, even though differences in these are more closely related to original IC and IL levels than to differences in format complexity of SCG.

However, there was a further major purpose to designing the game, over and above disseminating complex information and attempting to guauge the effects on respondents. This purpose was to elicit a response which had been conscientiously made by the respondent on the basis of the information given to him, and here the structure and complexity of individual formats has been shown to have different and significant effects. Although the analysis of task performance in terms of original IC and IL levels provided very irregular results (described in Section 3), a partial correlation analysis indicated that, when controlling for IC and IL, differences in format are highly correlated with the main task performance measure, Time-Weighted Multiplexity (r=0.89).

Thus the analysis has indicated that there are significant and measurable effects on the IC and IL levels of respondents as a result of

playing the SCG; and that the sources of variations in these effects, and in task performance, are discernable. The latter sources include the original IC and IL levels of respondents (which in particular determines what they 'take out' of the game in terms of increase IC and IL) and the complexity of the SCG format played which is closely related to task performance measures.

Summary and Assessment

As stated earlier, the primary aim of this chapter was to give the reader an impression of the main directions of the testing of the Strategic Choices Game, and of the breadth and depth of the analysis. Clearly, the foregoing sections contain a fairly complex analysis of the research data, though by removing much of this to appendices comprehension is aided. This final section therefore briefly summarises the major directions of the research findings in line with the questions posed at the beginning of the chapter, and assesses the implications of these for decisions regarding the application of the SCG formats in practice. Finally, an assessment is made of the success of the SCG in meeting the specifications of an SRT outlined in Chapter 4.

To re-cap, the results illustrated that there are significant differences in the knowledge and experience which members of the public bring to the interview situation. Whilst this may be a truism, it does have important implications for the assessment of the SCG and for the design of SRT's generally. The study showed, for instance, that planning students, who obviously have greater access to theoretical and technical information regarding strategic planning issues, always score higher on information level on those problem areas where this type of information can be brought to bear. In contrast, respondents from the inner area samples tended to illustrate low Information levels on those problem areas where a technical/ planning input is required, and highest on those where input from immed-

iate social, economic and physical environment is possible (i.e. on the basis of personal experience). However, these scores were themselves <u>low</u> in comparison with the lowest scores of planning students.

The study also showed that there is a high degree of correlation between Information Level and Integrative Complexity. Those who deal with information on the basis of personal experience and immediate environments (rather than technical information on 'strategic environments') illustrate associated low Integrative Complexity levels.

Thus low information levels tend to be associated with tendencies to think in terms of physical conditions rather than cultural manifestations, in individualised terms rather than with respect to social problems or ethical choices, at a low level of complexity, and in primarily descriptive fashion rather than in an analytical way. This was illustrated in particular by the inner area samples where low information levels were associated with cognition characterised by a concern for immediate personal and family problems, for simplistic issues (e.g. 'law and order') and based mainly on descriptions of these problems and issues rather than analytical approaches to them.

These findings have general implications for the development and testing of Strategic Response Techniques in that they illustrate a need for SRT's to be structured (e.g. by iteration) so that the more complex choices are disaggregated as far as possible to match differences in cognitive styles. Further, the low information levels illustrated by some groups may necessitate substantial information dissemination, and yet paradoxically, these low IL levels may be associated with low levels of integrative complexity which will limit the degree to which this information is assimilated by respondents.

The importance of these problems was particularly well illustrated in the testing of the SCG where it was found that there were significant

differences in task performance by different sample groups. For example, planning students performed best on the general range of task performance measures (though at the expense of greater time taken) whilst the inner area samples did comparatively less well.

If techniques are developed which range in task complexity, then significant differences are also found in performance across this range for any one sub-sample group. For example, the four area samples perform better generally on Format 2 than on Formats 1 and 3 of the SCG. The main differences surround levels of integration, number of decisions made, and time taken by respondents.

Finally, it was found that the performance of respondents, even when controlled for differences in IC and IL, differs depending upon the form and structure of the technique itself (especially the levels of inconsistencies displayed in different formats) and this must also be taken into account in the development and testing of a technique and in considering its applications.

The Application of SCG Formats

It was stated earlier that:

> "The purpose of testing the SCG is to develop the game such that respondents can offer responses at or near their _optimal_ level of information processing. This requires an investigation of the interaction between different _formats_ of the game, each with different information loads and performance during the game of individuals exhibiting different information processing capacities."

In fact the two problems that arise in meeting this major objective are, firstly, that one cannot design a separate game for each individual based on a range of tasks which differ measurably and continuously in complexity. Rather, it must be tailored to specific survey designs where the aim is to measure response of identifiable social groupings. Secondly,

there is no one measure of task performance which is the 'correct' one - for example, requiring short time may mean increasing inconsistency. In other words, to derive the optimal format in Figure 6 (Chapter 6) would require the application of criteria which reflect the relative importance of task performance measures to the client (which might be, for example, a local authority). The optimal format therefore is the most operationally optimal one - the one which best suits the survey design and the resources available.

Thus, if one was to choose just one format of SCG, for many different abilities (for example, for use in a general household survey) then Format 2 seems the most appropriate. It has a generally high level of task performance across the range of ability groups.

However, if resources are available it is perhaps better to design different formats for different groups and purposes. It is impossible to specify about how this should be done for techniques' structure is dependent upon the client's requirements in specific local situations.

Nevertheless, with regard to the SCG it is apparent that the more complex forms (i.e. MCI) could be used with interest groups where time and motivation of respondents is not a problem. Ideally, this would be used with interest groups' representatives, and perhaps councillors, in combination with 'charrette' situations. That is, the technique could be used as an instructional aid to present the basic components of alternative plans and then to elicit judgements which would provide the basis for and perhaps the structure for, group discussions where the group as a whole must come to some decision.

For general household surveys this format (MCI) is probably too complex, time consuming and cumbersome. For this function it is probably better to choose between Format 2 (MI) and Format 3 (CI). Format 2 would give better results with less inconsistency and higher degrees of

integration, but may be too time consuming.

A related consideration is that time per interview is commonly used for the costing of social surveys. In terms of the SCG, this is particularly important as the use of the MAUT, for instance, often requires an assistant to the interviewer. In terms of time taken, and by implication cost, Format 3 seems the most appropriate technique:

	Average Time Taken for SCG Formats (Mins)
Format 1	102
Format 2	47
Format 3	32

In contrast, however, the Time per Decision measure probably gives a more realistic and reasonable basis for choice of SCG Format. It indicates (see below) the relation between cost (in terms of Time) and the level of Task Performance by respondents (in terms of 'number of decisions'). Using this criterion Format 2 seems to offer the most suitable format:-

	Average Time Per Decision (Mins)
Format 1	59
Format 2	45
Format 3	48

This poses a further dilemma, however, in that Time per Decisions also has a high negative correlation with the level of Inconsistency of response - Formats 2 and 3 illustrating the highest levels. The potential client must therefore consider the inevitable trade-off to be made between the cost of using a particular technique and the consistency of the results obtained.

Clearly, there is no one measure of task performance which is the best criterion for choice of technique-format. The latter must be chosen with respect to particular needs. What _is_ important, however, is that the decision must take into account the abilities and background of the groups at whom the technique is aimed. Format 3, for example, is far more in-depth, and provides much better conditions for respondents' choices than any comparable technique (such as S. Hampshire illustrated earlier) yet it is undoubtedly the simplest of the three formats tested, and illustrates greater inconsistency than the others, for _all_ IC and IL levels.

The SCG as a Strategic Response Technique

Finally in this chapter it is necessary to comment upon the ways in which the SCG succeeds in meeting the general specifications of an SRT outlined in Chapter 4. To recapitulate, the essential characteristics of a SRT are that it should present truly _strategic_ issues and alternatives in as meaningful form as possible, and obtain a public response on these issues. It follows that the stimuli presented to respondents by such a technique will be necessarily complex, abstract and interrelated, thereby posing problems for its design in terms of presentation of material and eliciting response. The latter problems require, in fact, that the method which is developed should have information dissemination as central to its structure, in that it cannot be assumed that the public have access to any of the information or technical language that planners have access to; and secondly it requires that, in order to make the response meaningful, respondents must be taken through an iterative procedure which not only structures choices at different levels of complexity and illustrates the interrelations between elements of the choices, but also allows the interviewer to incorporate consistency checks to monitor that the respondent is not making spurious, unconnected or inconsistent choices. Finally, the technique should provide the possibility of eliciting 'ethical'

responses or at least of encouraging the respondent as far as possible to think in 'community terms'.

The SCG surveys and testing sequence described in this chapter illustrate that it is possible to develop a Strategic Response Technique which will elicit judgements regarding strategic planning issues and which acts at least within the confines of the technique as an instructional device. Further, by controlling and structuring response so that people are encouraged to make consistent judgements, to consider as much information as possible, in as complex form as possible (utilising amendment processes etc.) one can make the responses as meaningful as possible with regard to the content area, in this case structure planning.

Of course, in attempting to get 'conceived' responses to 'hypothetical' alternatives, there are no behavioural criteria available for assessing the validity of such techniques. This mirrors the nature of choices usually made by officers and members who must also make their choices on the 'information available'. However, by incorporating controls <u>within</u> the technique to monitor inconsistencies and tracking of information it can be made as <u>operationally</u> valid as possible. That is, the operations that people perform are as close as possible to the output which is expected from them. In this way the output is perhaps as 'valid' as possible with respect to the problems at hand.

In designing a strategic response technique however, specific attention must be given to the balance between information dissemination and complexity of choice, and the capacity of respondents to assimilate this information and perform the tasks requested. The testing of the SCG showed that a number of formats may be designed and tested in an attempt to achieve this type of balance. The survey design may then be structured so that the formats can be used with different groups and to fulfill different functions.

As well as the problem of validity, a second limitation in SRT development arises when they are required to elicit 'ethical' responses. Again, there is no universal criterion for ascertaining whether or not the respondent <u>did</u> make an ethical or a personal judgement, or even to what <u>extent</u> the response was ethical. The concept, then, is very difficult to operationalise, but as part of the general problem of 'validity', an assessment can only be made via examination of the structure of the technique, and the 'set' created by instructions to the respondent. That is, have we provided the best controls and instructions possible to facilitate ethical judgements? As far as the SCG is concerned, the nature of the choices offered and the internal controls seemed to be sufficient and indeed no major differences between respondents in Wolverhampton (who might be expected to make personal judgements)and those in Birmingham (whose choices would be close to 'ethical' choices) could be found.

However, the problem of ethical choices cannot be assumed away, and it remains as a central feature of utilising the SCG within a plan-making process. For, even though one might provide conditions under which respondents are encouraged to respond 'for the community', the output from the survey must be linked and integrated into a process which is essentially rational/technical, and indeed where personal preferences by those same individuals might enter into the process as goals or problems or objectives. These points will be commented upon in Part 3 when we return to the problems of 'Integration' of SRT's in plan-making.

On the whole, then, the Strategic Choices Game meets the general specifications of a SRT and indeed goes somewhat beyond these requirements, being developed and tested so as to make it sufficiently flexible to deal with a range of individual information processing capacities, to elicit responses ranging from simple option choices to multi-attribute judgements, and to fit into a range of survey design requirements.

However, this does not constitute a comprehensive evaluation and assessment of the SCG. Although one might be satisfied with the technique in terms of meetings its design specifications, it must also be assessed in terms of its expected role within public participation and plan-making. These other areas of assessment of the Strategic Choices Game are continued in Part 3 of the thesis, where an evaluation is made of the potential contribution of SRT's in general, with specific reference to the Strategic Choices Game.

PART 3

STRATEGIC PLANNING ISSUES

AND PUBLIC PARTICIPATION: TOWARDS INTEGRATION

CHAPTER 9

EVALUATING STRATEGIC RESPONSE TECHNIQUES

Chapter 8 offered an assessment of the SCG against the original spec-
ification of the desired characteristics of a Strategic Response Technique,
first outlined in Chapter 4. A further unanswered question remains,
however, and this is "What is the potential contribution of Strategic
Response Techniques, as exemplified by the SCG, to public participation
and structure plan making?" This chapter attempts to illustrate this
contribution by considering the public participation and structure plann-
ing role envisaged for Strategic Response Techniques generally, and in so
doing continues and completes the assessment of the SCG.

Strategic Response Techniques in Public Participation

The public participation role which was suggested for Strategic
Response Techniques (SRT's) in Part 1 of the thesis arose out of two areas
of interest. The first area of interest, a general theoretical one, was
characterised using Etzioni's framework and envisaged a role for SRT's
within a system of societal guidance which would trade off between central
system demands and individual demands, between community rights and
individual rights. The need for public participation in this system
therefore arises out of the need to use normative rather than coercive con-
trol, and the guidance system is characterised by a means of problem solv-
ing which utilises public feedback at both strategic and tactical levels.
This requires forms of knowledge exchange and communication of a
sophistication not available at present. What is clear, though, is that if
the public are to participate meaningfully in strategic planning, they must
enter into knowledge exchange and problem solving with regard to strategic
issues. These require a certain degree of 'institutional rights' to part-
icipate; of communications channels available; and of competence on the
part of planner and public to communicate meaningfully. It is within this

context that the general role of SRT's as public participation method can be assessed.

The second area of interest is practical, and surrounds the problems of public participation in a specific operational context - structure planning. Here, it seems, is a prime example of a planning activity which, in Etzioni's terms is 'drifting'. In terms of a self-guiding system, structure planning confers few 'rights' to participate, communications channels are not well-developed, and competence of public and planner to enter into participation/communication is not high. Strategic Response Techniques would therefore hopefully help to 'bridge this gap' and in so doing contribute to a situation which has worried many of the parties directly involved, including central government (its concern in the matter is illustrated in the final section of the chapter).

This role for SRT's in Structure Planning was explained in Part 1 of the thesis in terms of meeting the public participation requirements of a number of Contextual Dimensions of structure planning. In particular, they would need to fulfill legislative obligations of participation (Legislative Context) and at the same time contribute to plan-making itself (Procedural Context).

The legislative context, of course, conferred few rights to participate, and those that are conferred are provided for in the most general fashion. Nevertheless, a role for SRT's can be envisaged both in relation to the legislation and to the more encompassing report of the Skeffington Committee. The latter recommended, in fact, that people should be kept informed, that participation should concentrate on the discussion of choices and local authority proposals, and that citizens (especially 'non-joiners') should be encouraged to express their views and assist with the planning process. The legislation, more vaguely, requires publication of reports of survey and matters proposed to be in the plan, with

associated periods of publicity on issues arising and opportunities for public comment and representations. Clearly then, there is scope within the structure planning process, as illustrated also by many local authorities in practice for an extensive survey of public opinion and reaction regarding structure plan issues.

The SCG was designed to contribute to these surveys and to present participation practice by eliciting in a structured way judgements vis-a-vis strategic planning issues. In so doing it meets the general theoretical aims mentioned earlier - it provides the circumstances where planners are encouraged to consider the communication of their proposals and policies to the public; it provides a method of information/knowledge exchange which furthers communication between planner and public; the new information and knowledge acquired by the public can and does improve its competence in dealing with planning matters as all participation does; it can therefore facilitate the activation of participation 'rights'. The SCG can, then, on a limited scale, combine the essential and inter-related ingredients of participation - information exchange and involvement of planner and public in responsive problem solving. In so doing it may provide an impetus for more direct forms of social action and communication.

In assessing the efficacy of the SCG, however, one must ask not only whether it meets the specification of an SRT, or whether it has potential as a public participation tool - the foregoing illustrates that it meets both of these aims - but whether the SCG and SRT's generally contribute to and enhance the wider procedure of the plan-making process. The question is one which is continually asked of participation techniques, sometimes unjustifiably, and is closely linked to the view of participation not as a natural right or an end in itself, but as a contributor to a rational process of societal guidance. The latter is not just a question of which social choice and aggregation principles to use. Rather it is the much

wider question of the linkages between each of a range of response techniques, the broader participation/consultation processes and the procedures of plan-making themselves.

These are the wider problems of 'Integration' outlined in Chapter 3. There, an analytical framework of Legislative, Institutional, Procedural and Technical contexts was outlined and used in an examination of participation problems. It was argued that, rather than considering the application of SRT's in isolation, this should be understood as part of the general problems of 'integrating' public participation into the procedural context of plan-making.

As was stated earlier, the models of the plan-making process are based upon an implicit notion of 'rationality', but this concept is limited when applied to the contribution of members of the public because of factors which limit their motivation and access to information (see Chapter 4). It may be that the difficulties of integrating the more subjective, qualitative methods of valuation, such as measures of public preferences, into an essentially rational-technical process are insurmountable. Indeed some would argue that such a process and the ideals of participation are essentially irreconcilable. Nevertheless, these wider questions of Integration are worth pursuing and it is to these that we now turn.

The Integration Framework

Attempting to ascertain its potential contribution to structure plan-making is the most difficult task in evaluating the SCG. It is a question of the way in which the SCG fits into a participation programme which itself fulfills a function within the structure planning process.

In considering these problems of integration it is necessary to examine the main elements of the planning process, and the differing functions

which public participation can serve in that process, with respect to both technical and consultative methods of public involvement. Underlying such an approach is the view that the problems of applying SRT's are primarily problems of linking them with other public participation techniques and methods, so as to perform specific functions most efficiently within a public participation and plan-making exercise. This also underlines the fact that SRT's have a limited role with respect to the overall process of participation, and undoubtedly require supplementation with techniques and consultation processes handling issues with greater immediacy and fulfilling functions at different stages in the planning process.

The Plan-Making Process

It is not intended here to embark on a discussion of the pros and cons of the various models of the planning process. An appraisal of these models does, however, point to a number of important elements/stages which are common to most models. These are:-

1. Unstructured Information Input
2. Problem/Issue Recognition
3. Data Acquisition (i.e. structured information input/monitoring)
4. Analysis and Forecasting
5. Development of Policy Options
6. Possible Trade-offs between Options
7. Objectives for Plan-Design
8. Alternative Physical Strategies (Plan Design)
9. Evaluation
10. Decision Taking

A number of general comments can be made about such a process. A major issue concerns the extent to which it is treated as linear or cyclical. A cyclical process may be seen as occurring essentially over time. Thus the

entire process is repeated within the context of monitoring. Perhaps more important is the extent to which there is recycling within the production of a plan. There has been a tendency to see refinement of alternative strategies or the production of superior strategies as one of the main aims of recycling (for example, the CTLA (1971) or the Notts-Derbyshire SRS (1969)). However, an important fact remains, the later stages of the planning process are fundamentally constrained by what has gone before. No amount of recycling can produce a 'good plan' if the objectives and constraints defined at an early stage are wrong or inadequate.

Linked to this issue are criticisms which imply that there is a need for policy analysis at an early stage in the planning process.[1] If one sees a plan as the mapping of a set of policies into space, then clearly the policies themselves must be explored. Indeed, this relates to the view of the Structure Plan as policy vehicle, not simply a means of producing a master plan for physical development.[2]

The Functions of Public Participation

In Chapter 3 the examination of the planning process and of current weaknesses regarding participation in that process allowed one to identify some general categories of functions to which social response and participation can be directed. These aims, it was argued, must reflect the diversity of the planning process with which they are to be integrated:-

1. Unstructured Representation and Liaison

2. Identification of specific needs/values/problems

3. Identification of trade-offs and conflicts

4. Conflict Resolution/Generation of ideas and plans for solutions to strategic problems

5. Evaluation

6. Decision Taking

The contention here is that an important test of how well partici-
pation is being achieved is the extent to which appropriate participation
elements are _integrated_ into the plan-making process, and especially, into
the policy formulation process. Examples of poor integration abound in the
early stages of the plan-making process during which people are generally
viewed as objects to be measured, usually in aggregate behavioural terms
(e.g. market analysis) and problems or issues are identified in physical
terms. This is exemplified in the Reports of Survey of the majority of
structure plans where there is rarely an attempt to elicit a public
response concerning what are perceived as important problems. Further,
forecasting is very much an extrapolatory or associative exercise. There
is an absence of derivation of normative forecasts in terms of what the
community feels are desirable trends. Thus whilst policies often contain
attitudes to key issues, the process itself often provides poor exploration
of the nature of these issues from the point of view of different sections
of the public.

In order therefore to integrate public response with the plan-making
process it is necessary to integrate the two components outlined above.
Firstly, the planning process and secondly the functions which response
can serve. A way of approaching this analytically is in terms of a matrix
framework, setting the two components against one another. It is then
possible to determine, firstly, the specific point at which response can
serve the planning process and secondly, which specific types of response
method fulfill appropriate functions at particular stages in the process
(Sinclair and Johnson 1978).

The range of response types commonly available is categorised in
Fig. 1 below with a checklist of particular methods used in the past.
Traditionally, the response types elicited by various methods have been
behavioural and attitudinal/judgemental using technical measures, coupled
to communication and consultation with the general public and specific

FIG. 1

RESPONSE TYPES AND METHODS			
TECHNICAL (i.e. Measurement)		**INSTITUTIONAL** (i.e. Political-Social response mechanisms)	
RESPONSE TYPE	RESPONSE METHOD	RESPONSE TYPE	RESPONSE METHOD
A. Behaviour	Behaviour mapping. Observation of behaviour settings. Behaviour check-lists used by observer. Activity self-reports used by observer. Use of documents. Information tests. Retrospective case-studies.	1. Communication to the general public	The detailed application of a particular response method can often serve to achieve several response types. For example, public meetings can achieve types 1 and 3; Advisory committees of various forms can serve the fulfilment of all four types. A general check-list of methods might include:- public meetings, exhibitions, brochures/ newsheets, monitoring of press, TV/radio, invitation of comment from groups or individuals, presentations to community or other organisations, response to inquiries, representations to members, advisory committees, seminars and workshops, charrettes, structured (regular) liaison with organisations.
B. Conation	Analysis of complaints & suggestions. Interviews. Questionnaires. Behaviour self report schedules. Sociometric analysis of reported behaviour.	2. Communication to groups, organisations and their representatives	
C. Perception/	Cognitive maps. Psycho-physical measures of distance Adjective check lists. Semantic differential. Repertory grids.	3. Communication from the general public	
D. Attitudes	Scales (structured). Unstructured (question-naire, interview, sentence completion).	4. Communication from groups, organisations and their representatives	
E. Judgements (preferences/ evaluations)	Questionnaires. Games. Interview. Futures modelling. MAUT. Other paired comparison/ranking exercises e.g. PET, SCG. Planning Kits. Revealed Preference		

groups in an institutional context. It is felt that all of the response types listed have a role in participation. Methods developed in both technical and institutional contexts facilitate the production of a variety of types of response, each of which can be investigated within the juxtaposition between plan-making stages and response function.

In order to facilitate this integration work was initiated on the matrix framework mentioned earlier. This is reported in greater detail in Appendix C . The aim of this exercise was to fit each set of response types into the matrix which sets the functions of response against a model of the stages of the plan-making process. By refining and then synthesising the matrices produced, a model of the links between participation technique, function and plan-making process is produced.

This model represents the linkages both within and between the Institutional, Technical and Procedural Contexts, and highlights the temporal sequence of 'matrix elements' (see Appendix C, Fig.8). The latter represent those points at which a response type, either technical or institutional/consultational, can perform a particular function at a specific stage in the planning process.

The model can therefore be considered as an ideal-rational model, and is intended to illustrate and structure the problems of integration. Rather than elaborate upon this work or its output (detailed in Appendix C) this chapter continues by assessing the implications of the framework for SRT's generally, and for the SCG itself.

Strategic Response Techniques in Structure Plan-Making

It is useful, initially, to summarise briefly a number of features which arise out of the framework, features of the general relations between methods of public participation, stage in the planning process, and function of participation methods.

One can note firstly that neither the models of the planning process nor the guidance on participation have been responsive to those conceptions of participation which prescribe involvement in basic issues of policy, with "the act of sharing in the formulation of policies and proposals" as identified by Skeffinton (1969). The result in practice has been that policy formulation and analysis of policy options are still treated as essentially technical exercises, (rather than one based on collaboration with the public). Further, these exercises occur at an early stage in the planning process, so that decisions are often taken before the public can enter into the debate.

Public response, then, does not always occur at those stages where it could be most meaningful, and perhaps also the type of involvement which is required cannot be facilitated by existing conceptions of the planning and participation process. Thus it has been argued that "When the planning authority decides which of the available options it prefers, any ostensible consultation of the public falls into the category of public relations" (Senior 1973). In other words, the stage at which public participation presently occurs does not provide the means for questionning assumptions which are entrenched in the planning process.

The critical basis of these assumptions surround the planning goals which are to be translated into effective programmes. The debate on parti- cipation has concerned itself with examining how these goals are arrived at, and whose goals they are. Many of the advocates of participation, in fact, consider that the goals of planners should be closely linked to the social and economic goals and aspirations of 'the community'. Whilst the amorphous character of 'community goals' is widely recognised as being problematic, it is still true to say that the planning and participatory processes alike are not currently geared to exploring either community goals, nor the 'institutional goals' which presently constrain the planning process. In extending these comments, one can note those writers who have

argued, for example, that "the setting of goals should be looked on as an ever present aspect of a continuous planning process" (McLoughlin and Thornley, 1973). The development of goals therefore becomes part of a learning process, and the planning process must reflect this by incorporating appropriate participatory elements.

These comments on the relations between public participation and plan-making have important implications for the role of SRT's. They indicate in particular a need for in-depth policy exploration, that is clarification of goals and objectives and problems at an early stage in the process, and an important element in this exploration must be an examination of community value structures. These values, of course, lie at the basis of the criteria with respect to which plans are to be evaluated in the later stages. They should be included at an early stage, and should form some kind of design brief to ensure that the alternative plans generated in fact achieve policies that are important in welfare or community terms.

Such requirements for public responses concerning community-wide issues provide an important arena for the use of survey techniques which will examine attitudes towards strategic issues and concerns, that is provide an important arena for the use of SRT's. The SCG, of course, was designed for use during the later stages of the process subsequent to development of alternative strategies. Of central importance therefore to an assessment of the SCG as an SRT are its relationship, firstly, with the earlier policy exploration stages of plan-making, and secondly, to the later evaluation stages.

It is useful in this context to note the work of Lichfield and others, and in particular the suggestion that evaluation should be directed towards "the assessment of the comparative performance of plans in terms of the achieved levels of sectoral objectives" (Lichfield 1975). Sectors

refer to 'convenient classifications' of individuals based on, for example, social class or on some functional criterion such as pedestrians, and sectoral objectives refer to 'their preferences regarding the consequences of planning proposals'.

Whilst it is beyond the scope of this study to enter into a discussion of evaluation methodologies, it is important not to blur or underestimate the distinction between sectoral and policy objectives.

Sectoral objectives can be seen as particular types of planning objectives. They are derived from preferences of individuals and groups towards existing situations. Attitude surveys, analyses of behaviour, and priority evaluator techniques (PET's) are used to provide evidence of preferences (sectoral objectives) on, for example, noise, pollution, and traffic congestion.

However, whilst planning objectives are used to guide plan-making, they are not necessarily derived from these individual preferences, that is they are not sectoral in nature. Usually they are derived from the analysis of planning 'problems' as identified by planners.

In practice, then, planning objectives are formulated not in terms of sectoral objectives, but in the form of policy objectives. These can be seen as specifying the means by which problems may be solved, for example "to encourage or promote decentralisation from inner London" (South East Joint Planning Team), or "to encourage industrial development in depressed areas". Policy (that is, strategic) objectives obviously have relevance to different elements of preference, and affect groups in diverse ways. Unlike sectoral objectives which are relatively invariant between groups (e.g. most people want less pollution, and congestion) strategic objectives are multi-directional - they represent broad aims for the plan - and permit a wide range of design solutions.

Further, although the welfare of certain groups in the community may be the justification for policy objectives, they are certainly further removed from such welfare considerations than are sectoral objectives. Indeed, it is very difficult to obtain direct evidence of welfare gains/ losses of groups resulting from policy objectives, and of the relative value placed on these gains and losses by individuals. Nevertheless, it is to policy objectives, at a strategic level, that the application of SRT's is envisaged, that is, to strategic policy objectives and issues.

It follows that the generation of plans according to conventional problem-solving objectives can lead to only a partial evaluation if the alternatives so generated are evaluated with reference to sectoral object- ives which were not specifically linked to policy objectives. Examples in practice include the request by the Greater London Development Plan Inquiry for additional evidence on consequences for the public of the GLC plan. One such request was for evidence on the environmental consequences of new motorways.

This has led Lichfield and others to the conclusion that it is totally inefficient to utilise certain objectives in plan design which are not derived from the objectives used in evaluation. He therefore advocates that "evaluation consists of assessing alternative plans according to sectoral objectives which are also used in the design". Perhaps the balance of the suggestion should be that objectives, valuation and measurement should not be inconsistent in evaluation and design.[3]

In the context of these remarks, the problems of applying SRT's - problems which are characterised by the dichotomies between personal and ethical preferences; immediate and strategic issues, can be understood in fact, as arising from the attempt to link policy objectives and sectoral objectives within the context of plan-making. More particularly, it is to link policy formulation, plan generation and evaluation with respect to

techniques which measure 'social response'.

Thus, as well as performing a role in eliciting responses to alternative strategies, a role can be envisaged for SRT's in the earlier plan-making stages, as a necessary aid to planners in exploring and developing policy objectives. This would, ideally, facilitate the final selection of objectives which are then put into operational form. This is not, usually, an explicit process. These operational objectives would contribute to the delineation of sectors to facilitate the later evaluation stages. Various techniques, including e.g. PET's, would then be used in an evaluation of alternatives based on achievement of sectoral objectives.

To what extent can the SCG fit into this scheme for SRT's? The following section attempts to answer this question. The question refers not only to the feasibility and efficacy of applying SCG at that stage originally intended for it - subsequent to the development of alternative strategies - but also whether, and in what ways, its application can be extended into the earlier policy exploration and later evaluation stage of plan-making.

The Strategic Choices Game in Structure Plan-Making

The most important functions that the SCG can perform are in the identification of conflicts and trade-offs regarding strategic planning issues (functions 2 and 3 earlier). It can identify apparent conflicts by describing the differences in strategic choices made by different sections of the community. Utilising data from the MAUT sections it can identify individuals' trade-offs between the strategic environmental elements presented (for example, the transportation elements of SCG Part II).

Its application can be extended across the middle stages of the process to fulfill these functions, that is, in the assessment of public

reactions to policy options, in the development of objectives for plan design, and in the design and assessment of alternative strategies (stages 6, 7 and 8 in Fig. 2 below).

However, the technique is, in essence, a reactive one. It obtains response to policies, objectives and strategies which are already part-formulated by professional planners. This is so because the general public's lack of experience in dealing with abstract strategic issues makes it difficult for them to deal meaningfully with these issues if they come to the situation 'cold', with no background information and no well-developed idea of what the main strategic issues might be. (This was illustrated by the relatively low marks on IC and IL in Part II.) Thus, by the time surveys of immediate problems and sectoral objectives have been done, and alternatives drawn up, the institutional and ideological preconceptions of the planning profession have already been built into the process. Clearly, then, the game's structure is inevitably constrained by the earlier policy formulation stages of the plan-making process where, in practice, there is a limited public input in the form of perceptions and values regarding strategic issues.

We may, as suggested earlier, have preferred an SRT at these earlier stages, leading up to the development of policy options in terms of the need for policy exploration mentioned earlier (Stage 5 in Fig.2). However, if the application of the SCG cannot be extended to this earlier stage, then the problem becomes one of integrating the technique with others which are used at this stage, such as PET . The problem is therefore one of integrating the SCG which deals with preferences oriented towards strategic policy levels, to other techniques which deal with personal preferences towards immediate, sectoral policy areas. The problem of linking the two methods, as suggested earlier, raises issues concerning the relation between personal and ethical preferences, the relation between sectoral and policy issues, and the range of social choice problems.

Possible Stages of Application of PET	Possible Stages of Application of SCG	Desired Integration of Sectoral and Policy Objectives	Plan Making Process	Integration (SCG and PET) Problems
			1 Unstructured Information Input	
			2 Problem/Issue Recognition	
			3 Data Acquisition	
			4 Analysis and Forecasting	
		→PET	5 Development of Policy Options	P/E I/S SCC
		SRT/SCG	6 Possible Trade-offs between Options	
			7 Objectives for Plan Design	
		→PET	8 Alternative Strategies	
			9 Evaluation	P/E I/S SCC
			10 Decision Taking	

FIGURE 2   The Application of the SCG

P/E - Personal/Ethical

I/S - Immediate/Strategic

SCC - Social Choice Criteria

Finally, it was suggested that the application of SCG, as an SRT, might be extended to perform a function oriented towards the later evaluation stages (Stage 9 - Fig.1), in that it provides information regarding the solutions to strategic problems as preferred by the public. Although the structure of the SCG could easily be transposed to this stage, again the issue of the relation between personal and ethical choices with regard to strategic issues becomes problematic when dealing with alternatives which may have been developed on the basis of personal/sectoral objectives and which are often evaluated with regard to these same objectives. Again, this is illustrated by the difficulties of linking the output from SCG to that of PET's.

To recap, then, the real problems of applying SRT's in plan-making arise from the wider problems of linking together policy objectives, sectoral objectives, and evaluation with respect to techniques which give a measure of public response. The most appropriate stage of the plan-making process for the use of SCG is considered to be at that stage subsequent to the development of alternative strategies. The latter are based on preliminary consultations and examination of sectoral objectives so that in the following stages the general implications of alternative actions can be investigated within the framework of policy objectives.

However, although one can envisage an ideal role for SRT's within a more reflexive planning process, the extension of SCG to play this role is limited. The application of the SCG cannot be extended meaningfully to fulfill functions at policy exploration and evaluation stages, and therefore the output of the technique must be linked to other techniques occurring at different stages and dealing with a different order of issue. The problems of linking data on personal and ethical choices, of linking responses to immediate (e.g. local) and strategic (community-wide) issues, and the range of social choice and welfare problems all enter into the

picture. However, these problems are not generally recognised by practit-
ioners and have certainly not been overcome in theory. We do not know how
to integrate values regarding immediate environments with values regarding
strategic environmental issues, within a plan-making process. This chapter,
and in a more formal fashion Appendix C , have made an initial step
toward recognising and structuring the problem in plan-making terms.
Perhaps more importantly, however, we do not know what the relations bet-
ween the types of value mean for the individual. Although much work has
recently been done in environmental psychology and geography, our
conceptualisation of these relationships is in many ways inadequate. The
following chapter deals with these problems in greater detail.

Further Comments on the SCG

It was argued above that the SCG has a potential role as a feasible
and workable SRT in structure planning. But how does it respond to the
present climate of public participation practice? In concluding the assess-
ment of the SCG, this section illustrates its responsiveness and contrib-
ution by making reference to the most recent DoE. Advisory Note on Public
Participation, which reflects the contemporary concern for procedures and
method rather than normative, abstract, ideals. Further, the section is
arranged using the technical framework first formulated in Part 1 of the
thesis, comprising the problem areas of Content, Definition, Presentation,
Method, Analysis and Application, thereby highlighting the ways in which
the technical problems overcome in the development of the SCG. parallel
current themes regarding participation problems in structure planning.

Content

> "the general public have been most interested in the
> draft policies and general proposals preferred by the
> authority at the stage before final decisions are taken
> on them, but programmes of public participation have
> often given most opportunity for participation at the
> earlier stages when responses have been more limited."

(DoE 1/77 Para.5)

There is then a recognised need for the public to respond to broad policy issues and options. It follows that techniques must therefore be developed which can present these strategic level issues and elicit responses to them. However, as we have seen, this poses particular problems because these issues are essentially complex, abstract and interelated. The SCG provides an example of a technique which was developed to meet this need, and which has been shown to be capable of doing so.

Problems of content, however, have not been eradicated in the development of the SCG. One has to note that the alternatives and choices which are presented to people in the SCG arise directly out of the planner's work and are therefore subject to the vagueries of cognition and language characteristic of the planning profession. Although the SCG is successful in overcoming this so as to elicit public response to these alternatives, in assessing its contribution to public participation and to plan-making one must recognise that the problems and aims which underly the alternative plans are in a real sense pre-defined by the professional.

Definition

> "contributions from individuals are normally severely limited by the broad scope and long time-scale of a structure plan; (while individuals can point to problems on the basis of their own experience they may not know whether or how structure plan policies and general proposals can influence the solutions; similarly while individuals may appreciate the likely local impact of structure plan policies or general proposals they find it difficult to suggest feasible alternative policies)."

(DoE 1/77 Para.4)

The problems of determining the type of response one is able to get from the public are, of course, very complex. It was argued earlier that the most meaningful response type is the broad category of 'conceived' responses. This is so because behaviour in everyday settings does not provide a direct link with those environmental elements which are of concern.

In particular, the 'conceived' response types which can be termed 'judgements' seemed to offer the best avenues for development, as they can incorporate very complex, abstract and inter-related stimuli. Further, they offer the possibility of eliciting 'ethical' judgements which may be appropriate for many problems.

Despite the success of the SCG in obtaining judgements regarding strategic planning issues, however, the problem still remains that these responses seem, inevitably, to be less realistic or meaningful to the respondent than those which he makes regarding his personal response to his immediate environment.

Presentation

> "In general, county planning authorities have followed
> the advice in paragraph 10 of Circular 52/72 that
> illustrative and simplified versions of the material
> should be made available, but the presentation of this
> material has sometimes been too confusing to make the
> desired impact.
>
> The research shows that 'planners need to produce a var-
> iety of materials pitched at different levels of complex-
> ity and disseminated in a variety of ways'. (IRP No.9
> paragraph 5.12)."

<div align="right">(DoE 1/77 Paras.10 and 11)</div>

With regard to presentation, the development of the SCG had to respond to the conceptual and practical difficulties arising out of content and definition problems. If respondents are likely to have an internal representation of the stimuli under consideration then it is possible to elicit a response with a minimum of presentational material. However, this is not usually the case with respect to strategic planning issues (as illustrated previously by the low scores on IC and IL) and therefore extensive information dissemination is required and the process may have to be didactic (and therefore iterative) in character.

Of course, information regarding strategic planning issues is by definition very complex and it was argued earlier that it should only be

simplified to the extent that it maintains its _meaning_ with regard to the
content area (in this case structure planning). This poses a dilemma, for
one needs to avoid the 'confusion' mentioned above and yet still present
complex information. The development of the SCG goes some way to resolving
this dilemma by introducing iterative mechanisms into the technique so
that respondents deal with progressively more compled information, and so
that different groups can play 'simpler' or 'more complex' game formats.

The need for 'different levels of complexity' is of course common to
all methods chosen for information dissemination. The development and
testing of the SCG illustrated that this can, and indeed should, be taken
specifically into account in the design of response techniques.

Method

> "A sample social survey conducted by interview can reach
> the people who do not come to meetings, send in rep-
> resentations or support the work of participating
> groups.
>
> Owing to the nature of structure plans, authorities
> have found it difficult to design questionnaires which
> would yield a useful response. Most people do not
> have sufficient knowledge of all the implications to
> make a considered choice between alternative strategies
> or policy options, but when questions have been related
> to concrete matters within people's experience, they
> have often led to the collection of information which
> is not directly relevant to a structure plan."

(DoE 1/77 Paras.34 and 36)

The quote above notes the usefulness of interview survey techniques
for public participation purposes, and the difficulties of designing such
techniques when dealing with the strategic planning level. Yet the exam-
ination of available techniques (Chapters 3 and 4) found them wanting with
respect to the extent to which they could present and elicit responses to
strategic planning issues. They are also inadequate (though Priority-
evaluators to a lesser extent) with respect to secondary criteria which
reflect the need for the techniques to perform as instructional instruments
in some cases.

It was in response to the above problems that the particular struct-ure of the SCG was developed, bearing in mind that the problems of method and technique are a conglomerate of the problems of content, definition and presentation. Having as its central theme the presentation of the implications of various policy options, and feedback to respondents regard-ing the specific implications of their choices, the SCG succeeds in providing an operational structure wherein people _can_ make a 'considered' choice. The problem still remains, however, that the SCG provides too few links with matters arising out of people's everyday experiences, and is, in a sense imposed from above.

Analysis

"There has also been confusion about the way to evaluate response. Some authorities have used aggregates of response as if they were results from a plebiscite. The county council is the authority which has to bal-ance the various interests in the area before coming to its decisions. The response from the public helps members of the council to be aware of the interests likely to be affected by plan policies and proposals and of significant bodies of opinion, but it is an aid, and not a substitute, for the judgement of councillors."

(DoE 1/77 para.41)

The problems of analysis arise from two main sources, one from the method itself which determines the type of data one has (in particular, whether it is ordinal or cardinal) and the other from the context of its use - for example, is it to be used as a decision criterion or for descriptive purposes?, are weights to be applied to some individual and group scores? etc. In this regard, there is always a balance to be made between assumptions regarding the level of data and the amount of information this provides. That is, if one accepts a low level of data, say ordinal, which is theoretically defensible, then only certain manip-ulations are possible. On the other hand, if one assumes ratio scaled data then the aggregation permutations are wider, but this may not be supportable theoretically and indeed may make a nonsense of the results.

The problems centre around the theoretical issue of aggregating individual responses. During the assessment of the SCG, numerous problems were encountered in this respect regarding the role of individual preference orderings and interpersonal comparability assumptions. It was decided to accept a low level of data, utilising a 'group lexicographic' rule which facilitated description of group preferences and choices. It was therefore used as an 'aid' and not a substitute for institutional decisions (see Chapter 8).

There is however, no 'correct' form of analysis that should be adopted in these circumstances. The SCG, for example, provides a wealth of preference data arising from the MAUT sections which can be treated in a much more sophisticated, that iscardinal, fashion. The important point to note is that the decision as to how to treat the output from the technique either to inform decisions, or as a decision criterion, is fundamental to deciding its use within plan-making, and to an evaluation of that use. The author's view is that the sophisticated analysis of weak data is unwarranted if it builds into the planning process assumptions which are unnecessary or invalid. The main limitations concerning the output from the SCG therefore concern the nature and meaningfulness of the responses rather than the scaling of the response.

Application

> "Even when a survey is satisfactorily designed it can only
> record the answers of individuals who have not usually
> discussed with others in the same situation how best to
> advance their interests. As, in fact, all the methods of
> obtaining a response from the public have limitations a
> carefully considered combination of methods is best.
> (IRP No.10 paragraph 12.1)."

(DoE 1/77 Para.37)

The role envisaged for SCG in participation terms is paralleled and enhanced by its potential role as a feasible and workable SRT in structure planning. The final problem area, that of 'application' of strategic res-

ponse techniques, is concerned with assessing what the output of a spec-
ific technique is, and how this can best be integrated within a plan-
making process. It is intimately connected with the question of the link-
ages between each of a range of response techniques, with the broader part-
icipation/consultation processes and the procedures of plan-making.

As we have seen, the application of the SCG in functional isolation is
inadequate. It must be linked to other techniques which deal with personal/
immediate issues such as PET's, so as to perform a range of specific
functions within plan-making. The contention of this Chapter, which has
concerned itself with some of the problems of application, is that the
response techniques used with regard to sectoral objectives, policy object-
ives and evaluation should not be inconsistent but should be linked in a
rational, coherent fashion. As no single technique can be extended to
perform the range of functions required, a combination of methods is
necessary. However, combining SRT's with, for example, PET's, produces a
range of further problems to which, as yet, no satisfactory theoretical or
pragmatic solutions are available. These problems include the relations
between personal and ethical choices, between strategic (community wide)
and local issues, and Social Choice problems. On a different level, it
was argued earlier (Chapter 3) that the problems of applying SRT's should
be understood as part of the wider problem of the 'Integration' of public
participation in plan-making. Although it is possible to circumvent many
of the dimensions of the problem, overall solutions are not possible. This
chapter (and its addendum, Appendix C) has attempted nevertheless to
structure some of these dimensions, illustrating where and in what way
they are likely to occur.

CODA

The foregoing sections offer an assessment of the SCG's contribution
to the public participation programmes of structure planning. Its
contribution to the latter, however, is in many ways circumscribed because

the organisational and institutional milieu places so little importance on participatory and democratic rights sui generis, and because the plan-making process itself cannot easily assimilate either an increase in these rights or more innovatory public response techniques, especially in its earlier stages.

In terms of the technique, fundamental problems have yet to be resolved. In particular, it is difficult to envisage that the alternative strategies which lie at the basis of such techniques could ever be determined purely by members of the public. This is supported by the output of the Integrative Complexity and Information level surveys which illustrate a low capacity to deal with strategic issues when unprompted and unstructured. Nevertheless, the balance between public and professional input is at present too great in favour of the latter, particularly in the policy exploration stages.

The work on the SCG, by providing a method for obtaining public response to strategic planning issues, goes some way to resolving this problem of balance, but has also illustrated that to be more effective responses to strategic issues must somehow be linked with responses dealing with the immediate experiences of people. This need can betreated in two ways. Firstly, as a problem of knitting together and relating <u>techniques</u> which deal with localised/personal preferences to those dealing with strategic ones (e.g. PET and SCG). The various problems of integration must then be overcome. Secondly, it can be viewed as a problem of design in that the SCG (or SRT) itself should build up from people's personal experience to a level where strategic information can be disseminated to them during the game so that subsequently (in the later stages of the game) they would deal with strategic issues. In other words, the two levels of response, to strategic and to immediate issues, should build upon and reinforce one another within the context of the SRT as well as within the plan-making process itself.

To recapitulate, public responses to strategic planning issues in SCG are in many ways speculative. What is required is for respondents to interrelate personal/immediate preferences and perspectives (those closest to personal experience) with the strategic perspective. This is a parallel notion to that prescribed by Etzioni concerning the linkages between broad scan (strategy) and fine scan (tactics).

A further comment can be made regarding the nature of alternatives/ choices often presented by planning authorities, and reflected in the SCG. The series of alternatives presented to the public are usually so similar that the choice amongst them is almost irrelevant. Of course, much of this is due to the legislative and institutional constraints acting on the profession, which are a reflection of societal differences and the realities of power in society, as well as a general reflection on the output of the planning process as it is presently conceived and operated.

In contrast, one could say that, if we were in a situation where it was socially accepted and recognised by public and planners, that the public would be involved in developing and then choosing between planning strategies, within a direct participatory system, then there would be scope for techniques which were far more realistic and adventurous in terms of the alternatives offered. In other words, the more wide-ranging and meaningful the alternatives (accepting the, very real, constraints) with real issues and differences made explicitly clear and central the more meaningful the public response would be. The question of how significant the technique is is therefore a reflection on, and perhaps directly proportional to, how open and responsive the planning authority is willing and able to be.

It is the contention of this thesis, therefore, that the SCG in obtaining public responses to strategic planning issues can, despite its many limitations, play an important public participation role, especially by providing an impetus which would 'open up' some areas of policy-making

to more meaningful public consultation and debate. In so doing it can also make a contribution to structure plan-making which is lacking in contemporary practice - the input of public values regarding strategic level issues and policies. Further, an increase in its utility to plan-making is not only dependent upon improvements in techniques (though these are nevertheless desirable) but also upon the willingness of planners to utilise such public participation techniques meaningfully and devote the necessary effort and resources to meet this end.

However, the point has already been raised in this chapter, that there is a further critical dimension to the problem, which is determined by the very nature of strategic issues and the meaning that these have for members of the public. The essence of the problem is that strategic planning issues are, to a large extent, formulated by planners. Members of the public do not normally, in the course of everyday activity, have to deal with this level of examination of their environment and therefore the experience that they bring to strategic planning is restricted. It is to these problems that we now turn.

NOTES

1. See, e.g., Barras and Broadbent (1975).

2. For further discussion of these points see Booth and Jaffe (1978).

3. For a detailed investigation of the conceptual problems of maintaining consistency between the operational, theoretical and technical dimensions of environmental evaluation, see JURUE (1976).

CHAPTER 10

STRATEGIC PLANNING ISSUES AND PUBLIC PARTICIPATION

The raison d'etre of SRT's is to structure and facilitate communication between planner and public with regard to strategic planning issues. The work on the Strategic Choices Game has shown that, although a consideration of the various problem areas mentioned earlier (that is, definition, content, etc.) can facilitate the development of techniques for application in specific operational settings, the central problem area - that of content problems - remains unresolved. For the major and most intractable difficulties of public response arise out of the very nature of strategic issues themselves, and people's comprehension of them.

These difficulties have been illustrated at various points in the thesis. For example, in Chapter 4 a description of strategic planning issues in the West Midlands was used to highlight the nature of the professional language, definitions and concepts which provide the background to and substance of plans which are often presented to the public for their consideration and choice. There are obvious noticeable differences between this language and that used by different sections of the public with regard to the large-scale environment (for instance a metropolitan area). Further empirical illustration of social differences was offered in Chapter 8 (the IC and IL Surveys) in terms of the level of complexity at which the large scale environment is cognised and in the amount of information about the processes at work in that environment.

It is the contention of this final chapter that the further development of techniques to facilitate improved communication between planner and public regarding strategic planning issues is conditional upon a greater understanding of the way people comprehend the large-scale environment, and especially the differences between planners' and public cognition and understanding.

The relation between people and environment is important in another respect, however. Not only is an understanding of it necessary for improvements in techniques and practice, but it is also important in a consideration of the general approaches to public participation and planning. That is, it provides the middle range theory which links practical/ empirical concerns with general works such as Etzioni's. Whereas the last chapter dealt with the integration of techniques into planning procedures, that is, integration at an operational level, an understanding/conceptualisation of the cognition of large-scale environments is necessary to integration at a theoretical level. The latter is the integration of psychosocial factors within the planning and design disciplines, and is essentially a problem of integrating two closely related bodies of knowledge. The first cross-disciplinary area is the emergent field of Man-Environment Relations, which is primarily composed of social ecology, environmental psychology and ecological psychology. The other area can be labelled as Environmental Design, and includes the traditional design disciplines of architecture, landscape architecture, and urban planning and design.

This final chapter addresses these two areas of interest as follows. Firstly, by an examination of Man-Environment Relations Theory in order to assess the extent to which it can accommodate strategic environmental concerns, and with a view also to locating some research priorities, and secondly, by an examination of problems of integrating this disciplinary area with Environmental Design principles. This latter involves a further consideration of the applicability of Etzioni's framework, and of more general requirements for change with respect to participation and strategic planning issues.

Man-Environment Relations Theory

Conceptual Traditions

Although it is beyond the scope of this study to trace and explain the

historical epistemológicál developments leading to the recent formation of fields such as environmental psychology and social ecology, a few observations are important in seeking to establish the contribution that could be made to various planning and design problems. Two research traditions underly these fields. The first, the ecological tradition, can be associated with the early work of Park (1925) and Wirth (1938) in human ecology and urbanism, followed by Hawley's (1943) work on social structure and urbanisation and later work by Firey (1947) and Webber (1964) on land use patterns and 'urban realms' respectively. The main focus has been on relating demographic and geographic characteristics to social and economic variables in detailing sub areas of cities or describing metropolitan spatial development patterns. Although important for its aggregated descriptive output, the approach is limited by the lack of systematic knowledge about the nature of environmental elements as related to everyday social phenomena.[1]

Although much of present planning practice incorporates ecological perspectives the various processes of how people interact with the physical environment, or how they would like to, is still a 'grey area'. For this reason, the second tradition, concerned specifically with the interaction between man and environment appears an important area for enquiry as well as the most important perspective for addressing problems of public response to strategic planning problems.

One of the most important conceptual distinctions underlying this perspective is that between the objective environment and the environment as perceived.[2] For example, Murray (1938) differentiates between the alpha press environment and the beta press environment, the notion of 'press' referring to environmental satisfactions and dissatisfactions. The contention here is that the planning oriented disciplines should conceptually integrate both the objective and perceived environment in seeking to understand public response problems as well as urban behaviour patterns

generally.[3]

As well as the objective versus perceived environment conceptual issue, another research problem revolves around the most valid units of analysis. Usually this has involved work on needs, roles, attitudes, preferences, and values as the primary variables. However, one must note the importance of symbol systems operating in problem situations (especially, as in the case of the SCG, where the unit of analysis is 'judgement'), for it is symbols which have the ability to transmit meaning regarding environmental attributes. The spatial form as well as the social and institutional structures of the city have drastically different meanings for various population groups and publics, and it is upon meaning that most human behaviour is structured. Symbol system features are, therefore, an essential feature of man-environment interactions.[4]

A third and final issue which can be specified in man-environment studies involves the nature of the processes involved in interactions. In psychology, for example, it is generally accepted that between 1920-60 psychology was dominated by the conceptualisation of behaviour as 'mechanistic' rather than cognitive, by the mechanistic behaviourism of Watson and the neo-behaviourism of Hull. Its goal was to "predict, given the stimulus, what reaction will take place; or given the reaction, state what the stimulus is that causes the reaction" (Watson 1924). As mentioned in Chapter 4, the general trend in the contemporary study of motivation is to question the validity of the S-R (Stimulus-Response) formula, in a similar way that the behaviourism of Park was questioned by later theorists in sociology, and to replace it with a cognitive model which presents the formula S-C-R (S-Cognition-Response) thus including higher mental processes. A major concern of psychologists in this context has been to examine the operation of the cognitive systems which bridge the gap between stimulus and response - for example work on 'cognitive persuasions' (Holland 1972) and on the development of cognitive mapping techniques (Proshansky et al 1976).

Although it has been beyond the scope of this section to examine man-environment theories and concepts in greater detail,[5] the preceding remarks suggest that the three most important concepts for linking aspects of the problem area are, the nature of the processes involved in man-environment interactions; the conceptualisation of the links between the objective environment and the environment people perceive; and the most appropriate units of analysis. It is these which must be brought together in a consideration of the large-scale environment (say a metropolitan county area) as cognised by planners and public.

The Strategic Environment: an heuristic device

> "... the function of the so called mental processes is essentially a semantic one. By this we mean that 'psychological contents' function as symbols and the psychological processes are operations with these symbols. In the psychological realm life takes place, not through the interaction of the concrete individual with a concrete environment - which is only tangential, but by the interaction of symbols representing the individual and the environment."
>
> (Argyal 1941)[6]

For all individuals the environment really exists in symbolic terms. Individuals behaviour depends primarily on their recognition of such symbols and their meaning.[7] This is particularly true of large-scale environments, where a lot of what people know, and the mental images they construct are a product not of direct experience, but of language and images.

An example of such an environment might be the 'Motorway Network of the Midlands', or the 'Housing Market' in Birmingham. Clearly, one cannot look at, that is perceive, 'the housing market', though one might have personal experiences of it whilst house-buying. Large-scale environmental objects and processes really exist in symbolic terms, as do all environments, and an individual's behaviour depends primarily on his recognition of such symbols and their meaning to him. If one asked, therefore, what is the

relation between man and the large-scale environment, the answer would be located in the relations between man (including planners and public) and his symbolic representation of those environments he cannot observe.

However, the contention here is that, although a member of the public might have a 'cognitive map' of the Midlands motorway network which enables him to find his way along it, and whilst this is derived from both direct experience and secondary sources, his conceptualisation (ie. symbolic representation) of that environmental property is characteristically different to a planner's. The way that people adapt to and attempt to control their everyday environment does not reflect to any great degree the way that planners cognise that environment.

The term 'Strategic Environment' (Sinclair 1977   ) has been introduced in an earlier paper to refer to those symbolic complexes of language, concepts and images which represent large-scale environmental configurations and do so by abstracting their essential structures and processes.

The strategic environment therefore refers to the emergent symbolic properties of environments and as such deals with definitions of structure and meaning which are completely culture-bound.[8] The strategic planning environment (that is, the model of the world adopted by urban planning with regard to strategic matters) is characterised by symbols expressing relations between social, behavioural, economic and other aspects of large-scale environments. Thus the description of structure planning issues in the West Midlands, given in Chapter 4, can be considered in these terms.

What then is the essence of strategic environments? If one considers, for example, 'population growth' as a stimulus for a planner and for an imaginary person who does not think in 'strategic' environmental terms, then there would be fundamental differences with respect to the level of abstraction of representation of population growth. Further, the planner would tend to think in more systemic terms either implicitly or explicitly.

That is, he would think in terms of a "set of objects together with relationships between the objects and between their attributes" (Hall and Fagen 1956). These objects would be characterised, not only by greater abstraction, but also by greater complexity, that is, there would be more objects and more relationships within the system. Finally, the planner would cognise a higher degree of interrelation between the system which we can consider as a whole, and its environment. He would therefore link population growth to a greater number of related areas of concern, such as the housing situation.[9]

The conceptualisation of a 'Strategic Environment' therefore stresses the fundamental differences in style and substance between professional planners' and the public's conceptualisation and cognition of large scale environmental properties. It also illustrates the essential difficulties in obtaining public responses to them.[10] For not only does the public not share the conceptual framework which allows this style of consideration of the large-scale environment, but they can never do so - for they do not have access to the social contexts within which such frameworks are developed and disseminated.

The Research Paradigm of the Environment

Practitioners have increasingly turned to psychology for tools by which they can elicit responses from individuals concerning their environment. Even when not specifically derived from psychology (e.g. in behavioural geography) these techniques have certainly been developed within the confines of the conventional psychology paradigm which underemphasises a major topic of planning concern - the metropolitan/regional level environment.[11]

The three main branches of psychology which have included man-environment relations are environmental psychology, architectural psychology and ecological psychology. The first of these is perhaps the most

encompassing, dealing with "the character of the total contemporary phys-
ical environment" (Craik 1970), with an emphasis on comprehension of, and
behaviour within the "everyday" physical environment (Craik 1966).

However, there are a number of interrelated limitations to this
conceptualisation of the research paradigm. The first relates to the
object of comprehension - the physical environment. Craik, in his
excellent description and review of environmental psychology, refers to
the molar physical environment, that is, the physical setting of molar
behaviour. But whereas Tolman stressed the emergent properties of 'molar
wholes' and Craik notes their importance for environmental psychologists,
the emphasis which has been placed on such emergent properties of large-
scale environments (e.g. strategic planning issues) has been negligible.
We find that, although the research paradigm outlined by Craik quite
rightly rests upon "confidence than an adequate taxonomy of dimensions can
be developed for the ordinary physical environment", the taxonomies and
classifications so far developed, including Craik's, cannot take full
account of the emergent properties which are of interest here.[12]

Secondly, individuals may react, if they react at all, not just on
one response level but on two levels. One can consider the strategic
environment not just as one's own, but as that of the whole population.
There is, therefore, a social or ethical response level, at which the
individual considers the environment in terms of the community or sections
of the community of which he may not be a part. The 'units of analysis'
may therefore include 'ethical judgements and preferences.[13]

Thirdly, when the object of comprehension is the large-scale planning
environment, the mode of comprehension (i.e. 'the process of interaction')
is a non-immediate one, a mode removed from 'everyday' life. We are
dealing with that which is generally unavailable to respondents in percept-
ual terms. The suggestion is, therefore, that we should be dealing with

'mental maps' or 'cognitive' maps, not in the conventional sense of a mental analogue to a physical reality (as is the case with most work on 'mapping') but the image of a symbolic reality which is primarily derived from secondary sources.

Thus although psychologists and others have tended to investigate the effects of the physical environment on behaviour and experience, - concentrating on cognition of large-scale physical environments (e.g. city landscapes) and on behaviour within small-scale physical environments (e.g. hospital wards - the present emphasis in the man-environment research paradigm, as conceptualised in terms of the nature of the environment, units of analysis and processes of interaction, fails to accommodate strategic environmental concerns.[14] This is a notable omission, for if a person's behaviour is determined by the layout of his house, it is also determined, less immediately but just as forcibly by the housing situation of the region of which he is an element. This not only affects him when, for example, he wishes to change house, but because of the linkages of housing with transportation, population changes, employment, it affects him indirectly in the form of a strategic-level environment wherein his goals, and behaviour directed towards those goals may be located.

Towards a New Emphasis in the Research Paradigm

It is suggested that practitioners continuing concern with strategic environmental processes characterised by increasing complexity, scale, abstraction and rate of change, necessitates a re-alignment of the research paradigm to include emergent properties of the molar environment.

However, the conceptual and methodolcgical problems of dealing with metropolitan or regional level environments have hardly been recognised, and have certainly not been investigated.[15] Of course, designers have increasingly turned to the behavioural sciences in an attempt to accommodate behavioural patterns (and cognitive patterns) to design features.

This has led, among other things, to the study of specific designed environments such as dormitories (Van der Tyn 1967), libraries (Sommer 1966) hospital wards (le Compte 1972), determined implicitly or explicitly by the conceptualisation of a "behaviour setting" (Barker 1968). However, the choice of content of the environment in such studies is clearly undertaken at an arbitrary level of abstraction and inclusiveness.

This may not create intractable problems when the environment can be easily specified, and is cognised by psychologist and subject in a similar way (e.g. regarding physical layout). However, in assessing the future of research using this paradigm, one finds it difficult to support Craik's view that the environments under consideration "will range in scale from single rooms to urban areas" (Craik 1970).

Urban areas are not just aggregations of all the houses and rooms, or all the public settings in an area. There are emergent properties in the large-scale environment (which includes social and economic environments as well as physical ones). These emergent properties are processual and include fundamental changes over time.

Everyday behaviour in such environments provides a poor tool for examining the relation of individuals to these processes and for predicting public response to policy at this level. Before we can start to develop adequate tools we need to consider more fully the public cognition and understanding of such environmental processes.

Of course, interview techniques such as attitude scales and preference tests have been used to elicit responses to designed environments in order to supplement ecological studies. However, the validity of such techniques is questionable when large-scale environments are chosen as the stimuli. In such situations the respondent's lack of everyday knowledge, and lack of access to conceptual frameworks by which he can judge such environments make the definition of response extremely problematic.

If citizen involvement is to become more meaningful at the strategic level, research must go beyond ecological psychology, beyond behaviour as it occurs in a natural setting and investigate subjective responses and conceptions of the whole large-scale environment and environmental processes.

The research paradigm which is being suggested is therefore one which includes psychology on the one hand (in terms of individuals' understanding) sociology and social psychology which will explain the sources of much of this understanding (in terms of commonly held beliefs, mass media etc.) and ecology /economics/planning etc., as the object of understanding. In fact it would deal with, and study, man's understanding of the cultural/ symbolic environment, particularly as it is characterised for the activities of urban and metropolitan planning.[16] Such an emphasis in the research paradigm would contribute towards the integration problems outlined in the introduction to this chapter, because it moves towards an integrated man-environment theory which identifies, and explains, and relates the major principles of those research orientations concerned with the emergent properties of large-scale environments. As suggested earlier, these principles can be considered in terms of the nature of the processes involved; the conceptualisation of the links between objective environment and the environment as perceived; and the most appropriate units of analysis. We can now turn to the second main section of this chapter, which is concerned with "the need to formulate models of planning and design which can incorporate these principles in defining problems as well as in generating alternative schemes and making policy choices". It is concerned, then, with the implications of fundamental differences in cognition for the wider problems of 'societal guidance'.

Towards the Active Society

A number of studies have investigated the differences between public and professional evaluations of the physical environment (see, for example, Appleyard 1969) and the effects of differences in specialist beliefs on the

decision process (Sewell 1971). The fieldwork described in Part 2 is further indication of these, illustrating specific differences in terms of IC and IL levels concerning structure plan issues.

However, these differences do not exist in isolation, but are socially constructed. They arise presumably because planners develop their skills and ways of looking at the world within a social and institutional milieu which is not available to members of the public. Thus the professional milieu, characterised in Part 1 in terms of its institutional, legislative and ideological dimensions, is the major determinant of such differences, as the profession defines those elements of their environments which are of concern to themselves, and define them in characteristic ways. During their professional training and socialisation into local authority bureaucracies, planners are trained to think about urban and metropolitan areas in certain ways, and to use those concepts and techniques, which conform more or less to the social milieu within which they will have to operate.

Thus the conceptual systems which planners have at their disposal to deal with large-scale environments and the emergent properties of such environments (e.g. 'strategic planning issues') are in essence cultural artifacts. Yet they provide important definitions of reality for our society regarding the environment, and permeate to different degrees the whole of the social structure. The term 'strategic environment' was introduced to highlight these emergent symbolic properties of environments, and is therefore a concept which covers definitions of environmental structure and meaning which are completely culture-bound and socially variable.

An important outcome of this is that the practitioner's reality is to a certain extent insulated from public criticism and amendment because of the authority inherent in his position and his possession of a 'knowledge'

which is acquired through professional socialisation and education. This is
an elaboration of Etzioni's (and others') references to "the hierarchical
structure of societal knowledge".[17] Nevertheless, it is his (the planner's)
version of 'reality' which provides the background to the development of
plans which are presented to the public for their consideration and choice.

One can see that the implications of these cognitive differences for
public participation are enormous, as they are for the development of public
response techniques. But they are not just confined to planning. 'Strat-
egic Environments' are created by all official groups in society who deal
with abstract, strategic matters. This can lead to a situation which is
somewhat akin to the Marxian notion of alienation, that is, a situation in
which individuals are not truly aware of their relation to their
·'environment' (In Marxian terms this might be be the environment of the
work-place.) Mannheim, in fact, offers a sharper definition for our
purposes. He considers alienation to be a decline in "the capacity to act
intelligently in a given situation on the basis of one's own insight into
the interrelation of events" (my emphasis) (Mannheim 1952).

Alienation, as is well documented, manifests itself in all areas of
life, to a greater or lesser extent. Thus we see people questioning motor-
way decisions, we see the periodic outbursts of individuals and groups
against the growth of bureaucracy and its inhumanity, we see the response
of inhabitants of inner cities to the changes in their environment of which
their understanding is limited and over which their control is minimal.
The reasons for such public reactions are various (some were outlined in
Chapter 1). Yet a common theme of such reactions - of disenchantment with
authority, the separation of 'them and us', and feelings of powerlessness -
is that decisions are responded to by the public as tactical decisions.
Rather than focussing attention on the strategic background to and
implications of policies, the response is often to the content of a plan as
it affects people personally.

It has been argued throughout this thesis that if planning is to be more responsive, that is if it is to provide a more responsive guidance system, then public response methods and public participation generally should be more concerned with these strategic matters. Hence the main focus of the work has been on the development and use of Strategic Response Techniques. Yet there are clear indications that this argument is being recognised increasingly by public pressure groups. Examples include the growing combination of local action groups to fight policies to close rural primary schools, whereas in the past the resistance was on the basis of individual villages.[18] This tendency is not merely towards national pressure groups, but towards a different focus - the strategic background (developed especially within local and central government) to local decis- ions. Similarly, recent developments in the nuclear field have been co- ordinated on a national level to resist the building of reactors as a matter of general, strategic principle, rather than on the basis of spec- ified localised effects and impacts. One must now ask what the implications of this work are for these wider concerns of societal guidance.

From the perspective of societal guidance, the main limitation of SRT's is that the major elements present in everyday _social_ behaviour and action, which determine social outcomes, are missing. These include, for example, the distribution of power between actors, the possibility of coalition formation, and the interaction of social and psychological factors.

These elements are basic to the principle of a purposive action theory concerned with 'everyday' activity in which an actor attempts to maximise his 'utility'. Thus the purposive action principle is posed at the level of the individual actor and not at the level of individuals in a social milieu, that is, a collectivity. There is, in fact, no comparable principle for a 'collective actor'. The utility of a collectivity is _not_, for example, the sum of individual utilities!

Those situations where the key behavioural elements are not present provide the central problems for collective social choice theory.[19] Indeed planning, (and the use of SRT's) can be seen as an institutional response to the uncertainty of collective action, that is the uncertainty as to how a community should control and direct change within itself. This is best illustrated by those planning theorists who, drawing on social choice theorists' attempts to simulate collective choices by formal procedures and rules, have offered theories of 'planning (and design) as collective action'.[20]

The problems with such theoretical structures and techniques is that they are artificial, they are concerned with models and simulations. This work has pointed to perhaps the most important areas where such simulations break down. They include the areas of differential cognition of problems and solutions (based primarily on differentiated social and institutional milieux); the lack of adequate means and technology to communicate the exact differences between each individual; and the lack of an adequate method of resolving these differences to arrive at community solutions (the problems of 'social choice'). As we have seen in the problems of developing SRT's, the creation of artificial and surrogate means to overcoming these problems is extremely difficult and subject to a wide range of problems.

Further, we have pointed to that area of the three above which is most pervasive, and this is the differences in cognition of problems and solutions, for if there was always complete consensus on these, then communication and the making of community choices would pose no problem, everyone's perception of community problems and solutions would be the same![21] As stated earlier, the development of more responsive planning and design disciplines is contingent upon the integration of such psychosocial factors with planning and design principles.

These problems are also of critical importance for Etzioni's theory of societal guidance which shares a central theme with social/collective choice theory - the relation between individual values and social choices. The full value of Etzioni's normative theory is that it is not oriented towards problems of simulating and developing formal principles, but is concerned with social _action_, with the activities of collectivities in determining social choices, and is sociological in orientation.

However, its main inadequacy is that it does not pay sufficient attention to psychosocial factors.[22] The problem, in particular, of knowledge exchange regarding strategic issues has been illustrated both by the practical/empirical work of this thesis - concerned with the development of techniques - and by the conceptual problems outlined in this and the previous chapter:-

> Transformability, for example, requires greater awareness of the community context, that is, specific reference to strategic awareness. The lack of public awareness is a function of the hierarchical structure of societal knowledge. The differences between planner and public are part of this - they are illustrative of an unequal distribution of knowledge in society which is itself a reflection of, and some would argue the basis of, general differences in education, status, power and social roles. Increasing Transformability is dependent upon the Self Guidance Principles, but as was illustrated there are fundamental problems in this respect:-
> Rights to participate are not wide-ranging, constraining the types of influence it is possible to have, and are subject to the social, political and economic structures of society;
> Competence to deal with issues is a normative ideal which it is very difficult to effect. It requires a commonality in the style of cognition of environmental problems, and of cognitive abilities, which in turn requires overcoming those deep-seated social differences

mentioned above;

Methods of Communication are primitive. Although one can design SRT's for application in certain operational contexts, the main constraints on adequate communication are again socially determined.[23] SRT's can aid this situation but have little effect on the central problems.

Thus, although Etzioni's theory is one of the most well-developed theories of planning, it is beset by the problem of the malintegration of man-environment relations and planning principles common to all theories of planning and guidance.

Towards Integration

The nature of urban and regional problems transcends the traditional models of social choice and of planning, whether individual or collective. The models are inadequate mainly because they do not recognise, or they oversimplify the psychosocial and ecological dimensions of the substantive problems and those decision processes involved in seeking to resolve them.

In seeking to integrate the two cross-disciplinary areas of Man-Environment Relations (social ecology, environmental psychology and ecological psychology) and Environmental Design (urban planning, architecture) one must first of all consider the degree of commonality between issues and concepts and approaches.

The main elements of man-environment theories were outlined earlier in terms of the nature of man-environment interactions; the conceptualisation of links between objective and perceived environment; and the most appropriate units of analysis.

The areas of planning and design are as wide ranging, and are concerned with such divergent topics as problem identification and structure, search, actors in the process, control mechanisms, modelling techniques and intervention strategies.[24]

From examining these divergent topics, however, two concepts emerge as basic and common. These are problem-solving and decision-making. These concepts can be used as initial synthesis structures in an integrated theory, for as the foundation of design, they are not only central to those aspects of design associated with urban planning, but with design as a creative human behaviour.[25] Thus Heimestra and Ellingstad (1972) when viewing human behaviour as a system, have identified problem-solving and decision-making as the basic processes involved.

An important outcome of considering design as a form of behaviour is that the factors significant in the process of design are essentially the same as those factors identified as significant in the behavioural consider-ations of persons in any reference situation. Problem solving processes are determined by cognitive factors, situational needs of individuals, and information characteristics. Decision-making involves the addition of reference situation factors (risks/uncertainty) and individual adaptive factors. This is especially important in efforts to integrate the procedural and substantive dimensions of planning and design.

What is required then is investigation of each of these factors/ elements within a synthetic framework in such a way that the body of know-ledge underlying the theoretical and methodological principles of the man-environment field can be integrated into the urban planning and design process.

Before this is done satisfactorily, however, practitioners must rid themselves of those constraints on knowledge and action created by notions such as 'rationality' and 'public interest'. These concepts are detrimental to viable urban planning because, firstly, they underemphasise the role and significance of psychosocial characteristics as critical urban issues in their own right (as illustrated by the acceptance of planners' 'knowledge' as the basis for policy and issue exploration); secondly, they tend to

pre-define the nature of urban problems and possible solutions (illustrated. in Part 2 with respect to institutional, legislative and procedural constraints); and finally because they help mask the real influence of those social, political and economic groups which actually control urban decision-making processes. Simply stated, the adherence to the principles and concepts underlying 'allocative' planning negates the possibility of addressing some of the principal dimensions of the quality of urban life.. Such principles cannot recognise that the apparent failure of public part-icipation is a problem _for_ planning, as well as _of_ planning.

NOTES

1. Michelson (1970) traces this to the lack of explicit research on the relation between physical and social environments caused by an incomplete conceptualisation of 'environment'. The "fixation on aggregates" contributed to this lack of spatial-social knowledge.

2. Perhaps the most important conceptual framework in this regard is Lewin's classic 'life space' model of behaviour (Lewin 1951).

3. Similar emphases have been developed by other interaction theorists, e.g. Koffa's (1935) distinction between the objective geographical and perceived ("behavioural") environment.

4. See, e.g. Rapaport (1974) on symbols, Hillier (1972) on the problem of meaning.

5. The major sub-areas of contemporary research include:-
   a) behaviour in specific settings, e.g. Barker's (1968) behaviour setting analysis, Proshansky et al (1970) behaviour mapping studies;
   b) human adaptive processes e.g. Dubos (1965) Kaplan (1973) and Wholwill (1970);
   c) space and human nature e.g. Hall (1968) in proxemics. Altman (1970) on territoriality and Craik (1972) on ecological analysis;
   d) perception and cognition of environments e.g. Lynch (1960) and Appleyard (1969) on cognitive mapping, and Piaget (1948) Bruner (1966) and recently Kaplan et al (1976) on developmental studies.

6. See Emery and Trist (1972) p.77.

7. 'Symbols' are not necessary mathematical symbols. The term is used to include different characteristics of any model (i.e. eicomic, analogue etc.) and includes words, concepts, images etc. Of course, there is a relationship between man and the large-scale environment as it 'exists' in a material sense, but more importantly this relationship is ascribed structure and meaning only by our culture.

8. The difficulty of detecting emergent processes in 'turbulent' environments has been investigated by Emery and Trist who detail the importance of changes in the state of symbolic systems.

9. The notion of the 'housing market' serves to illustrate these points. Most people would accept that houses exist; individuals also exist. Some individuals buy and sell houses. Yet practitioners, in their treatment of such independent events, collate statistics concerning the buying and selling of houses by introducing categories of people and houses (e.g. public/private, age, size of household etc.). They then commence to talk about processes or relations between categories. They also consider these processes over time. Finally, and most importantly, they introduce concepts into their treatment of such independent events, concepts such as the housing market, housing mix, housing density, accessibility of residents (to employment), residents' socio-economic class, conflict in the housing market etc.

10. The reader will recognise the differences as dichotomies represented in the IC and IL measures.

11. Although one can search the literature and find little specific reference to the characteristics of the large-scale environments which are of concern here, some conceptualisations do come close. For example, Sommer (1969) distinguishes between the proximate physical environment "present to an individual at a given moment" and the macro environment, which is the large-scale physical environment present in mind, not sight. Similarly Goodey (1968) suggests that we study 'extra-environmental' perceptions concerned with that which man perceives but of which he has no experience".

12. If one considers, for example, Craik's 'Dimensions of Environmental Displays': Natural   Man-Influenced
              a flower   a tool   Small Scale
              Grand Canyon   Manhattan Island   Large Scale
    and tried to place, say, 'unemployment in the West Midlands' or 'population growth' within the scheme it would be impossible. Indeed, this was not Craik's intention. Appendix   offers some first steps towards classification schema which can include those environmental displays which represent strategic environmental properties.

13. The Strategic Choices Game attempts to elicit such responses.

14. See, e.g., Barker (1968) and Craik (1968).

15. The problems are immense. Firstly, the relation between the environment, psychological states and behaviour, at the strategic level is problematic. The environment is not immediate, and indeed may never become stimulus for an individual. Even if the stimulus is cognised, the behaviour associated with it might occur at a much later date, or not at all. Thus, although the stimulus-Cognition-Response model is an adequate conceptualisation of the relation between molar environment and individuals, it is not such a direct relation for the strategic planning environment.

    Secondly, in terms of analysing the SCR for an individual, the methodological possibilities are severely limited. Responses in behavioural terms might not be available thus the psychologist as 'transducer' (in terms of observing and interpreting natural behaviour) will not be successful.

16. The paradigm can therefore be treated formally as an element of the Sociology of Knowledge (which investigates how knowledge is socially created and transmitted), but has close affinity with the term 'geosophy' which looks at "man's consciously expressed intellectual interpretations of his terrestial environments". (Wright 1937)

17. The hierarchical structure of knowledge in society and the formation of technocratic and knowledge elites have been discussed from many diverse starting points by such as Bell (1967), Chomsky (1969), Habermas (1970). Indeed, the work of the Frankfurt School (Adorns Horkheimer, Habermas) can be understood as an effort to determine the dimensions of the new forms of alienation that rest on the division of cultural labour. For a good bibliography see Therborn (1970).

18. The author is currently involved in an examination of the social and community effects of primary school closures in rural areas, sponsored by DoE and DES.

19. See, e.g., Coleman (1966) and Olson (1965).

20. See Batty (1975) Design as Collective Action.

21. Rawls (1967) offers a formal elaboration of this philosophical idea.

22. The main criticisms of Etzioni's theory in the past have been that, whilst it provides an excellent analytical framework (as illustrated by the organisation of Part 1 of this thesis), this cannot be operationalised in practice. Although, by definition, the implications of any framework can be traced by analysis of its structure if it has an adequate analytical focus, the operational limitations of Etzioni's theory stem primarily from lack of a psychosocial emphasis to the normative dimensions.

23. Habermas (1970).

24. Areas of research on design include: Alexander (1964, 1968), Simon (1969, 1972) on design methods; Churchman (1961, 1968), Trist (1968), Ackoff (1962) on systems and organisational development theory; Bennus (1969), Mitchell (1970, 1974) on social change theory; and Friedmann (1973), Bolan (1967), and Lynch (1960) on urban planning theory.

25. In particular see R. Boguslaw's "design not planning" as the paradigm for human action in Bell and Man (Eds) The Sociology of the Future (1972).

CONCLUSIONS

This thesis has illustrated that there are very real legislative, institutional and procedural 'boundaries' to participarion in structure planning. These boundaries constrain the effectiveness of any method used to facilitate 'public influence' on the plan-making process. Further, people do not seem to be motivated to participate in the guidance of metropolitan systems; their 'knowledge' of such systems and the meaning which they attach to them has not been much investigated; practitioners have little idea of how this information can be assessed to determine'value' and integrated into the institutional/procedural contexts of planning.

Thus a general conclusion of the thesis is that the problems of public participation with regard to strategic planning issues cannot be overcome until the substantive and procedural aspects of planning become more behaviourally viable. This means planning as an activity and as a body of knowledge should be coneptually more synthetic and inclusive, more critical of those methods which underplay the critical humanistic dimensions of life, and generally more concerned with the role of <u>culturally structured communication</u> in society.

A particularly important feature of present participation practice is the lack of available methods with which to elicit and communicate public responses to strategic planning issues and alternatives. A central focus of the work described in the thesis has been the development.of a proto- type SRT - the Strategic Choices Game, and an assessment of it in terms of certain specifications for SRT's and in terms of the operational context of its application in structure plan-making. It is suggested that this innovatory technique can provide a means of communication between planner and public which is not otherwise available, and which therefore constitutes an original contribution to public participation practice.

A number of problems remain unresolved, however. In particular, it is difficult to envisage that the alternative strategies which lie at the basis of such techniques can ever be determined solely by members of the public. This argument was supported by the output of surveys of Integrative Complexity and Information Levels of members of the public, which illustrate a low capacity to deal with strategic issues when in situations which are unstructured and where no guidance is offered.

Although the SCG provides a method for communication with regard to structure plan issues which goes some way to levelling the imbalance between public and professional contribution to the dialogue, this thesis has illustrated that to be more effective, public responses to strategic issues must be linked more closely with responses dealing with immediate experiences of people. Thus in the future development of Strategic Response Techniques, the two levels of response - to strategic and immediate issues - should build upon and reinforce one another within the structure of the technique, especially in its early stages. It is suggested that the work on the SCG will give other researchers and designers of techniques a starting point from which such developments can begin.

Having made an assessment of the SCG itself, the problems of applying this and similar survey techniques within a plan-making process were examined. As with the design of a single SRT, it was suggested that the main problem of applying such techniques was in relating them to other techniques which deal with localised/personal preferences, so as to perform specific functions within a plan-making process. The investigation of this problem necessitated a consideration of the technical, procedural and institutional aspects of 'integration'. Although the general problem remains unresolved, the thesis does provide an analytical framework which structures

its main components (for example, social choice problems, the relation between personal and ethical preferences) indicating where they arise and therefore provides a framework for future work on these, as well as guidance on the application of specific techniques. It was also suggested that in considering the use of SRT's, the attention of researchers be directed to the major imbalance between planner and public in plan-making terms (as it was similarly suggested with regard to the design of techniques) and that this imbalance is greatest in the policy exploration stages of plan-making.

Thus, public responses to strategic planning issues are speculative. What is required is a greater degree of interrelation between those perspectives closest to personal experience and strategic perspectives, both in the design of specific techniques, and in applying these techniques alongside others within a plan-making process.

However, the reader is by now aware that the general objective of the thesis could not be met solely by examination of its technical and operational dimensions. Account had to be taken of its conceptual structure and its general theoretical context. The study suggests that underlying the technical problems of the development of SRT's is a major conceptual problem which may have far-reaching consequences. It surrounds the social differences in comprehension of the large scale environment. It was suggested in Chapter 4 that "Although the elements of definition, content, presentation, method, analysis and application are all essentially problematic, the difficulties of communication and response are a function, primarily, of problems of content, that is, of the public's competence to respond to those issues and problems differentiated for strategic policy making. An understanding of the repercussions of content problems on other areas of response is limited especially by the lack of an adequate conceptualisation of the differences between the public's comprehension of their environmental problems, and the large scale strategic problems which are of concern to planners."

Thus in returning in the final part of the thesis to the operational context in order to assess the general use of SRT's within structure planning, and to consider the implications of the work for general theories of planning and societal guidance, this lack of conceptualisation proved to be a 'grey area' in linking the empirical and general theoretical levels of the work. The latter are concerned not with the interrelations between strategic and immediate perpsectives within the design and application of techniques as outlined above, but with their parallel theoretical equivalents as prescribed in Etzioni's theory of societal guidance. These are the linkages between broad scan (strategy) and fine scan (tactics) in societal planning. Thus the study illustrates the marked lack of a well-developed middle-range theory.

In fact this conceptual problem reflects the lack of unified theory in both the Man-Environment field and the Planning and Design fields, from which one might systematically relate spatial and other environmental factors to the psychosocial and cultural factors which have been of concern to this study. Although some attempts have been made to begin overcoming these problems and important contributions have been made, two closely related problems still remain. The first involves the lack of an integrated man-environment theory which identifies, explains and relates the major principles underlying the various major research orientations in the field.

In this regard, the study makes recommendations for a re-alignment of the man-environment research paradigm to accommodate strategic environmental concerns.

Related to the first, the second problem involves the need to formulate models of planning and design which can incorporate these principles in defining problems as well as in generating alternative schemes and making policy choices. The study suggests that the most productive approaches to such a synthesis can be made on the basis of two concepts common to both

fields of study - problem solving and decision making.

Nevertheless, in looking to the future a theme of the concluding sections of the work (and perhaps of the thesis as a whole) is that whereas it is useful to have general normative theories such as Etzioni's, and even theories of meta-planning (e.g. Friedmann) the main problems facing researchers are ones of operationalisation of realisable solutions and this process will inevitably be essentially fragmented. Prescriptions of a general nature may be useful, but they must be linked to practical developments, through the development of theories of the middle range. Work on normative theories must therefore be complemented by research on the possibilities of improvement within present social and institutional constraints. It is envisaged that in this respect the work on the SCG and its associated problems will provide some guidance to other researchers concerned with the problems of public participation with regard to strategic planning issues.

To conclude: although this work shares concerns with those recent works which illustrate the need for a more participatory, humanist planning, based on social values and needs, its focus is not at the general level primarily. Rather, it has concentrated on the development and testing of techniques, and on the provision of analytical frameworks which have practical intent. It is contended that these are the major contributions of the work. But these practical concerns have been treated with an eye to the more general problems of developing an integrated man-environment theory which would provide the principles for development and application of SRT's in planning situations, and to developing a reformulated theory or model of design which can incorporate the information provided. The contention of this study is that overcoming these problems is one of the most urgent tasks facing planning and the planning oriented disciplines, and it is claimed that the study has made an initial contribution to the task.

APPENDICES

APPENDIX A

Interviewer Instructions and Scoring Manuals: S.C.G.[*]

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[*] The reader will recognise that the notation for Figures in the SCG script (following) are different from those used in chapter 5. However, the correspondence between the two is easily identified.

S C R I P T

Introduction

Over the next 10 to 15 years or so the West Midlands County
Council hope to guide and steer development in the County and to
do this by preparing a plan which takes account of the wishes
of all sections of the community.

To make this possible, a game has been devised which sets
before you the basic choices between housing and jobs, public and
private transport etc., all of which have to be made when making
a plan. To play the game all you have to do is listen to the
information that I give you about these choices, and then to
decide which of the choices (or options, as we have called them)
is nearest to your wish.

PART 1

1.10   As you are probably aware, the strategies which the W.M.C.C. develop to
deal with the county's problems are limited by the built up nature of
the county. This diagram (FIG. 1) shows the county's GREEN BELT (i.e. open
country, parks etc.) which surround the main residential and industrial
areas (i.e. the conurbation). Obviously, we should try and protect the
green belt as far as possible.

The area here is (Wolverhampton).

One of the most important general problems for the county is that there
is not sufficient land available in the conurbation to cater for the
likely increase in population. This diagram (FIG. 2) shows the estimated
POPULATION INCREASES in areas outside the conurbation.

As far as Wolverhampton (and the rest of the county districts) are
concerned, the County Council wants to estimate the likely capacity of
the district, and the consequent OVERSPILL of households into areas
outside the district. What we want you to do is to consider the patterns
of development within the district (the "Internal Options") and then the
possible locations of overspill population outside the district (the
"External Options")[1].

1.11   Estimates of housing need in the district, arising because of replacement
of old dwellings, natural increase of households and the relief of
overcrowding, has been estimated at 27,500 households by 1986. I shall
describe briefly the options available to the county to deal with this
need (BOARD 1).

| OPTION 1 | indicates developments which the council is already committed
to. As you can see, this option provides for 11,500 dwellings,
which means that 16,000 households must be provided for outside the district.

Each of the other options provides for more dwellings within the district on
top of the committed development and therefore causes less overspill.

[1] The options' are specifically derived from the Wolverhampton C.B.
structure plan.

OPTION 2 | will allocate one large site and a number of smaller ones.
The allocation of these sites will mean that the land available
for business, education etc., will be reduced correspondingly but the effect
will not be great.

OPTION 3 | is identical to option 2, except that a number of large sites
such as Goldthorp Park and Oxley Golf course would be
developed as well as some agricultural land.

OPTION 4 | is identical to option 3, but includes the maximum of development
within the district. Bushbury Hill, and the South Staffordshire
golf course, for example, would be used for residential purposes, and even
though no further capacity would be available, there would still be quite
a large overspill requirement up to 1986.

1.12   What I would like you to do now is to consider the options I have just
        described and choose the one which you think is best as far as Wolverhampton
        is concerned. You do not really have to give it too much thought at this
        stage, but afterwards I am going to give you a few more details about the
        options (in terms of employment, transportation etc.) and then of course
        you might like to alter your choice.

                    Why did you choose that option?

1.20   I can give you a bit more information on the situation facing Wolverhampton
        and the West Midlands, before asking you to reconsider the choice you have
        just made.

        As you know, there has been growing concern about unemployment in the
        West Midlands generally, particularly in manufacturing industry. This
        problem is intensified by the SHORTAGE OF LAND FOR INDUSTRIAL DEVELOPMENT.

        What the Council would like to do, in choosing an option, is to ensure the
        best use of land for industrial purposes within the borough, and to consider
        suitable additional land outside the borough for industrial use.

One of the most important things for you to consider in choosing an option
is therefore the distribution of employment and jobs in relation to the
population.

1.21   I will go into this in more detail. In fact, over the last 20 years,
Wolverhampton has seen a set outward movement of population, and there is
therefore a lot of movement by work people between Wolverhampton and
areas outside. You should therefore consider how important you think it
is for people to live near their work, and whether residential areas and
industrial sites should be inside Wolverhampton or outside.

Obviously, the shortage of land means that some industry and population
will have to be located outside the borough, but what is probably more
important is the TYPE OF PEOPLE who have been moving out of Wolverhampton.

In fact, it is the case that the population moving out has tended to be
largely young adults, and also those with higher incomes. These skilled
workers, which Wolverhampton cannot afford to lose, have been leaving the
areas which tend to have high unemployment. At the same time, there has
been an opposite flow into Wolverhampton of New Commonwealth immigrants.

1.22   The option which you choose will have to cater for these problems -
particularly the PROBLEMS OF THE OLDER RESIDENTIAL AREAS where there is
lots of unsatisfactory housing, and not a pleasant environment for people
to live in. On top of this, there do not seem to be many job opportunities
in these areas and yet a lot of people cannot move out of these areas to
get jobs.

In fact, you will probably have to try to provide the best housing and
environment that you can in Wolverhampton itself, and the most job
opportunities, but to do this you might have to use up open space.
Whatever the event, there will still have to be some overspill.

1.23   I can now tell you some of the characteristics of the internal sites for
development.

TRANSPORTATION

The improvements to roads which result from the options are not all that
important at this stage, but will probably be more important when you

consider the external options.

BOARD 1   Option 1 and 2 will necessitate improvement which is already under way on the Stafford Road.

Option 3 would require additional improvements to Dudley Road.

Option 4 would probably require improvements on Tettenhall and Stafford Roads as well as Dudley Road.

LEISURE AND RECREATION

The potential of the major sites as open space must be considered when you assess the internal options against the external ones. In all 4 options there would not be a great deficiency in public open space, but of course in option 1 and 2   BOARD 1   the two golf courses would remain whereas in option 3 one golf course would be lost and in option 4 both golf courses would be lost.

LOCATIONAL ANALYSIS

It is more than just the open space itself that needs to be considered, really we have to decide whether the major sites are more suited in their present use than for housing development.

This diagram here (CARD 1) illustrates some of the things you could consider:-

(i)   First of all, the main sites are ordered in terms of their access to employment opportunities, using realistic travel times. As you can see, Oxley Golf Course is the highest, South Staffs. Golf Course is the lowest.

Then we have other factors like:-

(ii)   The amount of overloading on roads to the town centre caused by traffic from the sites.

(iii)   The scenic value of the sites to the public.

(iv)   The open space potential which is based on the number of people who live within 1/3rd mile of the site.

(v)   The potential environmental value for people who would live there.

(vi)   And, the value of the sites for agricultural use.

[EXPAND WHERE NECESSARY]

1.24   (CARD 2) Now, what I would like you to do is to consider which of these factors is most important, and which is least important and this should help you to decide better between the options.

For example, if you think that access to employment and potential value for residents are much more important than the land's agricultural value and other factors, then you might think that e.g. Bushbury 'Wedge', should be developed.

[ASK RESPONDENT TO ORDER THE 6 FACTORS, THEN AID RESPONDENT IN SIMPLE OPTION CHOICE]

Why?   Why not? etc.

1.30   Now, I would like you to consider the 6 factors a little further to see how much you think one is more important than the other. Then we can finalize your choice.

To do this, I am going to show you a series of drawings on which you can indicate how important you think each factor is when compared with the others.

[M.A.U.T. BOOKLET]

PART 2

2.10   While my assistant is working out the figures for the internal options,
        we can continue and do exactly the same for the external options.

        I have already mentioned that Wolverhampton's population cannot all be
        accommodated in the Borough, and that the overspill population outside
        Wolverhampton will have to be catered for.

        There are 3 general options open to the Council. (BOARD 2)

        | OPTION 1 | Development just outside the borough, which is called
                      PERIPHERAL_DEVELOPMENT. This includes, e.g. Perton airfield,
        where the council is already committed. Overall, it means that open
        land on the edge of the conurbation will be lost.

        | OPTION 2 | DEVELOPMENT CLOSE_IN to Wolverhampton. This includes, e.g.
                      Wombourne, where there has already been a lot of development
        (including industrial development) but again it would mean loss of open
        land in the Green Belt which is usually treated as protected.

        | OPTION 3 | would consist of those LOCATIONS FURTHER_AFIELD. This
                      includes Telford in particular, but also Cannock and Stafford.
        One of the most important considerations here is the merits of moving
        employment (as well as population) out of the borough as opposed to
        people commuting into Wolverhampton for their work.

        Peripheral growth, in fact, tends to improve the area's general economy
        but forces the authority to improve transportation. Alternatively,
        moving population further afield would probably mean a loss of employment
        in Wolverhampton but less transportation problems.

        In the same way as you did for the internal options, I would like you to
        consider the external options and make a simple CHOICE. Which one do you
        think is best for Wolverhampton?

                                Why?

2.20   Again, I am going to give you a bit more information on these options
and ask you to reconsider your choice.

The things which you might like to consider include, obviously, the
COMMUNICATIONS with areas outside Wolverhampton. (BOARD 2)

For example Codsall and growth to the north-west would mean that use could
be made of the Great Western railway.

Development north of Wolverhampton (e.g. at Coven Brewood, Four Ashes)
would mean use of Stafford Road and the Wolverhampton-Stafford railway
lines.

North East of Wolverhampton (between Wolverhampton, Walsall and Cannock)
communications would be dependant on the M6, A34 and Cannock/Walsall
railway line.

The last area mentioned is also one of the main areas which the West
Midlands Regional Strategy proposed for helping the INDUSTRIAL RE-STRUCTURING
of the conurbation, although other areas e.g. Wombourne have had a lot of
industrial development in the past few years. (FIG. 3)

2.21   The options further afield, as I have said, involve moving employment out
of Wolverhampton or extensive commuting to work. This has been causing
concern to the council in the past because of movement of employment out
of Wolverhampton, particularly at Telford. However, it is also the case
that manufacturing industry often finds it difficult to move such long
distances.

In fact, the main increase in employment in Wolverhampton is likely to be,
not in manufacturing, but in service industry and this is probably better
suited to peripheral development because it includes a lot of female
employment.

2.22   As you can probably guess from what I have said, an important consideration
is the potential of these areas for industrial use.

I realize I have probably made it sound complicated but this drawing (BOARD OVERLAY) shows the INDUSTRIAL POTENTIAL of everywhere in the area and you can compare this with the option-sites.

The overlay is based on access to labour supply and markets, access to road and rail, and the mobility of firms. As you can see, the areas which come up well are:

> Wombourne
>
> Featherstone
>
> Essington/Cannock
>
> Four Ashes
>
> North of Perdeford

Having heard some of the implications of the external options, which option would you choose now?

> Why? Why not? etc.
> --------------------

2.30   Finally, having looked at industrial potential and other implications of the options, we can now do a similar sort of examination of the external options as we did for the internal options.

Here again (CARD 3) there are 6 factors which are thought to be important when assessing the possible sites:-

(i)   Access to jobs by public transport

(ii)   Access to jobs by private transport

(iii)   Access to jobs in Wolverhampton by public transport

(iv)   Access to jobs in Wolverhampton by private transport.

(v)   Conservation of areas of high landscape value.

(vi)   Conservation of areas of Grade I and II agricultural land
and forest.

(EXPAND WHERE NECESSARY)

2.31   From your choice of internal options you have got a good idea of how
important you think it is to keep jobs and population in Wolverhampton,
but for each of the internal options there is, inevitably, some overspill.

The first two factors here ((i) and (ii)) are really about how important
you think it is, generally, to have overspill areas with reasonable
travelling times.

50% of households in Wolverhampton do not have cars and yet one of the
main problems in Wolverhampton itself is to control the heavy peak hour
car commuting, especially in the town centre.

If you think that more priority should be given to public rather than
private transport, or vice versa, you should make your choice accordingly.

This is probably even more important when you consider accessability to
jobs in Wolverhampton itself (factors (iii) and (iv)). Obviously, many
people who move out of Wolverhampton will still wish to retain their
jobs after their move. This is good for Wolverhampton as it maintains
the labour supply in Wolverhampton, but it does create transportation
problems in the town, as you have probably seen in the rush hour.

So really, with the first four factors, you are considering, first,
whether it is better for emphasis to be put on jobs near the overspill
areas or in Wolverhampton itself, and secondly, how much emphasis should
be placed on public rather than private transport.

The last two factors ((v) and (vi)) refer to the importance of keeping
areas of high landscape and agricultural value as opposed to the need
for housing and employment.

2.32 In considering the external options, then, how would you put these
      factors in order of importance (CARD 4).

      Now, to finalize your choice of the external option, I would like
      you to do the same as you did for the internal options ......

[M.A.U.T. BOOKLET]

PART 3

3.10   Refer back to Part 1, amend choice if desired.

3.20   Refer back to Part 2, amend choice if desired.

3.30   Consolidation/final amendments.

M.A.U.T. (Instructions/Notes for Administration)

These notes are designed to be as brief as possible. They outline the main elements of the procedure, similar for Parts 1 and 2. They are not used in the interview situation itself.

1.31   On this (CARD 5 in part 1, CARD 6 in part 2) you can see the factors that I have just outlined [DESCRIBE CARD BRIEFLY]

1.32   *To get the rankings for them, we need to know the order in which you would move these factors to their best levels, if you were considering the options.*

Now, which one would you move from worst to best level first[1] (PAIRWISE COMPARISONS)[2].

1.33   Here we have the factors as you've ranked them, in ORDER OF IMPORTANCE [SHEET 1].

1.34   "Now what I'd like to do is to see how much you ASSESS one factor to be better than onother. Here's how I'd like you to do it." [SHEET 2-6] [3]

Example of a Sheet for Assessing Scaling Constants
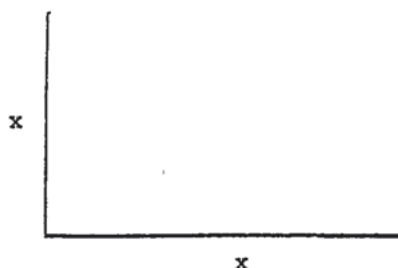
Each of the attributes (x_i) are assessed against the highest ranking attribute.

---

[1] Italic section only used when first attempt at ranking was difficult for respondent.

[2] It is most important that the respondent does not rank attributes independent of their ranges. These must be specified and understood.

[3] The first priority before administering the game to the publicwas to replace the sheets with an assessment device which was less cumbersome, and easier 'to play'. This is illustrated in Fig. 1 at the end of this section.

Say, for example, that the highest ranked was x_1, and it was to be assessed against x_2.

The graph would then be filled in as follows:-

For example "You said previously that you prefer A to B. So, if you had a site where access to employment was only 160000 and where percentage on the roads was only increased by 120%, you would be willing to increase the loading on the roads to 200% in order to have access to employment of 300000". Is that correct?

Answer Yes.

"What would happen if you could only move to 250000 i.e. C. In other words, would you be willing to move from B to C."

Answer Not really, I think I would still prefer to increase employment opportunities by 90000.

"What would you choose if you only had access to employment of 200000, that's an increase of 40000, and remember, all the other attributes are at their worst levels."

Answer Well, that's not really so many. I think I might switch and choose the site which caused less traffic.

"Between which points on the diagram would you say you were indifferent between them? It must be between 200000 and 250000, but where?"

etc. until the indifference pair BZ is reached.[4]

1.35   What we have arrived at is a measure of importance for all 5 factors in terms of the one you ranked highest. Finally, we need to find the value of that one and we can do it by a single LOTTERY ⌈SHEET 7 for Part 1⌉
                                                               ⌊SHEET 9 for Part 2⌋

Sheet 7.   Example: To find value of k_1

Access to employment at best level, 300000 etc. All other attributes at worst levels.	

     P   All attributes at best levels

     $1-p$ All attributes at worst levels

The probability (p) which makes the respondent indifferent between A and B gives the value of k_1 against which all other scaling constants can be assessed.

1.36   The M.A.U.T. booklet, which is used by the interviewer to record responses is then passed to the assistant who will work out the results.

The interviewer continues with the next part of the 'game'.

---

[4] At every possible opportunity the real _meaning_ and _implications_ of these attributes are made known to the respondent, as he makes his choices.

This procedure gives all scaling constants (k's) in terms of the highest ranked e.g. $k_2 = k_1 u_1(Z)$.

$$\boxed{\text{M.A.U.T. (BOOKLET)}}$$

<u>PART 1</u>

1.12 $\boxed{\text{CHOICE}}$ Internal Option 1   Tick

                       "   Option 2

                       "   Option 3

                       "   Option 4

<u>Comments</u>

1.24   Denote 1 for highest rank
                6 for lowest rank

                                        Rank

                                     x_1

    x_2, x_3, x_4, x_5, x_6

$\boxed{\text{CHOICE}}$ Internal Option 1   Tick

     "   Option 2

     "   Option 3

     "   Option 4

<u>Comments</u>

<u>M.A.U.T.</u>

1.33   <u>RANKING</u>

$$x_1$$
$$x_2$$
$$x_3$$
$$x_4$$
$$x_5$$
$$x_6$$

(Sheet 1)

1.34   <u>k_i VALUES</u>

where $k_i = k_t u_t (Z)^1$

When $t = x_1$, $U_t(Z) = \dfrac{Z - 160,000}{140,000}$

$\therefore\ k_i = k_1\ \dfrac{Z - 160,000}{140,000}$

	Record all k_i in terms of k_t	
	$k_2 = k_1\ (\qquad)$ $k_3 = k_1\ (\qquad)$ $k_4 = k_1\ (\qquad)$ $k_5 = k_1\ (\qquad)$ $k_6 = k_1\ (\qquad)$	
When $t = x_2$ $\quad k_i = k_2\ \dfrac{(Z - 200)}{-80}$	$k_1 = k_2\ (\qquad)$ $k_3 = k_2\ (\qquad)$ $k_4 = k_2\ (\qquad)$ $k_5 = k_2\ (\qquad)$ $k_6 = k_2\ (\qquad)$	
When $t = x_3$ $\quad k_i = k_3\ \dfrac{(Z - 1)}{4}$	$k_1 = k_3\ (\qquad)$ $k_2 = k_3\ (\qquad)$ $k_4 = k_3\ (\qquad)$ $k_5 = k_3\ (\qquad)$ $k_6 = k_3\ (\qquad)$	
When $t = x_4$ $\quad k_i = k_4\ \dfrac{(Z - 6,000)}{-3,500}$	$k_1 = k_4\ (\qquad)$ $k_2 = k_4\ (\qquad)$ $k_3 = k_4\ (\qquad)$ $k_5 = k_4\ (\qquad)$ $k_6 = k_4\ (\qquad)$	
When $t = x_5$ $\quad k_i = k_5\ \dfrac{(Z - 1)}{4}$	$k_1 = k_5\ (\qquad)$ $k_2 = k_5\ (\qquad)$ $k_3 = k_5\ (\qquad)$ $k_4 = k_5\ (\qquad)$ $k_6 = k_5\ (\qquad)$	

[1] $k_t = 1$ scaling constant for top-ranked factor

When $t = x_6$

$$k_i = k_6 \left(\frac{Z - 1}{4}\right)$$

$k_1 = k_6$ (	)
$k_2 = k_6$ (	)
$k_3 = k_6$ (	)
$k_4 = k_6$ (	)
$k_5 = k_6$ (	)

1.35   VALUE of k_t (SHEET 7, LOTTERY)

$P = k_t = $ [   ]

PASS BOOKLET TO ASSISTANT

Therefore

$k_1 =$
$k_2 =$
$k_3 =$
$k_4 =$
$k_5 =$
$k_6 =$

1.36   ASSESSMENT OF OPTIONS

PORTOBELLO

$U_{(\underline{x})} = k_1 (0.9) + k_2 (0.9) + k_3 (1.0) + k_4 (0.9) + k_5 (0.3) + k_6 (1.0)$

$= $ [   ]

PENN

$U_{(\underline{x})} = k_1 (0.1) + k_2 (0.6) + k_3 (0.3) + k_4 (1.0) + k_5 (0.5) + k_6 (0.3)$

$= $ [   ]

GOLDTHORN PARK

$U_{(\underline{x})} = k_1 (0.6) + k_2 (0.5) + k_3 (0.5) + k_4 (0.5) + k_5 (0.8) + k_6 (0.3)$

$= $ [   ]

OXLEY GOLF COURSE

$U_{(\underline{x})} = k_1 (0.7) + k_2 (0.5) + k_3 (0.8) + k_4 (0) + k_5 (0.5) + k_6 (1.0)$

$= $ [   ]

S. STAFFS GOLF COURSE

$$U_{(\underline{x})} = k_1 (0) + k_2 (0) + k_3 (0) + k_4 (0.6) + k_5 (1.0) + k_6 (1.0)$$

$$= \boxed{}$$

BUSHBURRY WEDGE

$$U_{(\underline{x})} = k_1 (0.7) + k_2 (1.0) + k_3 (0) + k_4 (0.8) + k_5 (1.0) + k_6 (0.3)$$

$$= \boxed{}$$

1.37   SCORES

	Weighted by Respondent	Unweighted (Technical valuation)
Portobello		5.0
Penn		2.8
Goldthorn Park		3.2
Oxley G.C.		3.5
S. Staff. G.C.		2.6
Bushburry Wedge		3.8

1.38   CHOICE

	Tick
Internal Option 1	
" " 2	
" " 3	
" " 4	

Comments

PART 2

2.10   CHOICE

External Option 1   Tick
    "   " 2
    "   " 3

Comments

2.23   CHOICE

External Option 1   Tick
    "   " 2
    "   " 3

Comments

2.32   M.A.U.T.

RANKING

x_1
x_2
x_3
x_4
x_5
x_6

2.33 k_i VALUES

Where $k_i = k_t U_t$ (Z)

When $t = x$, u_t (Z) $= \dfrac{Z}{150,000}$

$\therefore$ $k_i = k_t$ $\dfrac{Z}{150,000}$

Record all k_i in terms of k_t	
$k_2 = k_1$ (	)
$k_3 = k_1$ (	)
$k_4 = k_1$ (	)
$k_5 = k_1$ (	)
$k_6 = k_1$ (	)

When $t = x_2$

$k_i = k_2$ $\dfrac{Z}{270,000}$

$k_1 = k_2$ (	)
$k_3 = k_2$ (	)
$k_4 = k_2$ (	)
$k_5 = k_2$ (	)
$k_6 = k_2$ (	)

When $t = x_3$

$k_i = k_3$ $\dfrac{Z}{150,000}$

$k_1 = k_3$ (	)
$k_2 = k_3$ (	)
$k_4 = k_3$ (	)
$k_5 = k_3$ (	)
$k_6 = k_3$ (	)

When $t = x_4$

$k_i = k_4$ $\dfrac{Z}{100,000}$

$k_1 = k_4$ (	)
$k_2 = k_4$ (	)
$k_3 = k_4$ (	)
$k_5 = k_4$ (	)
$k_6 = k_4$ (	)

When $t = x_5$

$k_i = k_5$ $\dfrac{Z}{200}$

$k_1 = k_5$ (	)
$k_2 = k_5$ (	)
$k_3 = k_5$ (	)
$k_4 = k_5$ (	)
$k_6 = k_5$ (	)

When $t = x_6$

$k_i = k_6$ $\dfrac{Z}{250}$

$k_1 = k_6$ (	)
$k_2 = k_6$ (	)
$k_3 = k_6$ (	)
$k_4 = k_6$ (	)
$k_5 = k_6$ (	)

2.34   VALUE OF k_t (SHEET 7   LOTTERY)

$P = k_t =$ ☐

PASS TO ASSISTANT

Therefore

$k_1 =$	
$k_2 =$	
$k_3 =$	
$k_4 =$	
$k_5 =$	
$k_6 =$	

2.35   ASSESSMENT OF OPTIONS

OPTION 3

TELFORD

$$u_{(\underline{x})} = k_1 (0.7) + k_2 (0.3) + k_3 (0) + k_4 (0) + k_5 (1.0) + k_6 (1.0)$$

$$= \boxed{}$$

ALBRIGHTON

$$u_{(\underline{x})} = k_1 (1.0) + k_2 (0.6) + k_3 (0.7) + k_4 (0.5) + k_5 (0.8) + k_6 (0.4)$$

$$= \boxed{}$$

SHIFNAL

$$u_{(\underline{x})} = k_1 (0) + k_2 (0.3) + k_3 (0.2) + k_4 (0) + k_5 (1.0) + k_6 (0.2)$$

$$= \boxed{}$$

PENKRIDGE

$$u_{(\underline{x})} = k_1 (0.7) + k_2 (0.3) + k_3 (0.7) + k_4 (0.2) + k_5 (0.9) + k_6 (0.5)$$

$$= \boxed{}$$

CANNOCK

$$u_{(\underline{x})} = k_1 (0.7) + k_2 (0.3) + k_3 (0) + k_4 (0.2) + k_5 (0.9) + k_6 (0.8)$$

$$= \boxed{}$$

STAFFORD

$$u_{(\underline{x})} = k_1 (1.0) + k_2 (0.3) + k_3 (1.0) + k_4 (0.1) + k_5 (0.8) + k_6 (0.8)$$

$$= \boxed{-}$$

OPTION 2

WOMBOURNE

$$u_{(\underline{x})} = k_1 (0.7) + k_2 (1.0) + k_3 (0.2) + k_4 (0.7) + k_5 (1.0) + k_6 (0.7)$$

$$= \boxed{}$$

PENDEFORD/CODSALL

$$u_{(\underline{x})} = k_1 (0.8) + k_2 (0.6) + k_3 (0.9) + k_4 (0.5) + k_5 (0.7) + k_6 (0.6)$$

$$= \boxed{}$$

BREWOOD

$$u_{(\underline{x})} = k_1 (0.7) + k_2 (0.6) + k_3 (0.9) + k_4 (0.4) + k_5 (0.5) + k_6 (0.6)$$

$$= \boxed{}$$

FOUR ASHES/COVEN

$$u_{(\underline{x})} = k_1 (0.7) + k_2 (0.6) + k_3 (0.6) + k_4 (0.9) + k_5 (0.7) + k_6 (0.6)$$

$$= \boxed{}$$

CHESLYN HAY

$$u_{(\underline{x})} = k_1 (0.6) + k_2 (0.7) + k_3 (0.1) + k_4 (0.9) + k_5 (0.9) + k_6 (0.8)$$

$$= \boxed{}$$

FEATHERSTONE/SHARESHILL

$$u_{(\underline{x})} = k_1 (0.9) + k_2 (0.9) + k_3 (0.9) + k_4 (1.0) + k_5 (0.7) + k_6 (0.6)$$

$$= \boxed{}$$

ESSINGTON

$$u_{(\underline{x})} = k_1 (0.7) + k_2 (0.8) + k_3 (0.6) + k_4 (1.0) + k_5 (0.7) + k_6 (0.7)$$

$$= \boxed{}$$

OPTION 3

1. $u_{(\underline{x})} = k_1 (1.0) + k_2 (1.0) + k_3 (1.0) + k_4 (1.0) + k_5 (1.0) + k_6 (0.6)$

$$= \boxed{}$$

2. $u_{(\underline{x})} = k_1 (1.0) + k_2 (0.6) + k_3 (1.0) + k_4 (0.9) + k_5 (0.7) + k_6 (0.2)$

$$= \boxed{}$$

3. $u_{(\underline{x})} = k_1 (0.9) + k_2 (0.6) + k_3 (0.9) + k_4 (1.0) + k_5 (0.7) + k_6 (0.5)$

$$= \boxed{}$$

4. $u_{(\underline{x}} = k_1 (1.0) + k_2 (0.7) + k_3 (1.0) + k_4 (0.9) + k_5 (0.3) + k_6 (0.3)$

$$= \boxed{}$$

5. $u_{(\underline{x})} = k_1 (1.0) + k_2 (0.9) + k_3 (0) + k_4 (0.9) + k_5 (0.5) + k_6 (0.6)$

$$= \boxed{}$$

2.36 SCORES

	Weighted by Respondent	Unweighted (Technical valuation)
Telford		3.0
Albrighton		4.0
Shifnal		1.7
Penkridge		3.3
Cannock		2.9
Stafford		4.0
Wombourne		4.3
Pendeford/Codsall		4.1
Brewood		3.7
Four Ashes/Coven		4.1
Cheslyn Hay		4.0
Featherstone/Shareshill		5.0
Essington		4.5
1		5.6
2		4.4
3		4.6
4		4.2
5		3.9

2.37   <u>CHOICE</u>

External Option 1
"   "   2
"   "   3

Tick

Comments/List of sites

CARD 2/SHEET 1

x_1	Access to Employment	
x_2	Radial Route Loading	
x_3	Townscape Value	
x_4	Open Space Potential	
x_5	Residential Environmental Value	
x_6	Agricultural Value	

CARD 1

Ordered in terms of desirability for development, according to each factor:

Access to Employment	Radial Route Loading	Townscape Value	Open Space Potential	Residential Environmental Value	Agricultural Value
Portobello	Bushbury	Portobello	Penn	S.Staffs GC)	S.Staffs GC)
Oxley G.C.	Portobello	Oxley G.C.	Portobello	Bushbury)	Portobello)
Bushbury	Penn	Goldthorn	Bushbury	Goldthorn	Oxley G.C.)
Goldthorn	Oxley G.c.	Penn	S.Staffs GC	Penn)	Penn)
Penn	Goldthorn	S.Staffs GC)	Goldthorn	Oxley G.C.)	Goldthorn)
S.Staffs GC	S.Staffs GC	Bushbury)	Oxley G.C.	Portobello	Bushbury)

CARD 3/CARD 4/SHEET 8

		LEVEL			RANK
		WORST	BEST		
x_1	Access to jobs by public transport	0	150,000		
x_2	Access to jobs by private transport	0	270,000		
x_3	Access to jobs in Wolverhampton by public transport	0	150,000		
x_4	Access to jobs in Wolverhampton by private transport	0	100,000		
x_5	Development of areas of high landscape value (sq.kiloms.)	200	0		
x_6	Development of areas of Grade I and II agricultural land and forest (sq.kiloms.)	200	0		

CARD 5/SHEET 1

		LEVEL			RANK
		WORST	BEST		
x_1	Access to employment	160,000	300,000		
x_2	Radial route loading (%)	200	100		
x_3	Townscape Value	1	5		
x_4	Open Space Potential	6,000	2,500		
x_5	Residential Environmental Value	1	5		
x_6	Agricultural Value	1	5		

SHEETS 2 - 6

(SEE CARD 4 OR 5)

SHEETS 7 and 8

LOTTERY

X_t at best level, All other attributes at worst levels	

P — All attributes at best levels

$1 - p$ — All attributes at worst levels
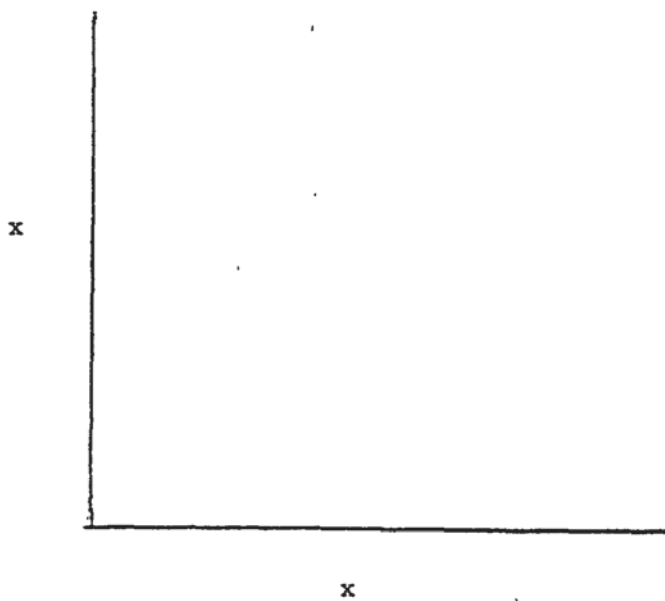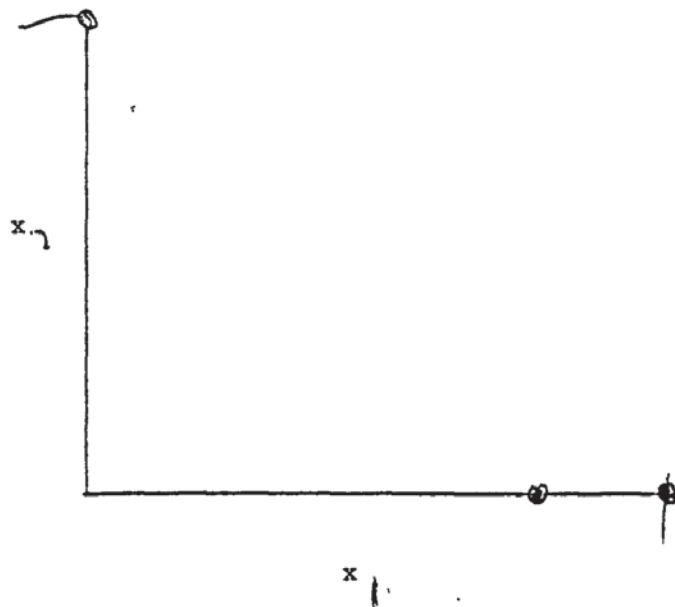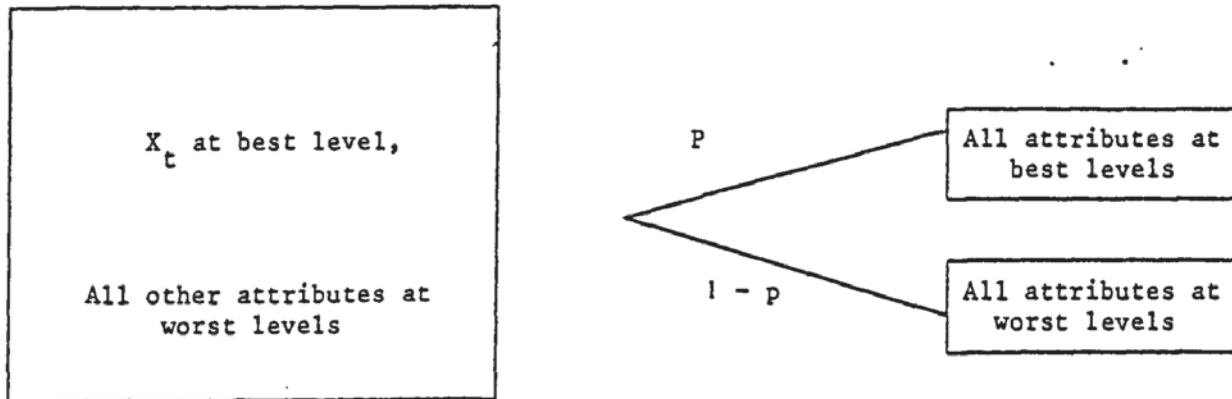
$$p \;=\;$$
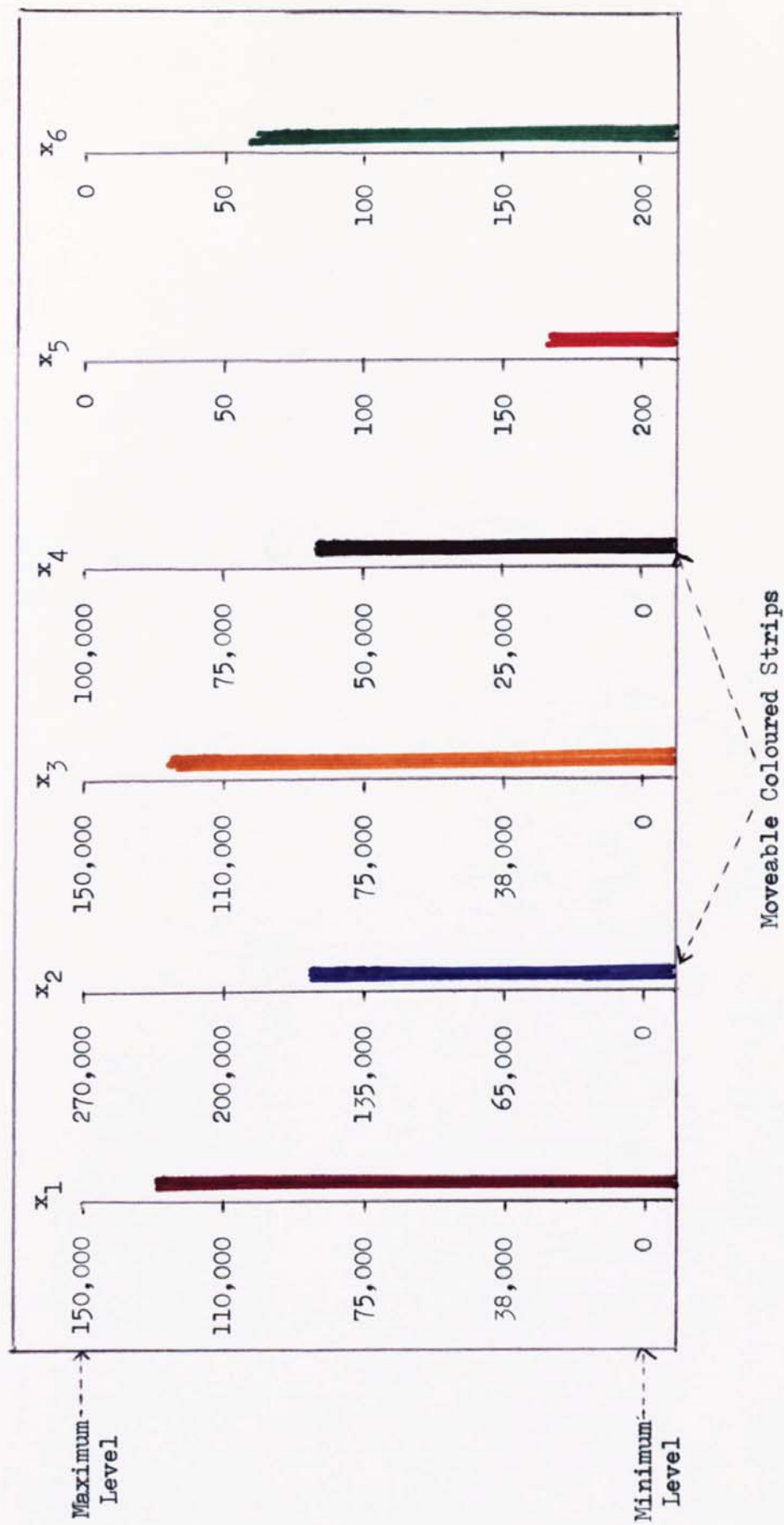
Figure 1   Representation of the M.A.U.T. Board

APPENDIX B

Interviewer Instructions and Scoring Manuals: Test Battery[*]

<u>INTERVIEWER INSTRUCTIONS</u>

1) The topics below (1-16)are presented to the respondent one at
a time.
The respondent is encouraged to discuss the topics <u>at length</u>.
No elaboration of the topics by the interviewer is allowed.

2) Three types of <u>prompt</u> are allowed,and should be given by the
interviewer in this order:-

    a) If the respondent discusses the topic only in
<u>specific</u> terms(e.g. makes continual reference to Wolverhampton)
he is prompted to consider the topic in <u>GENERAL</u> terms.
    For example,in Q.6,the prompt might simply be "and
what do you think about unemployment in general?"

    b) If the respondent stalls,or seems not to understand
the topic,brief descriptions are given.These descriptions accompany
each topic in the script below.The descriptions are not to be
elaborated upon by the interviewer,and are only to be used where
necessary(i.e. where there is obvious difficulty).

    c) The third type of prompt is to be used for <u>every</u>
topic.The respondent is prompted to present,firstly,the <u>problems
and symptoms</u> associated with the topic,

                secondly,a <u>diagnosis</u>
of the problem,

                and thirdly,<u>solutions</u>
to the problem.

The prompt should be explicit,but no aid or judgement is given by
the interviewer.E.g,the respondent would be asked for his "<u>solutions
to the problems of unemployment</u>" and these are to be accepted as such.
The interviewer is <u>not</u> allowed to reply that these are not adequate
solutions,or that the respondent has merely re-stated the symptoms.

The only comments which the interviewer is allowed to give are those
which encourage the respondent to continue,or to expand his views.<u>No</u>
<u>information</u> on the topics can be given.

SCRIPT*

INTRODUCTION

"In this booklet there are a number of topics which are of importance to Wolverhampton and also to cities in general.

I want you to describe what you think are the most important features of these topics and what are the main problems with the topics.

I want you to approach the topics from as many different angles or points of view as you can.

There are no right or wrong answers.Take as much time as you like"

"TURN TO TOPIC 1"

(Remember: problems/symptoms   diagnosis   solutions)

1) THE MAIN PROBLEMS OF THIS AREA.

2)* THE MAIN PROBLEMS OF WOLVERHAMPTON.

3) THE GREEN BELT IN THE W. MIDLANDS.

"Surrounding the main residential and industrial areas of the county is an area of open country and parks which the County Council want to preserve.This has been designated as Green Belt"

4) POPULATION INCREASE IN WOLVERHAMPTON

"Wolverhampton,like most of the areas in the county,has not sufficient land available to cater for the likely increase in population"

*-represents most important topics.Encourage respondent to expand his views.

-descriptive sections only to be read where necessary.

5)* OVERSPILL FROM WOLVERHAMPTON

> "No matter how much land is used for residential purposes in Wolverhampton, it still seems that a lot of families will have to move to areas outside the district".

6) UNEMPLOYMENT IN WOLVERHAMPTON

> "Wolverhampton is in a similar situation to the rest of the W. Midlands, where there has been growing concern about the rise in unemployment, particularly in manufacturing industry".

7)* INDUSTRY IN WOLVERHAMPTON

> "Obviously, the state of industry in Wolverhampton reflects the state of industry in the country as a whole, but this is intensified by the shortage of land for industrial developement".

8) THE PROBLEMS OF THE OLDER RESIDENTIAL AREAS

> "These are the areas where there is lots of unsatisfactory housing and not a pleasant environment for people to live in".

9) NEW ESTATES IN WOLVERHAMPTON

10) TRANSPORTATION IN WOLVERHAMPTON

> "This is referring to travel, whether by bus or by car, or any other means".

11) THE MAIN PROBLEMS OF WOLVERHAMPTON

> (Return to 2)

12) WOLVERHAMPTON IN THE FUTURE

13) PLANNING DEPARTMENTS

14) STRUCTURE PLANS

> "These are the plans that try to look ahead to the Wolverhampton of of the future, and try to solve some of the problems that we have now".

15)* QUESTION

> "Do you think that planners can solve the problems of Wolverhampton and the West Midlands?"

> "Why/Why not" etc.

———————————

SCORING MANUAL FOR INFORMATION TEST

General
Score
Totals

0   No Response

     Failure to understand

1   Responds <u>after prompt</u>, that is, after explanation of stimulus but gives <u>either</u> no information (i.e. re-states the topic)
         <u>or</u>   gives incorrect information

2   Displays acquaintance with the stimulus but gives only partial description, <u>either in specific or general</u> terms

3   Displays acquaintance with the stimulus but gives only partial description, <u>in both specific and general terms</u>

4   Familiarity with topic. Well organised analysis/description of the nature or form of the stimulus, <u>in either specific or general terms</u>

5   As for 4, except that response is in <u>both specific and general terms</u>

6   Offers a response in terms of the <u>content</u> of the stimulus as well as its form. That is, reference to sources of figures/data, to sources of information in the literature, or to research projects etc., – in either <u>specific or general</u> terms

7   As for 6, except that response is in <u>both specific and general terms</u>

NOTE   On the scoring sheet, when interviewee fails to respond, score as directed (i.e. score 0)

       However, when respondent feels that he has <u>already</u> spoken on the topic in the context of a previous question, and does not wish to say more, <u>do not score for that topic.</u>

EXAMPLES

3) "Green Belt in the W Midlands"

Score 1   e.g. "There is an area of countryside all around the big towns in the W Midlands..."

Score 2   e.g. "Green belts are those areas of open country and farming land which surround the main areas of housing and industry in the county. These have got to be preserved ..."

Score 3   e.g. "We need to preserve all the countryside that we can otherwise the county will just be one big city..."

Score 4   e.g. "Birmingham, and the other cities in the W Midlands have shown a continuous need to expand into the green areas that immediately surround the main residential and industrial areas. You can see this at e.g. Druids Heath, but the main belt that needs protecting at the moment is between Solihull and Coventry - especially with the NEC ..."

Score 5   e.g. "In fact, I think that the Green Belt policy is far too rigid. Limited development in the green belts should be allowed, making the policy more sensitive to local or regional needs..."

Score 6   e.g. "I think that councils are aware of this need. In the Wolverhampton structure plan specific reference is made to the need for development in the proposed green belt at Featherstone and Four Ashes..."

Score 7   e.g. "I think it's obvious that the Green Belt is used mainly by those who can afford to use it - higher income groups and those with cars. I mean, this was specifically stated in the 1966 White Paper on Leisure and the Countryside ..."

APPENDIX C

The Problems of Integration[*]

It is not intended to embark on a discussion of the pros and cons of the various detailed models of the planning process. However, it is necessary to have a model within which to consider the issues raised earlier relating to integration. To this end a modified version of Lichfield et al's model has been adopted, incorporating most of the procedural elements which are of concern.

Lichfield et al's model is formed of the following states:

(1) "preliminary recognition and definition of problems,

(2) decision to act and definition of the planning task,

(3) data collection, analysis and forecasting,

(4) determination of constraints and objectives,

(5) formulation of operational criteria for design,

(6) plan design

(7) testing of alternative plans,

(8) plan evaluation,

(9) decision taking,

(10) plan implementation,

(11) review of planning developments through time" (Lichfield et al 1975).

A major issue concerning this process is the extent to which it is treated as linear or cyclical. A cyclical process may be seen as occurring essentially over time. Thus the entire process is repeated within the context of monitoring. Perhaps more important is the extent to which there is recycling within the production of a plan. There has been a tendency to see refinement of alternative strategies or the production of superior strategies as one of the main aims of recycling (for example, the CTLA or the Notts - Derbyshire SRC). However, an important fact remains, the later stages of the planning process are fundamentally constrained by what has gone before. No amount of recycling can produce a 'good plan' if the objectives and constraints defined at an early stage are wrong or inadequate. It is the impact of this basically linear approach which provides a context within which to consider some modifications to Lichfield's model.

The first major consideration stems from Lichfield et al's argument for the integration of evaluation with the planning process. It is proposed here that the criteria with respect to which plans are to be evaluated need to be included at an

early stage. In particular, they should form some kind of design brief to insure that alternative plans generated in fact achieve policies that are important in welfare terms. In sharp contrast with this, many plans use very general statements about policies, goals and objectives with little prior thought as to the nature, importance and relationship which these imply.

This argument can be extended to the first stages of the planning process, in particular stages 1 and 3 of the Lichfield model. At these stages, people are generally viewed as objectives to be measured, usually in behavioural terms and problems or issues are identified in physical terms. There is rarely an attempt to elicit response concerning what are perceived as important problems. Further, forecasting is very much an extrapolatory or associative exercise. There is an absence of derivation of normative forecasts in terms of what the community feels are desirable trends. Thus whilst policies often contain attitudes to key issues, the process itself provides poor exploration of the nature of these issues.

A similar criticism can be directed at the methods of plan generation and design. Barras & Broadbent (1975) note that many plan generation techniques (for example, development potential) are conceived in purely spatial terms and that "when evaluated with respect to more widely defined objectives it is consequently not surprising that all alternatives appear very similar".

These criticisms imply that there is a need for policy analysis at an early stage in the planning process. If one sees a plan as the mapping of a set of policies into space, then clearly the policies themselves must be explored. Indeed, this relates to the view of the Structure Plan as policy vehicle, not simply a means of producing a master plan for physical development.

These questions are those to which, perhaps, strategic planning hitherto has not addressed itself sufficiently - the nature of the product-process dichotomy in structure planning. Nevertheless, as the first generation of structure plans is completed, the view expressed in Cherrry (1971) that, 'the whole business of planning might be regarded as a process of clarifying goals', can potentially come to fruition.

The model proposed here (which attempts to meet some of the limitations of other models) still remains very close to Lichfield et al's model, but with more emphasis

on policy exploration at (Lichfield's) stage 4. Also included in the model are two elements prior to the start of the planning process proper; these are important for participation as they form an important area for reception and dissermination of information regarding prelimninary definition of planning problems and issues.

Elements of a Planning Process
1. Unstructured Information Imput
2. Problem/Issue Recognition
3. Data Acquisition (i.e. structured information input/monitoring)
4. Analysis and Forecasting
5. Development of Policy Options
6. Possible Trade-offs between Options
7. Objectives for Plan Design
8. Alternative Physical Strategies (Plan Design)
9. Evaluation
10. Decision Taking

In Part 1 the examination of the planning process and of current weaknesses regarding participation in that process allowed one to identify some general categories of functions to which social response and participation can be directed. These aims, it was argued, must reflect the diversity of the planning process with which they are to be integrated:

Functions of Public Participation
1. Unstructured Representation and Liaison
2. Identification of specific needs/values/problems
3. Identification of trade-offs and conflicts
4. Conflict resolution/generation of ideas and plans for solutions to strategic problems.
5. Evaluation
6. Decision Taking

In order to integrate response with the plan-making process, then, it is necessary to consider two components. Firstly, the planning process and secondly the functions which response can serve. A way of aproaching this analytically is in terms of a matrix framework, setting the two components against one another. It

is then possible to determine firstly, the specific points at which response can serve the planning process and secondly, which specific types of response method fulfil appropriate functions at particular stages.

As a first stage to achieving an analytical framework for the consideration of issues concerning integration, a categorisation of response types is given below (Fig 1) following chapter 9 with a checklist of particular methods used in the past.

Traditionally, the response types elicited by various methods have been behavioural and attitudinal/judgemental using technical measures, coupled to communication and consultation with the general public and specific groups in an institutional context. It is felt that all of the response types listed have a role in participation. Methods developed in both technical and institutional contexts facilitate the production of a variety of types of response, each of which can be integrated with the juxtaposition between plan-making stages and response function.

The Integration Framework

One can now attempt to fit each set of the response types into the matrix which sets the functions of response against a model of the stages of the plan-making process.

Figure 2 shows where specific response types are appropriate from the technical viewpoint whilst,

Figure 3 fits types of institutional response into the matrix. In order to facilitate integration, these matrixes can then be compared.

For figure 2, a number of comments are appropriate. Firstly, one can observe that, by definition, specific techniques do not handle unstructured representation and liaison; similarly, techniques have no role to play in the input of unstructured information to the Authority and subsequent translation into problems and issues. It is also important to remember that information dissemination and education are not response modes per se, although they are a prerequisite for the use of other modes.

Within the planning process proper, the early staged (DA, AF, DPO) are characterised by several functions which response can fulfil and a wide range of

response types which are appropriate. Perhaps the most important are those which facilitate the identification of needs, values and problems.

Traditionally, these stages have used only behavioural data and this has rarely been obtained through direct response techniques. Also pertinent at the development of policy options stage are techniques geared to identifying trade-offs between groups and issues.

Thorughout the remainder of the planning process, behavioural, conative and, particularly judgemental types of response are appropriate in varying degrees. Social response relatina to both the identification of conflicts and trade-offs and the generation of idea to resolve conflicts and solve problems can provide an input at several stages, up to and including evaluation, and a range of response types can be used but with increasing emphasis on behavioural and judgemental response in the later stages.

At the valuation stage response functions may be, firstly, indentification of conflicts and trade-offs - for instance the persuasive use of behavioural/descriptive indices in C.B.A. or P.B.S. which purports to handle trade-offs across social groups, or secondly, direct evaluatory techniques might be used where individuals are given the opportunity to directly weight elements of the alternative plans in line with their own values/criteria.

At the final decision-taking stages techniques might again include directly evaluatory methods, for instance, if the public were allowed to make a series of judgement which are then taken into accout by decision takers. Technical measures would only enter the final box of the matrix if the decision made by the public (e.g. through a referendum) were the final decision. They would, in that case, be direct decision takers.

Several important points emerge from the matrix. Firstly, there are certain stages of the planning process in practice whee response has little role; specifically prior to the start of the process proper, also in public (as opposed to member) participation at the decision-taking stage. Secondly, there are certain response functions to which formal technical inputs are inappropriate, in particular unstructured representations. However, within the remainder of the interaction between response and the process, techniques have a major role.

Thirdly, there is not simply a one-to-one correspondence between response function and stage of the planning process. Response can serve both several functions and a single stage in the process, and a single function at several stages. A fourth point is that there is a gradual change diagonally across the matrix, with a reduction in the role of perceptual and attitudinal response types as the planning process progresses and an increase in the role of judgemental response. This mirrors the characterisation of the planning process wich requires a 'higher order' of response function involving more complex and structured response modes as the planning process reaches its advanced stages.

One can now discuss the second matrix briefly (Fig. 3). Whilst the first matrix dealt with technical issues of response, the second deals with institutional frameworks for consultation. The first characteristics of this matrix is the various functions which response can serve at the stages prior to the planning process. In addition, all four types of response can serve several stages of the planning process by providing representations about the key issues. However, for the bulk of the planning process proper, a different picture emerges. Consultation does not have a role to play in essentially technical evaluation procedure and therefore response cannot perform the function of providing meaningful evaluative inputs. Prior to this stage, however, response can serve to identify needs and values, identify conflicts and trade-offs and suggest possibilities for conflict resolution and solution of problems. But, whilst consultation with organisations can fulfil a role here, inputs from the general public cannot be accommodated by consultative procedures (in contrast to technical procedures); a flow of information to both the public at large and to specific groups, however, should occur at all stages - as only in this way can consultation be meaningful at the first two stages of the planning process.

Drawing the two matrices together, it is easy to see that to some extent they are complementary. Institutional frameworks can fulfil certain functions at stages in the process where techniques are inappropriate and vice versa. Certain response functions are also fulfilled variously by both institutional and technical types of method. Further, it is possible to note a certain degree of overlap - it may be that at these stages the use of response techniques (e.g. questionnaires) within particular institutional arrangements (e.g. advisory committees) can achieve much wider and more meaningful response functions.

The fact that similar respons types arise in many elements fo the two matrices also has important implications for the use of particular methods. Thus, behavioural rsponse can serve many functions at several stages in the process, likewise judgemental response. This means that careful consideration should be given to the use of particular techniqus; are they to be used at one specific point or are they to serve mutliple purposes? As Lee observes "too many people choose first to 'do a survey' or to 'give a questionnaire' and hardly stop to consider whether they are attempting to observe behaviour, attitudes or perceptions or whether they have chosen the best available method". The matrix of techniques allows one not only to consider the type of response which is relevant, but also to ascertain the function that response serves with respect to the stages of the planning process. Similarly, the institutional matrix allows a consideration of the functions of particular consultation methods, such as advisory committees or public meetings. An attempt can now be made to draw out some of the implications of the framework in general terms.

Towards Integration

The two matrices have been combined and summarized in Fig. 4. This indicates where the major methods of response can be used to relate particular response functions to stages in the planning process. Obviously, there are relationships both between particular response functions and between stages in the planning process. Therefore Figs. 5 and 6 attempt to outline certain of the key relationship in the interactions between the two axes of the matrix. They highlight the complexity of the interactions which are possible and the need for a careful consideration of how particular techniques are to be used.

In Fig. 5 linkages have been drawn between areas consisting of similar combinations of methods (areas 1-5) in an attempt to highlight the correlation of higher-order response methods in the more advanced stages of plan development. Thus Area 1 includes all sources of unstructured information into the authority which is utilized for preliminary problems/issue recognition. This would include representations from the general public, organisations and interest groups etc. Area 2 includes the sources of unstructured information used in the middle stages of the planning process, provided, for example, by individuals, organisations and interest groups. Area 3 comprises methods included to identify needs/values/problems in the middle stages of the process and consists of public meetings and especially liaison with organisations' representatives. As one enters

Area 4, concerned with higher-level functions, one is increasingly involved in consultative relations with pressure groups/interested organisations and elected representatives. Area 5 is the actual decision taking by members.

In Fig. 6 the technical response methods are treated in the same way. In the early stages of plan-making (DA, AF and DPO) techniques are primarily used for the identification of needs/values and identification of individual tradeoffs, with some attempt usually to incorporate response concerning resolution issues in the development of policy options, (e.g. P.E.T.). In the middle stages of the process techniques have to fulfil the functions of conflict identification/resolution with respect to strategic solutions. The type of trade-offs often utilized here has been trade-offs between groups, made on the basis of individuals' preference or trade-off functions regarding immediate environmental attributes, aggregated to reveal social trade-offs. Rarely have trade-offs and solutions regarding strategic elements been the focus of techniques. In the final stages of the planning process (E and DT), we have firstly, the input to evaluation. This consists of methods which have previously measured individual trade-offs, aggregated to provide some sort of weight (Area 6), or as in Area 7, methods used in a direct evaluatory manner -i.e. people are asked to provide weights or make judgements within some criterion. The latter methods may also be used, Area 8 to aid decision takers in the final stages of the planning process.

Figs. 5 and 6 highlight a number of particularly crucial stages in the social response framework. One can now offer a network which specifies a possible approach to integrating public participation with plan-making through the use of particular technical and institutional methods. This is not intended as a definitive model, simply an example of a substantive · contribution which the analytical framework might make. This is done by taking the matrices and attempting to synthesize the two axes in a pragmatic manner using appropriate methods drawn from the categorisation of response types.

This is done in two steps. Firstly, linkages are specified within each contextual dimension (illustrated by arrows in Figs. 5 and 6) which highlight integration within contexts. The areas in Figs. 5 and 6 have been drawn according to two general rules which facilitate organisation of specific methods in the most rational and efficient way:

(i)   the use of any single method should provide data across as many stages of the planning process as possible (i.e. horizontal integration).

(ii)   the use of any single method should fulfil as many functions as possible (i.e. vertical integration).

Secondly, having considered integration within contexts, one can then consider integration between contexts, that is, the linkages between institutional and technical contexts within the procedures of plan-making. Two rules can be set which facilitiate the organisation of specific methods in a complementary way; thereby producing Fig. 7.

(iii)   lower order functions and stages in the process precede higher order ones temporarily (i.e. the categories in the matrices are serially related) so that organisation of elements within the matrix are linked left to right, top to bottom.

This leaves only the problems of overlap within the matrix:

(iv)   where overlap occurs at any element in the matrix, methods within the institutional (consultative) context precede those in the technical context, that is, the functions which consultation provides at a specific stage are a prerequisite for the design of measurement techniques aimed at the general population. The importance of feedback at points of overlap should, of course, be stressed.

Thus Figs. 5 and 6 illustrate linkages within the institutional and technical contexts respectively. Fig. 7 illustrates linkages between the two contexts.

Fig. 8 brings together Figs. 5, 6 and 7, and illustrates the linkages within and between the institutional, technical and procedural contexts, highlighting the temporal sequence of the matrix elements (numbered 1 to 20).

Utilization of the Framework

Fig. 8 attempts to present the ideal linkages between specific elements of the matrices. In practice, much of the resulting complexity is overcome by the use of response methods which cover numerous functions at various stages of the plan-making process and are often utilized with no time gap between application. The framework, developed by progressive refinement from Fig. 1 and 2, enables one to reduce this complexity and facilitate integration in a more structured and systematic way.

One can illustrate its use by introducing specific techniques/methods of participation into the framework thereby providing an example of an integrated network which might be used in practice. This is done in Fig. 9.

The two principle columns in Fig. 9 are columns B and D. Column B incorporates those matrix elements which arise from the development of the general framework. Column D incorporates the list of methods which are to be used in the programme. These are chosen according to three main areas of consideration:

Firstly, with regard to efficiency and rationality:

(i) each matrix element (representing response functions at stages in the planning process) must be catered for,

(ii) the techniques should be chosen, as far as is possible, such that each technique need only be used once, and

(iii) each technique should provide an input to as many matrix elements as possible.

Thus, column E indicates where the results of specific methods are utilized in more than one matrix element. Column A indicates those matrix elements using the same battery of methods as other elements.

Secondly, one must consider the technical problems of using specific methods. If we accept the aims set out in the previous paragraph (even on the grounds of limiting expenditure on the programme) then one must assess:

(i) the applicability of methods across a range of matrix settings,

(ii) the relationships between the output of specific methods and techniques.

The whole range of problems outlined earlier in the section in the Technical Context must be tackled, but with regard to integration of response modes at strategic levels there are three main issues involved; firstly, the role and nature of social choice criteria utilized, especially in regard to the aggregation of individual responses to obtain social values; secondly, the relation between output of techniques which elicit response to immediate, local problems and those which elicit direct responses to strategic level issues; and thirdly, the relation between those techniques concerned with personal values and preferences and those concerned with values and preferences for the community, i.e. ethical preferences. These issues have been titled Social Choice Criteria; Strategic -

Immediate, and Personal - Ethical; and have been labelled in Fig. 9 S.C.C., S.I. and P.E. respectively.

The third area for consideration revolves around the institutional context and consists of two primary strands. Firstly, the role and nature of information dissemination from the local authority and its integration with both the Matrix Elements (B) and the Response Modes (D). The major vehicles for this are outlined in Column C. Secondly, and perhaps more importantly, one must consider the roles of councillors. These have not been specified in Fig. 9 but generally they fall into three categories:

(i) In the choice of response methods. Councillors should be involved in decisions regarding which methods are necessary for the planning process generally and also for their specific information needs. This applies to all of column D.

(ii) Councillors may be expected to play a role in the derivation of values, i.e. they themselves may be measured. Increasingly this is undertaken by the use of priority evaluation techniques and gaming devices and should be considered, therefore, in matrix elements 3, 6, 8, 14. It also occurs within the institutional context, particularly at public meetings as outlined in Column C.

(iii) Finally, of course, councillors have a specific role to play as final decision takers, amtrix element 20.

The ideal model outlined above provides one example of the use of the analytical framework. The framework is organised so as to accommodate many of the technical, institutional and procedural problems which arise in the design of a public participation exercise and its incorporation in the planning process. Of course, the framework cannot solve the major problems which arise within each context, nor does it 'solve' the problems of integration - but it does allow one to structure these problems in an organised, systmatic fashion and provides a basis for tackling many integration problems in a rational and orderly way.

FIG. 1

RESPONSE TYPES AND METHODS			
TECHNICAL (i.e. Measurement)		INSTITUTIONAL (i.e. Political-Social response mechanisms)	
RESPONSE TYPE	RESPONSE METHOD	RESPONSE TYPE	RESPONSE METHOD
A. Behaviour	Behaviour mapping. Observation of behaviour settings. Behaviour check-lists used by observer. Activity self-reports used by observer. Use of documents. Information tests. Retrospective case-	1. Communication to the general public	The detailed application of a particular response method can often serve to achieve several response types. For example, public meetings can achieve types 1 and 3; Advisory committees of various forms can serve the fulfilment of all four types. A general check-list of methods might include:- public meetings, exhibitions, brochures/ newsheets, monitoring of press, TV/radio, invitation of comment from groups or individuals, presentations to community or other organisations, response to inquiries, representations to members, advisory committees, seminars and workshops, charrettes, structured (regular) liaison with organisations.
B. Conation	studies. Analysis of complaints & suggestions. Interviews. Questionnaires. Behaviour self report schedules. Sociometric analysis of reported behaviour.	2. Communication to groups, organisations and their representatives	
C. Perception/	Cognitive maps. Psycho-physical measures of distance Adjective check lists. Semantic differential. Repertory grids.	3. Communication from the general public	
D. Attitudes	Scales (structured). Unstructured (question-naire, interview, sentence completion).	4. Communication from groups, organisations and their representatives	
E. Judgements (preferences/ evaluations)	Questionnaires. Games. Interview. Futures modelling. MAUT. Other paired comparison/ranking exercises e.g. PET, SCG, Planning Kits. Revealed Preference		

FUNCTION OF RESPONSE \ STAGE IN PLANNING PROCESS	UNSTRUCTURED INFORMATION INPUT	PROBLEM/ ISSUE RECOGNITION	DATA ACQUISITION	ANALYSIS AND FORECASTING	DEVELOPMENT OF POLICY OPTIONS	POSSIBLE TRADE-OFFS AMONGST OPTIONS	OBJECTIVES FOR PLAN DESIGN	ALTERNATIVE PHYSICAL STRATEGIES	EVALUATION	DECISION TAKING
INFORMATION DISSEMINATION/ EDUCATION			Not a response mode, yet it is central to participation, being the basis of other modes of response; particularly the 'heuristic' methods							
UNSTRUCTURED REPRESENTATIONS/ LIAISON			This response function cannot, by definition, be fulfilled by formal techniques			These stages of the planning process need not incorporate these response functions				
IDENTIFICATION OF SPECIFIC NEEDS/ PROBLEMS/VALUES	By definition, these stages are not amenable to the use of formal response techniques		A B C D	A B C D	A B C D					
IDENTIFICATION OF CONFLICTS AND TRADE-OFFS			A B D	A B E	A B D E	A B E	A B E	A B E	A B E	
CONFLICT RESOLUTION/ GENERATION OF IDEAS & PLANS FOR SOLUTION OF STRATEGIC PROBLEMS					A B C E	A E	A E	A E		
EVALUATION						The planning process has not reached the stage where these particular functions can be served			A E	A E
DECISION-TAKING										A E

FUNCTION OF RESPONSE \ STAGE IN PLANNING PROCESS	UNSTRUCTURED INFORMATION INPUT	PROBLEM/ ISSUE RECOGNITION	DATA ACQUISITION	ANALYSIS AND FORECASTING	DEVELOPMENT OF POLICY OPTIONS	POSSIBLE TRADE-OFFS AMONGST OPTIONS	OBJECTIVES FOR PLAN DESIGN	ALTERNATIVE PHYSICAL STRATEGIES	EVALUATION	DECISION TAKING
INFORMATION DISSEMINATION/ EDUCATION	Not a response mode as such; but items 1 and 2 below represent information dissemination, a prerequisite for response									
UNSTRUCTURED REPRESENTATIONS/ LIAISON	1 2 / 3 4	1 2 / 3 4	These stages are essentially technical, no direct consultative input is applicable		1 2 / 3 4	1 2 / 3 4	1 2 / 3 4	1 2 / 3 4	Such low level response functions are not required at the advanced stages of the planning process	
IDENTIFICATION OF SPECIFIC NEEDS/ PROBLEMS/VALUES	1 2 / 3 4	1 2 / 3 4			1 2 / 4	1 2 / 4	1 2 / 4	1 2 / 4		
IDENTIFICATION OF CONFLICTS AND TRADE-OFFS	1 2 / 3 4	1 2 / 3 4			1 2 / 4	1 2 / 4	1 2 / 4	1 2 / 4		
CONFLICT RESOLUTION/ GENERATION OF IDEAS & PLANS FOR SOLUTION OF STRATEGIC PROBLEMS	1 2 / 3 4	1 2 / 3 4			1 2 / 4	1 2 / 4	1 2 / 4	1 2 / 4		
EVALUATION	The early and middle stages of the planning process do not require institutional arrangements designed for higher order functions								Evaluation as a technical exercise	
DECISION-TAKING										2 / 4

Figure 4   The Functions of Social Response in Plan Making

STAGE IN PLANNING PROCESS / FUNCTION OF RESPONSE	UNSTRUCTURED INFORMATION INPUT	PROBLEM/ ISSUE RECOGNITION	DATA ACQUISITION	ANALYSIS AND FORECASTING	DEVELOPMENT OF POLICY OPTIONS	POSSIBLE TRADE-OFFS AMONGST OPTIONS	OBJECTIVES FOR PLAN DESIGN	ALTERNATIVE PHYSICAL STRATEGIES	EVALUATION	DECISION TAKING
INFORMATION DISSEMINATION/ EDUCATION	I	I			I	I	I	I		
UNSTRUCTURED REPRESENTATIONS/ LIAISON	I	I			I	I	I	I		
IDENTIFICATION OF SPECIFIC NEEDS/ PROBLEMS/VALUES	I	I	I	I	I	I	I	I		
IDENTIFICATION OF CONFLICTS AND TRADE-OFFS	I	I	I	I	I	I	I	I	I	
CONFLICT RESOLUTION/ GENERATION OF IDEAS & PLANS FOR SOLUTION OF STRATEGIC PROBLEMS	I	I			I	I	I	I		
EVALUATION									I	I
DECISION-TAKING										I

Figure 5 The Linkages Between Institutional Response Types in Plan Making

FUNCTION OF RESPONSE / STAGE IN PLANNING PROCESS	UNSTRUCTURED INFORMATION INPUT	PROBLEM/ ISSUE RECOGNITION	DATA ACQUISITION	ANALYSIS AND FORECASTING	DEVELOPMENT OF POLICY OPTIONS	POSSIBLE TRADE-OFFS AMONGST OPTIONS	OBJECTIVES FOR PLAN DESIGN	ALTERNATIVE PHYSICAL STRATEGIES	EVALUATION	DECISION TAKING
INFORMATION DISSEMINATION/ EDUCATION										
UNSTRUCTURED REPRESENTATIONS/ LIAISON	AREA 1				AREA 2					
IDENTIFICATION OF SPECIFIC NEEDS/ PROBLEMS/VALUES					AREA 3					
IDENTIFICATION OF CONFLICTS AND TRADE-OFFS					AREA 4					
CONFLICT RESOLUTION/ GENERATION OF IDEAS PLANS FOR SOLUTION OF STRATEGIC PROBLEMS										
EVALUATION										AREA 5
DECISION-TAKING										

Figure 6   The Linkages Between Technical Response Types in Plan Making

	UNSTRUCTURED INFORMATION INPUT	PROBLEM/ ISSUE RECOGNITION	DATA ACQUISITION	ANALYSIS AND FORECASTING	DEVELOPMENT OF POLICY OPTIONS	POSSIBLE TRADE-OFFS AMONGST OPTIONS	OBJECTIVES FOR PLAN DESIGN	ALTERNATIVE PHYSICAL STRATEGIES	EVALUATION	DECISION TAKING
STAGE IN PLANNING PROCESS / FUNCTION OF RESPONSE										
INFORMATION DISSEMINATION/ EDUCATION										
UNSTRUCTURED REPRESENTATIONS/ LIAISON										
IDENTIFICATION OF SPECIFIC NEEDS/ PROBLEMS/VALUES										
IDENTIFICATION OF CONFLICTS AND TRADE-OFFS										
CONFLICT RESOLUTION/ GENERATION OF IDEAS & PLANS FOR SOLUTION OF STRATEGIC PROBLEMS										
EVALUATION										
DECISION-TAKING										

AREA 1   AREA 2   AREA 3   AREA 4   AREA 5   AREA 6   AREA 7   AREA 8

Figure 7   The Linkages Between Technical and Institutional Response Types

STAGE IN PLANNING PROCESS / FUNCTION OF RESPONSE	UNSTRUCTURED INFORMATION INPUT	PROBLEM/ ISSUE RECOGNITION	DATA ACQUISITION	ANALYSIS AND FORECASTING	DEVELOPMENT OF POLICY OPTIONS	POSSIBLE TRADE-OFFS AMONGST OPTIONS	OBJECTIVES FOR PLAN DESIGN	ALTERNATIVE PHYSICAL STRATEGIES	EVALUATION	DECISION TAKING
INFORMATION DISSEMINATION/ EDUCATION										
UNSTRUCTURED REPRESENTATIONS/ LIAISON										
IDENTIFICATION OF SPECIFIC NEEDS/ PROBLEMS/VALUES										
IDENTIFICATION OF CONFLICTS AND TRADE-OFFS										
CONFLICT RESOLUTION/ GENERATION OF IDEAS & PLANS FOR SOLUTION OF STRATEGIC PROBLEMS										
EVALUATION										
DECISION-TAKING										

Figure 8   Linkages of Response Types Between and Within Institutional and Technical Contexts

STAGE IN PLANNING PROCESS / FUNCTION OF RESPONSE	UNSTRUCTURED INFORMATION INPUT	PROBLEM/ISSUE RECOGNITION	DATA ACQUISITION	ANALYSIS AND FORECASTING	DEVELOPMENT OF POLICY OPTIONS	POSSIBLE TRADE-OFFS AMONGST OPTIONS	OBJECTIVES FOR PLAN DESIGN	ALTERNATIVE PHYSICAL STRATEGIES	EVALUATION	DECISION TAKING
INFORMATION DISSEMINATION/EDUCATION		①								
UNSTRUCTURED REPRESENTATIONS/LIAISON				②	④		⑪			
IDENTIFICATION OF SPECIFIC NEEDS/PROBLEMS/VALUES				③	⑤ ⑥		⑫			
IDENTIFICATION OF CONFLICTS AND TRADE-OFFS					⑦		⑬ ⑭		⑰	
CONFLICT RESOLUTION/GENERATION OF IDEAS & PLANS FOR SOLUTION OF STRATEGIC PROBLEMS					⑧ ⑨ ⑩		⑮ ⑯			
EVALUATION									⑱	⑲
DECISION-TAKING										⑳

FIGURE 9

A	B	C	D	E
Matrix Elements using same battery of methods as B	MATRIX ELEMENTS	Information Dissemination	RESPONSE METHODS	Response Methods used in various stages/functions
	1	General Publicity Mass Media	Representations from individuals, organisations, and groups	
SCC	2		Behaviour Mapping	
			Activity Self-Report	
			Questionnaire & Attitude measures	
SCC	3		Priority-Evaluator Techniques	
			Behaviour/Revealed Preference	
(11)	4		Representations from individuals, organisations, and groups	
(12)	5	General Publicity Mass Media Public Meetings	Charrettes	
(13)			Structured Liaison	
	6			
	7			
(10)	8		Games	SCC
(15)	9		Advisory Committees	
	10			
	11	General Publicity Mass Media Public Meetings Exhibitions		
	12			
	13			
(18) SCC	14		Strategic Choice Games	SI
(19) SCC	15			PE
	16		Futures Modelling/ Planning Kits	
	17			
	18			
	19			
DECISION-TAKING	20	DECISION-TAKING		

(17), (SCC) markers appear in column A

APPENDIX D

Further Presentation and Discussion of Results

D1 Sample and Area Characteristics

The purpose of this appendix is to give the reader further background information on the area samples used in the surveys, and the character-istics of the areas from which these samples were drawn, using the latest census data[*]. Detailed statistical analysis of the representatitiv-ness of the sub-samples compared with the E.D. areas were not undertaken, as no attempt was being made to generalise from the samples to the wider population.

Table D1.1 gives the socio-economic group distribution for the sub-samples and for the E.D. areas from which the sub-samples were drawn, based upon head of household. The categories used correspond to the O.P.C.S. classification. Retired p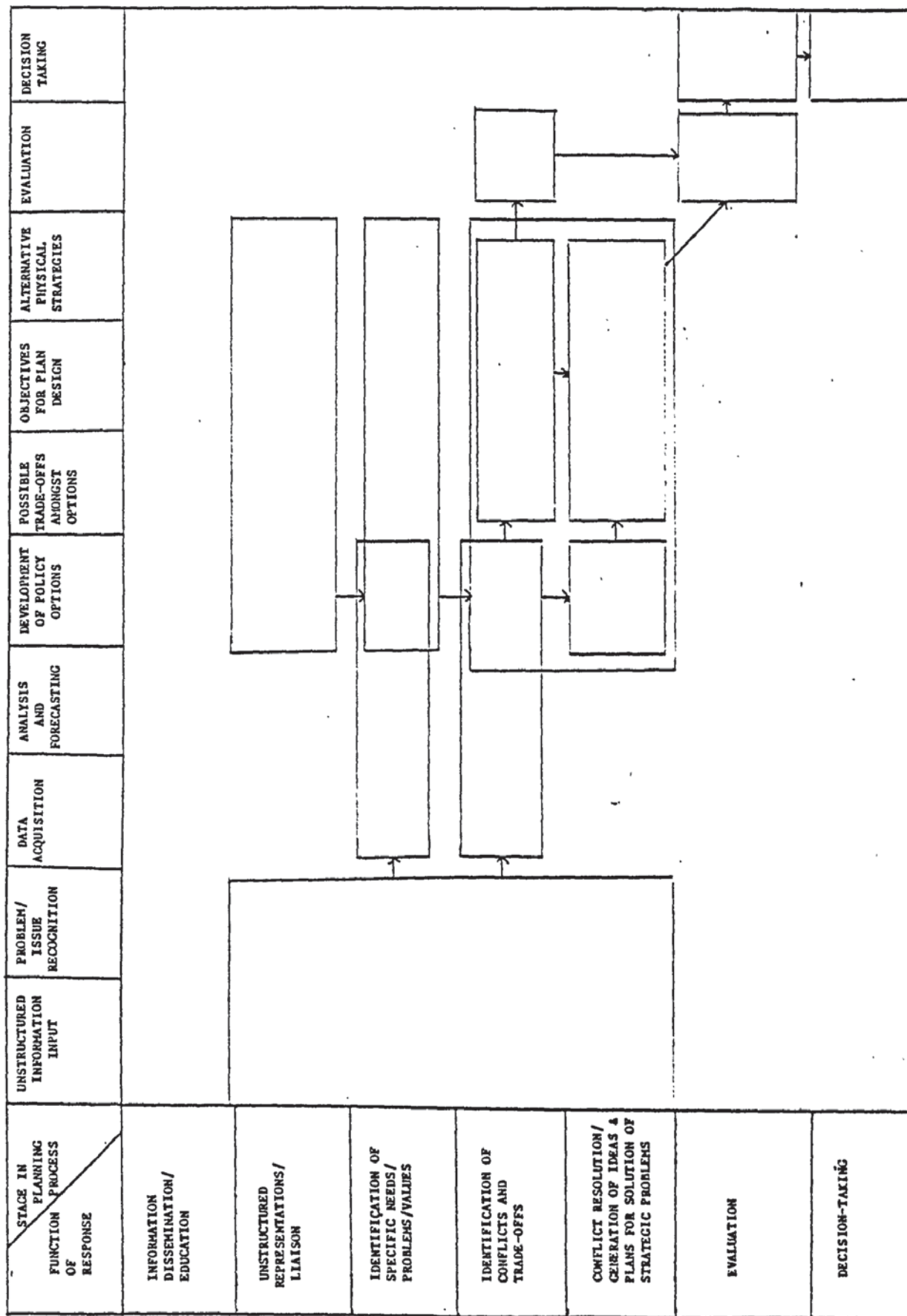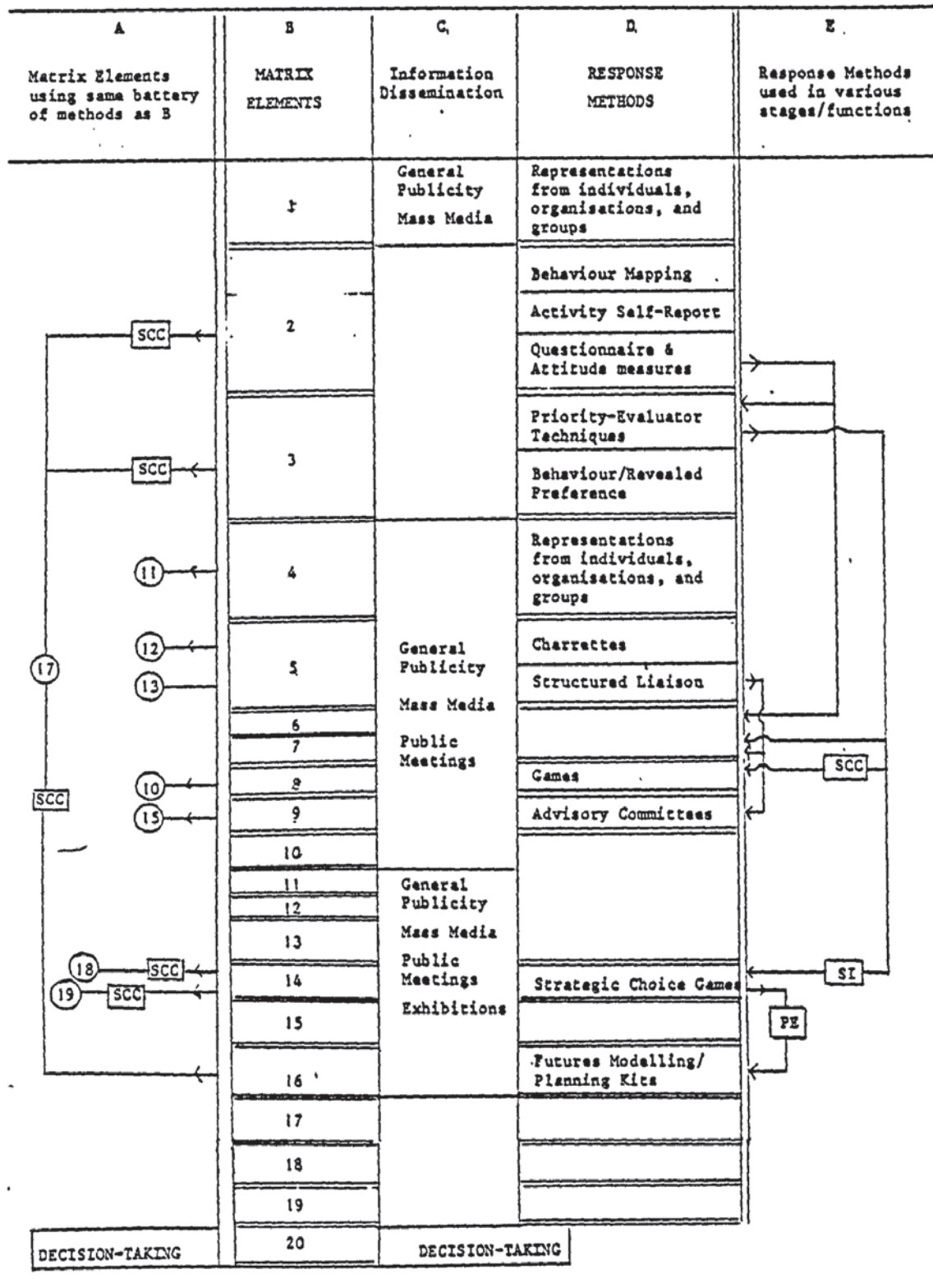ersons and those who are temporarily ill or unemployed are classified into the group corresponding to their last full-time occupation. The table indicates the high proportion of professional, employers and managerial grades in Blackenhall, as opposed to the higher proportion of self-employed, skilled, semi-skilled and unskilled workers in the inner area samples.

	Census classes	Saltley 1		Saltley 11		Blackenhall		Parkfield	
		T	%	T	%	T	%	T	%
Professional	3,4	0	0 (0)	1	6 (2)	8	20 (16)	1	3 (1)
Employers and Managers	1,2,13	0	0 (3)	1	6 (4)	9	23 (22)	0	0 (1)
Intermediate and Junior non-manual	5,6	2	10 (8)	4	22 (13)	7	18 (22)	3	18 (6)
Skilled manual	8,9,12,14	6	30 (28)	6	33 (33)	7	18 (23)	18	45 (47)
Semi-skilled manual	7,10,15	6	30 (32)	4	22 (33)	4	10 (5)	7	18 (17)
Unskilled manual	11	4	20 (14)	1	6 (11)	1	3 (3)	7	18 (18)
Others	16,17	2	10 (14)	1	6 (4)	4	10 (11)	4	10 (11)
Total		20		18		40		40	

Table D1.1 Socio-economic Group

(1971 Census in parenthesis)

[*]Parentheses represent data for the census enumeration districts which make up the survey areas.

Table D1.2 gives an indication of car ownership which is a further indication of socio-economic group. All sub-samples show high ownership than in the census data, Blackenhall showing the highest at 80%.

	%
Saltley 1	40 (24)
Saltley 11	50 (31)
Blackenhall	81 (74)
Parkfield	38 (26)

Table D1.2 Percentage of households owning cars

(1971 census in parenthesis)

Table D1.3 illustrates the place of birth of the sub-samples, with Saltley 1 and Parkfield exhibiting the highest proportion of New Commonwealth immigrants.

	Britain		Northern Ireland/ Republic		New Commonwealth		Other	
	T	%	T	%	T	%	T	%
Saltley 1	12	60 (57)	3	15 (7)	4	20 (37)	1	5
Saltley 11	13	72 (84)	4	22 (5)	1	6 (11)	0	
Blackenhall	40	100 (98)	0	(1)	0	(1)	0	
Parkfield	29	73 (78)	2	5 (1)	9	23 (20)	0	

Table D1.3 Birthplace of Respondents

(1971 census in parenthesis)

Table D1.4 shows the pattern of tenure in the sub-sample groups.
Blackenhall shows the highest proportion of owner occupied properties,
Parkfield and Saltley.11 illustrate highest proportions of council
dwellings, whilst Saltley 1 shows a higher number of households in
private unfurnished accomodation.

	Owner occupied		Council		Private unfurnished		Private furnished	
	T	%	T	%	T	%	T	%
Saltley 1	11	55 (56)	2	10 (12)	7	35 (23)	0	(9)
Saltley 11	5	28 (32)	13	72 (50)	0	(15)	0	(3)
Blackenhall	100	100 (96)	0	(0)	0	(3)	0	(1)
Parkfield	12	30 (23)	28	70 (60)	0	(13)	0	(3)
U.K. 1971		(50)		(28)		(17)		(5)

Table D1.4 Household Tenure

(1971 census in parenthesis)

Even though analysis did not proceed on the basis of cardinality assumptions, the description and aggregation of ranked data is still subject to the problems of social choice. It is therefore useful at this stage to outline the approach taken to this data.

In order to examine group differences in the data, a form of lexicographic ordering of group scores was utilised. Attributes are compared for the number of times each is ranked first (ie. highest) and the one which is ranked highest most often is treated as having a higher group-ranking. If two or more attributes are ranked highest an equal number of times (as below) then that which was ranked second most often is chosen, and so on. Thus in comparing x_1 and x_2 in the example below, x_1 would be considered the highest ranked by this group of people:-

Ranks

	1	2	3 .... Rn
x_1	4	3	0
x_2	4	2	0
$\vdots$			
xn			

However, problems arise when x_1 and x_2 are ranked as follows:

Ranks

	1	2	3	4	5	6
x_1	4	3	1	0	0	4
x_2	4	2	5	1	0	0
$\vdots$						
$x6$						

Using a group lexicographic ordering on this data, x_1 would be ranked higher than x_2. However, x_1 is ranked third only once and ranked sixth four times, whereas x_2 is ranked third five times and fourth once. Overall, then, x_2 looks intuitively to be higher ranked.

The problem with this type of lexicographic ordering, then, is that it is not based on individuals' orderings of attributes, that is, it is not responsive to the question, 'how many times was x_1 ranked higher than x_2?' However, even if one adopted the latter approach, analysis would still be subject to the whole range of problems of social choice, epitomised and arising from Arrow's (1951) impossibility theorem

which shows that, given a set of reasonable conditions, no universal decision rule (ie. rule which can apply to all configurations of individual choices/rankings) is possible.

By adopting the lexiographic approach above one is violating a key condition of Arrow's theorem. However, the purpose here is not to produce a universal rule but to illustrate the direction and differences in group choices, and to this end a number of amendments can be made to the group lexicographic ordering to make it more responsive to individuals' orderings (and more importantly, to the transitive nature of individual orderings).

(i) If, in the second example above, one had commenced with the right hand column and asked which attribute is ranked lowest the least often, that is working from right to left, then x_2 would be considered the highest group-ranked of the two attributes. This is important for it means that one can assess lexicographic rankings from two directions as a consistency check on the overall group rankings. If there is still inconsistency then there is, of course, no resolution. However, it does allow one to approach the process of comparison in a more realistic way and to highlight inconsistencies in the direction of overall group scores.

By adopting a process of lexicographic ordering from highest to lowest matched by one from lowest to highest, the rankings in Table D2.1 are produced.

(ii) A second check was made to assess correspondence with individuals' rankings across pairs of attributes. Thus the percentages in Table D2.1 (% x_1 Rx_j) illustrate the percentage of individuals who ranked the two attributes in correspondence with the group-lexicographic ranking. Thus on Part 1, for Group A, 65% ranked x_1 higher than x_5; 55% ranked x_5 higher than x_4, etc. These numbers should, therefore always be higher than 50%, showing that the larger proportion of the group ranked the two attributes in accordance with the group lexiocograph ordering[1].

(iii) Finally, one has to accommodate, in some way, those situations where the group-lexicographic orderings do not correspond with individual orderings across pairs of attributes. In these situations the individuals' orderings take precedence (These are asterisked, leading to the 'revised rankings)[2].

_____

[1] There is, of course, no control of interpersonal comparability with this method. Whilst it ensures individual transitivity (ie. of x_1 x_2 x_3 then x_1 x_3), it does not

[2]Where two or more adjacent individual rankings are incompatible with the group lexicographic orderings the full problems of social choice are illustrated, (see App. F) for here x_3 is not ranked higher than x_4 more than vice-versa; x_4 not ranked higher than x_2; x_2 not more than x_1, and there is no way of revising the lexicograph orderings in line with individual ones. Without information on the relative importance of the differences between attributes for each person (ie. cardinal data) the only ordering possible is lexicographic.

Table D2.1 — Group Lexicographic orderings of SCG Attributes (including revised rankings)

Group		Group Ranks – Part 1						Group Ranks – Part 2					
		Highest 1	2	3	4	5	Lowest 6	Highest 1	2	3	4	5	Lowest 6
PARKFIELD	Rankings	x_1	x_5	x_4	x_3	x_2	x_6	x_3	x_1	x_2	x_4	x_5	x_6
	% x; Rx;	65	65	55	60	55	55	50	55	60	65	55	
BLACKENHALL	Rankings	x_3	x_4	x_1	x_2	x_5	x_6	x_2	x_1	x_4	x_4	x_3	x_6
	% x; Rx;	50	50	60	65	55	55	66	60	55	55	65	55
SALTLEY I	Rankings	x_1	x_5	x_4	x_3	x_2	x_6	x_3	x_4	x_2	x_1	x_5	x_6
	% x; Rx;	66	53	66	53	53	53	46*	46*	46*	53	59	
SALTLEY II	Rankings	x_1	x_3	x_5	x_4	x_2	x_6	x_3	x_4	x_1	x_2	x_6	x_5
	% x; Rx;	46*	59	59	40*	59		59	66	40*	66	46*	
	Revised Rankings	x_3	x_1	x_5	x_2	x_4	x_6	x_3	x_4	x_2	x_1	x_5	x_6
COMMUNITY REPS	Rankings	x_1	x_5	x_4	x_2	x_3	x_6	x_3	x_1	x_2	x_4	x_5	x_6
	% x; Rx;	65	55	85	55	50		50	45*	50	50	55	
	Revised Rankings							x_3	x_1	x_2	x_4	x_5	x_6
PLANNING STUDENTS	Rankings	x_1	x_3	x_2	x_4	x_5	x_6	x_3	x_1	x_2	x_4	x_5	x_6
	% x; Rx;	50	50	50	50	70		50	50	50	50	50	
NON-PLANNING STUDENTS	Rankings	x_1	x_3	x_5	x_4	x_2	x_6	x_3	x_1	x_2	x_4	x_5	x_6
	% x; Rx;	60	60	60	60	70		60	70	60	70	60	

Table D2.1.   Group Lexicographic orderings of SCG Attributes (including revised rankings)

D3 Further Comments on Analysis of Test Battery Results

Sub-Sample Differences in IC and IL

Statistical tests were conducted to determine whether the samples came from populations with significantly different means. The sub-samples were chosen on the grounds of expected differences in IC and IL. It was expected that Planning Students would score highest, followed by Community Reps. and Non-Planning Students. That the area sample Blackenhall would score higher than the inner area samples, and that of the latter Saltley II would score higher than Saltley I and Parkfield. It was expected that there would be no difference in scores between the latter samples.

It was therefore possible to utilise ttests on these relations and these are indicated in Table D3.1 below. These illustrated that the expected similarity between Parkfield and Saltley (t - scores of 0.29 and 0.34 on IC and IL respectively), and the expected differences (eg. t - scores for Planning and Non-Planning students on IC and IL were 2.5 and 4.0 respectively - significant at the 0.05 level) were well founded

The remaining expected differences were all significant at or above the 0.05 level, except for the difference between Blackenhall and Saltley II (significant at the 0.10 level) and between Saltley II and Parkfield (not significant) on integrative complexity.

As the t-test only really applies where samples are drawn from populations whose variances are equal, a test of homogeneity of variance (F-test) was conducted. This illustrated that the population scores for IC and IL were homogenous overall at the 0.05 significance level, and for important pairs (eg. scores for planning and non-planning students on IC and IL were F = 1.34 and F = 1.56 respectively). The only exception was Community Reps. and the two student groups where IC scores of F = 6.25 and F = 9.91 respectively were calculated. This is indicative of the very large variance on IC scores for the Community Reps. sample, and is perhaps a reflection of the lack of a standard criterion for incluson in a sampling frame.

D3

	Integrative Complexity		Information Level	
	t - scores	F - scores	t - scores	F - scores
Blackenhall/Saltley II	1.36	1.88	2.81	1.96
Saltley/Parkfield	1.05	1.31	2.93	1.56
Blackenhall/Parkfield	3.00	1.44	7.00	1.25
Parkfield/Saltley I	0.34	1.27	0.29	1.09
Planning Students/ Community Reps.	0.43	6.25	4.09	1.53
Community Reps./Non-Planning Students	1.74	9.91	0.57	2.01
Planning Students/ Non-Planning Students	2.50	1.34	4.00	1.56
Non-Planning Students Blackenhall	2.09	3.16	2.45	1.04

Table D3.1 - Sub-sample differences in IC and IL: t and F Scores

Having considered the overall scores for IL and IC, analysis was then focused more finely on the nature of the differences between the sample groups. Group profiles were produced by disaggregating the results to specific elements within the tests.

Integrative Complexity Profiles

First of all the means for each element (dichotomy) in the IC measure were calculated. The overall scores for each respondent used in CH.8 have the effect of averaging out the essential differences between scores on specific elements of the test. By disaggregating to each element it is possible to illustrate the differences between the sample groups for each dichotomous element, reflecting the original 0-5 score. (These are presented in Table D3.2 below)

The group profiles for Planning and Non-Planning Students were detailed in Fig. 8.1, illustrating the essential differences between the two groups. t scores are also shown for each element, indicating those elements which have significant differences in means at 0.05 level. Again, F scores were calculated for each element, and these indicate that all were drawn from populations of the same variance (at 0.05 sig. level), thereby discounting any dual effects. Rather than reproduce similar prifiles for every pair of sample groups across the range of elements, the profiles have been condensed into Fig. D3.2 below.

Table D3.2 indicates that there is not a great variation on scores for any particular group between the different elements of the test - the largest variation being in Saltley II's scores. This indicates that each element of the IC test may be a reasonable predictor of overall IC test score for any sample group. This type of analysis was taken further, using t and F scores, in testing the internal consistency of the measure, and is discussed later in this Appendix.

Information Level Profiles

In considering the integrative complexity scores, the differences between the scores for different topics were also investigated to find whether certain topics were producing unwarranted bias. The complexity scores for each topic were calculated and compared with overall complexity scores and no major differences were found. This was to be expected considering the nature of the complexity measures. However, this is not the case with the information level tests where differences of information level on specific topics is to be expected. In producing the group profiles for information level, therefore, the scores are disaggregated to the level of specific topics.

Again, rather than producing separate profiles, these have been condensed into Fig

The differences on elements of the test for any sub-sample group are, as expected, much greater for the IL measures than for IC measures, as can be seen in Table D3.3. The inner area groups (Parkfield, Saltley I & II) and Blackenhall scored highest on those topics which one might consider to be local or immediate problems that is, problems which can be perceived in everyday activity:-

The Main Problem of this Area

The Main Problems of Wolverhampton/Birmingham

The Problems of the older Residential Areas

Unemployment in Wolverhampton/Birmingham

Even on these topics, however, scores were relatively low, and when viewed in terms of associated low levels of IC the nature of responses becomes clear (Extracts from transcripts of interviews are included later in this section). Content analysis for the inner area groups illustrated important differences in content, especially in terms of references to immigration/race problems (not mentioned in the test) which was mentioned by 65%, 73%, 71% respectively. In fact this provided a common denominator across topics for many respondents and was used by them as a link to explain many of the problems which concerned respondents both in regard to their local area and to Wolverhampton/Birmingham as a whole. This was particularly true on topics regarding older residential areas and unemployment.[1]

[1]The extent of references to immigration, and its centrality in organising responses was not envisaged by the author, and is an area worthy of further investigation.

Other problems associated with immediate neighbourhood and Wolverhampton/Birmingham as a whole were mentioned ny respondents from the inner area samples, but these were usually organised around a concern for racial problems. These included problems of housing and environment (that is, the essential charactertistics of urban decay) as well as general social perspectives on inequality and particularly on various aspects of social disorder (ie for many respondents this came under the rubric of 'law and order')

On these higher scoring topics, then, the inner area groups showed very little analytical concern for strategic issues and problems.

The inner area groups also show similarities in those topics on which their average scores were lowest:-

Population increase in Wolverhampton/Birmingham
Transportation in Wolverhampton/Birmingham
Birmingham/Wolverhampton in the future
Planning Departments
Structure Plans

Again, population increase and transportation are not topics thought to be of central concern in everyday activities and perhaps are ones which require high levels of information. Statements in responses therefore referred mainly to non-strategic questions such as "buses are too expensive" /too slow/too infrequent etc., but with no extensive discussion of, for example, private us, public transportation issues. Population increase again illustrated a quite unexpected degree of reference to size of West Indian and New Commonwealth families. Regarding the final three topics above, the responses give one the impression of remoteness, of lack of everyday concern, with responses often couched in simplifications, and unsubstantiated opinion which seems to have been derived from the mass media and informal personal contacts. The most predominant element of response was that planners' actions were, by nature, antithletical to the residents interests, and unnecessarily bureaucratic.

The representatives of community organisations scored highest on:

Main Problems of this Area
Main Problems of Wolverhampton/Birmingham
Problems of Older Residential Areas

These scores are probably to be expected as the topics reflect important areas of their work. However, this group scored lowest on the same subjects as did the inner area group:

Population increase in Birmingham
Transportation in Birmingham
Planning Departments
Structure Plans

where perhaps a higher level of general/technical interest is required. Low scores in thelast two topics were particularly unexpected.

The Planning Students exhibited higher scores than non-planning students on every topics, but particularly on those where one is able to give technical information, therefore illustrating the effect of disciplinary background:-

Population increase in Birmingham
Overspill from Birmingham
Unemployment in Birmingham
Industry in Birmingham
Transportation in Birmingham
The main problems of Birmingham
Birmingham in the Future
Structure Plans

Scores between the two groups were similar on topics:

Problems of this area
Problems of Birmingham
Green Belt in the West Midlands
Planning Departments

The last two are particularly surprising. The four topics represent the lowest scores for Planning Students and the highest for Non-Planning Students (along with problems of Older Residential Areas and Problems of New Estates)

Planning students scored highest on those topics which would be of central concern in contemporary planning education:

Industry in Birmingham
Problems of the Older Residential Areas
Transportation

Non-planning students scored lowest on the more technical topics, as well as those requiring a greater degree of analysis/synthesis of strategic issues:-

Population Increase
Industry
Transportation
Solving the problems of Birmingham (West Midlands)

	Parkfield	Blackenhall	Saltley I	Saltley II	Community Reps	Planning Students	Non-Planning Students	
Physical/Material — Cultural/Behavioural	1.5	1.9	1.7	1.8	2.7	2.8	2.6	A
Individual — Social	1.4	1.9	1.7	1.8	2.7	2.7	2.4	B
Static — Dynamic	1.5	1.9	1.7	2.7	2.6	2.4	2.2	C
Specific — General	1.5	1.9	1.7	2.8	2.6	2.5	2.3	D
Concrete — Abstract	1.5	1.9	1.4	2.6	2.5	2.4	2.1	E
Unrelated — Interrelated	1.7	2.0	1.5	2.6	2.6	2.7	2.3	F
Simple — Complex	1.7	1.9	1.5	1.6	2.6	2.9	2.2	G
Descriptive — Analytic	1.6	2.0	1.6	1.7	2.5	2.8	2.1	H

Table D3.2. Sub-sample mean scores on Integrative Complexity Elements

Average scores

3 2 1

IC Dimensions	A B C D E F G H	A	H	A	H	A	H	A	H	A	H	A	H

Sub-sample	Parkfield	Blacken-hall	Saltley I	Saltley II	Community Reps.	Planning Students	Non-Planning Students
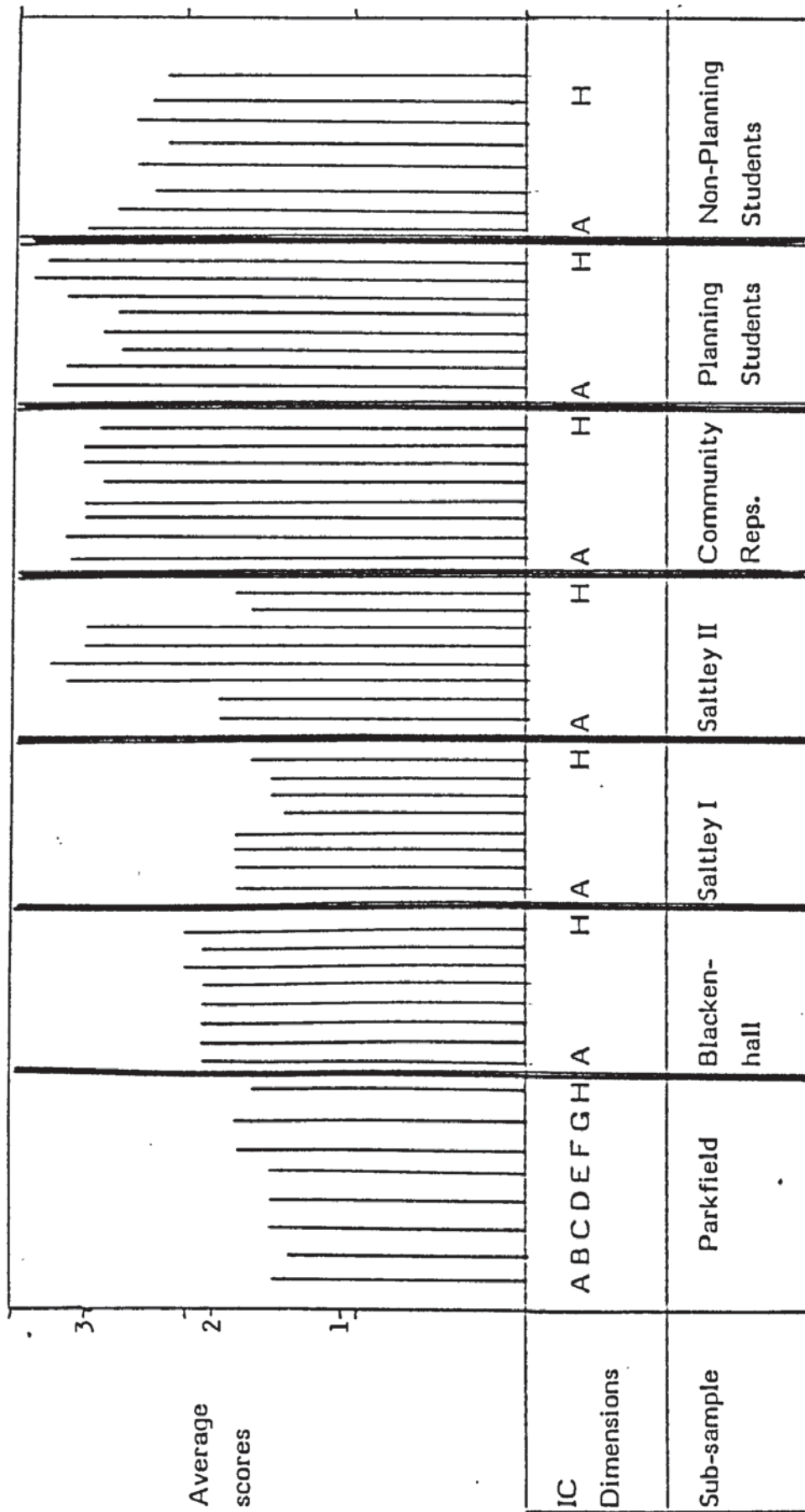
FIGURE D/3.2 Group Profiles on Integrative Complexity (Average Scores)

	IL TOPICS														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Parkfield	2.2	1.7	0.8	0.4	0.8	1.3	1.2	2.0	0.9	0.5	1.7	0.4	0.7	0.4	0.8
Blackenhall	3.0	2.5	1.6	1.2	1.6	1.5	1.6	3.0	0.8	1.6	2.8	1.6	1.1	1.2	2.6
Saltley I	1.9	1.4	0.8	0.5	0.9	1.2	1.1	1.8	1.3	0.7	1.6	0.6	0.7	0.3	0.9
Saltley II	2.5	1.9	1.0	0.6	1.1	1.8	1.9	2.1	1.7	0.9	2.0	1.1	1.2	0.4	1.2
Community Representatives	3.7	4.2	2.7	1.3	2.7	2.7	2.5	3.8	2.7	1.8	4.5	2.7	1.8	1.2	2.7
Planning/Students	3.1	3.6	2.6	4.0	4.1	3.8	4.9	4.7	3.7	5.0	3.2	3.3	3.1	4.2	2.2
Non-Planning Students	2.7	3.5	2.5	1.8	2.5	2.7	1.8	3.3	3.2	1.6	2.5	2.3	3.6	2.8	1.3

Table ID3.3   Sub-sample mean scores on Information Level Topics
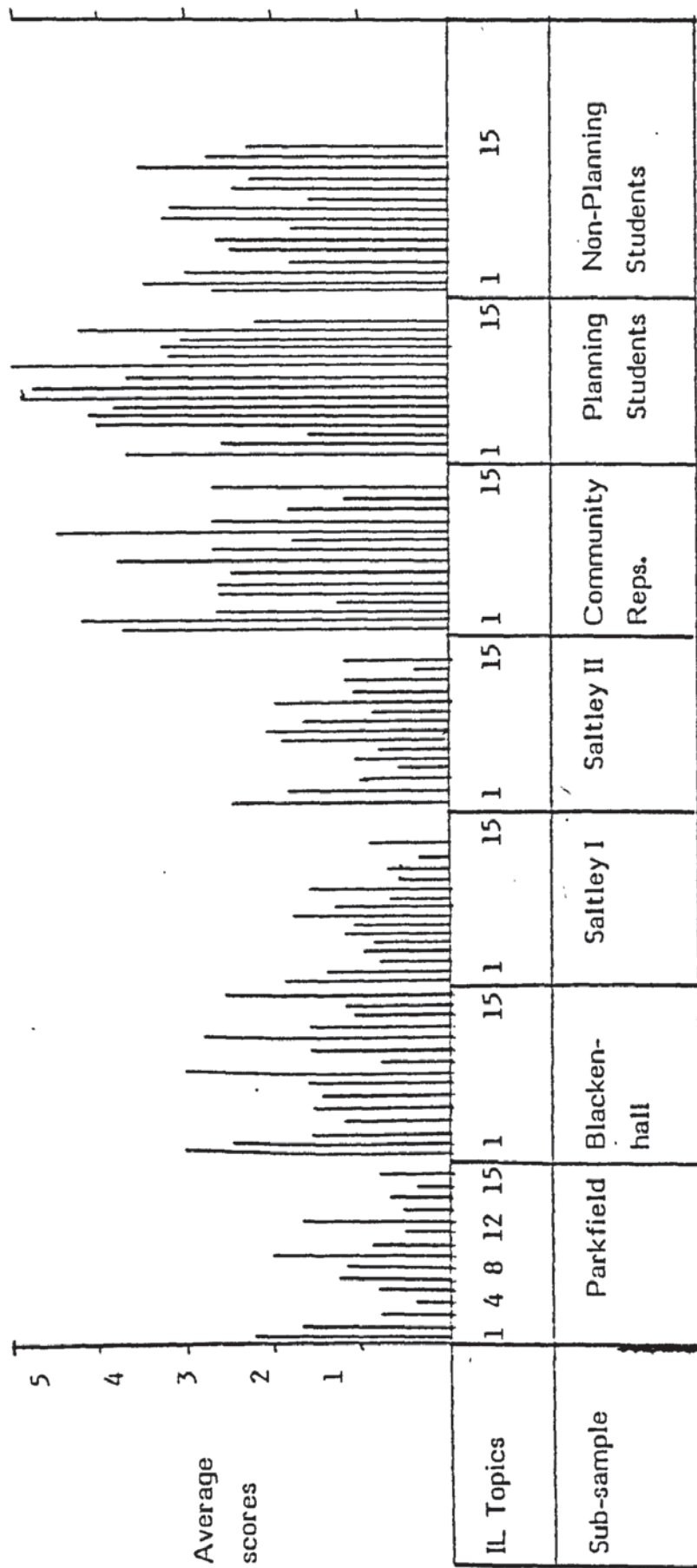
FIGURE D3.3 Group Profiles on Information Test (Average Scores)

IL Topics	1 4 8 12 15	1	15	1	15	1	15	1	15	1	15	1	15
Sub-sample	Parkfield	Blacken-hall		Saltley I		Saltley II		Community Reps.		Planning Students		Non-Planning Students	

The Relation between information level and integrative complexity

The linear correlation between IC and IL across the total sample was r = 0.68, significant at 99% level. Of importance is the nature of the relations between specific elements of IC and IL, and the differences in these relations for different groups.

Thus the degree of correlation varies between the sub-sample groups as illustrated in Table D3.5 below

	r
Parkfield	0.69
Blackenhall	0.72
Saltley I	0.61
Saltley II	0.59
Community Reps.	0.42
Planning Students	0.63
Non-Planning Students	0.74

Table D3.5 Correlation between IC and IL: Sub-sample differences

The data for the overall sample was also disaggrated so that the correlation between specific dimensions of complexity and information level could be calculated. These were as follows:

IC Dimensions	r_{IL}	IL Topics	r_{IC}
Physical/Cultural	0.71	1	0.55
Individual/Social	0.69	2	0.57
Static/Dynamic	0.31	3	0.53
Specific/General	0.32	4	0.61
Concrete/Abstract	0.33	5	0.57
Unrealted/Interrelated	0.36	6	0.50
Simple/Complex	0.71	7	0.49
Descriptive/Analytic	0.67	8	0.62
		9	0.47
		10	0.43
		11	0.56
		12	0.61
		13	0.51
		14	0.40
		15	0.58

The subsample correlations between IC elements and IL corresponded to the sub-sample relations between overall IC score and IL, again illustrating little variation between IC elements within sub-sample groups, indicative of the high internal constency of the test battery measures.

One can note, then, a general linear correlation between IC and IL, though not particularly strong, and not applying over all sub-sample groups or across different complexity elements. These low linear correlations necessitate a consideration of the relation between IC and IL being non-linear. In fact it is more than likely that the relation is a power relation - the greater the level of integrating complexity, the greater the proportional increase in information level that is possible (following the model). Thus if the test battery results were not spurious (and certainly its testing upholds this view) then the different strengths of linear correlation between sub-sample groups could be explained by a non-linear function. In such a situation the relatively homogeneity of scores within sub-sample groups, each with different ranges of scores, would lead to some groups (at the extremeties of the IC scale)

Internal Consistency of the Test Battery

In the previous sections the average scores for elements within the tests were used to highlight the differences between planning and non-planning students. However, the effect of extreme high or low scores for specific topics (or along specific dimensions in the case of the integrative complexity test) on the overall group averages was not investigated.

If the variance or means of scores for a single topic or dimension is significantly different from the variance of scores for the group across the whole range of topics or dimensions we might suppose that it is having an undue influence on the group scores. The actual average score per topic is irrelevant in this regard, though it is significant in intergroup comparisons. The question is, which individual elements of the tests are showing significant variation in scores away from the direction of the overall scores and therefore do not adequately predict the overall group scores?

One must therefore determine which topic scores one would use to produce more powerful, that is, more consistent, group scores, e.g. for use in developing group profiles. In fact, one would use those topics where there is relative homogeneity of variance with the overall group scores (using F test) and which have relatively high or low mean scores. On the information level test these topics 1, 2, 4, 7, 8, 9, 10, 13 and 1, 2, 3, 8, 13, 14 for non-planning and planning students respectively. That is it is these topics which most consistently present the group scores.

Of most significance, however, are the t scores on information level which indicate that none of the topic means are significantly different from the overall group means (that is, they are drawn from populations with similar means to the overall group means). Each topic in the test is therefore a good predictor of group scores across the range of topics. Hence the topics asterisked in Fig. 17 below represent those which have means which are representative of the overall group means and which illustrate homogenity of variance with the group scores. We have therefore ascertained how certain scores on individual topics contribute to the overall average scores. Those topics which have relatively small variance are therefore those which, for a specific group, are the most internally consistent as an element of the group's overall scores.

A similar procedure was carried out on the integrative complexity data, to determine the role of specific dimensions in producing overall scores. Again,

Figure D3.4   INTERNAL CONSISTENCY OF THE INFORMATION TEST

* F scores for topic against
  overall group scores not significant
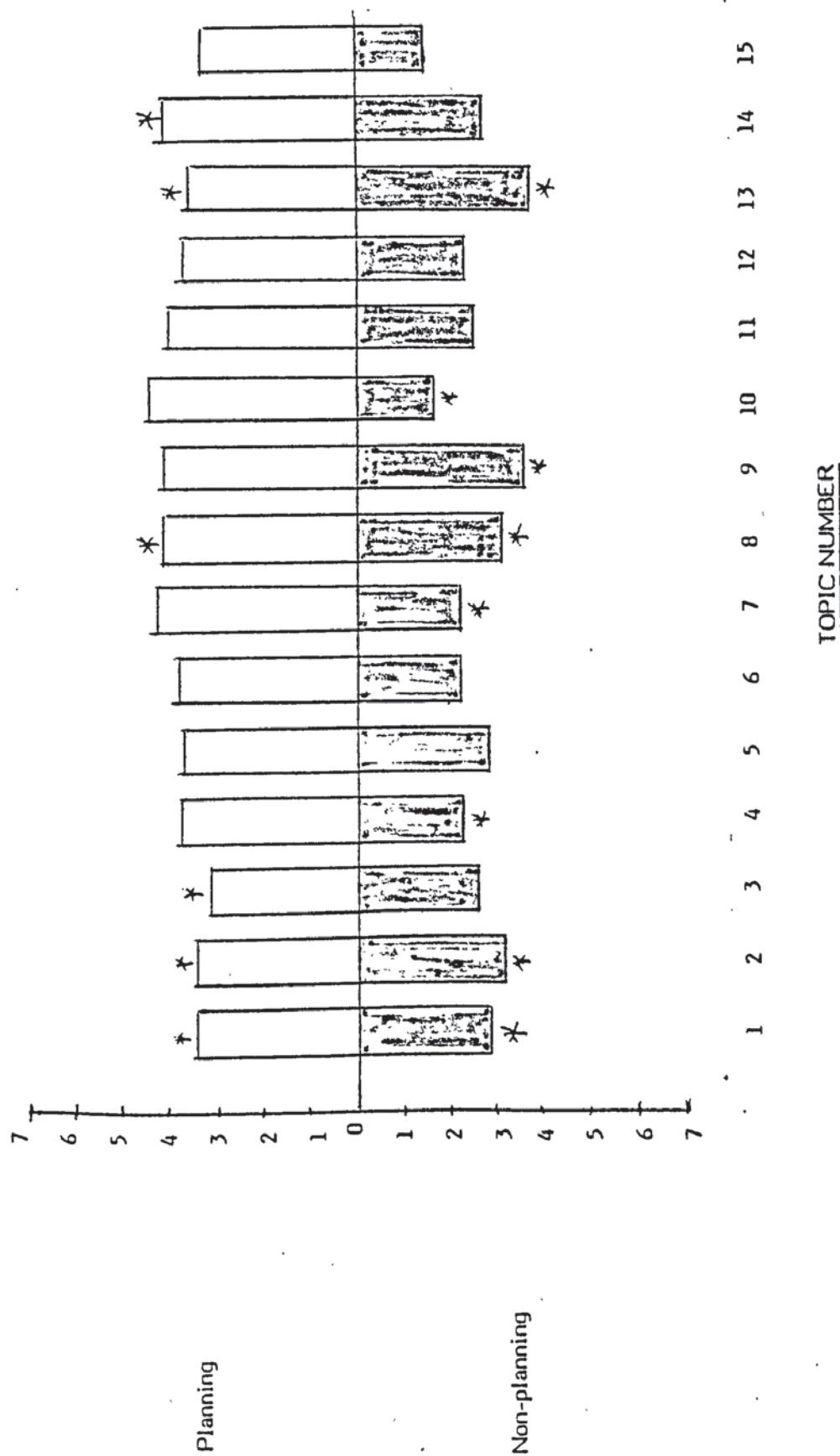
no significant differences in means of individual elements and overall scores were found (at the 0.05 level) except for the first two dimensions for the non-planning students. However, these were not significant at the 0.01 level.

Surprisingly, most of the F scores show significant differences, illustrating that whilst the mean scores between individual topics and overall scores are not significantly different, the variances in the population are. However, the size of the F scores, and their presence on most dimensions must lead one to conclude the possibility of dual effects along these dimensions (that is, extreme high and low scores along a dimension), something which might be expected when dealing with integrative complexity measures. What can be said is that the effect of using scores based on an average across a range of dimensions is having the effect of 'smoothing' the group scores, an outcome of using an averaging procedure on a large number of items. Of course, by concentrating on group differences in this way, the extent of individual differences on certain topics/dimensions is being blurred.

D4. Assessment of F_x and F_x

F_x (Number of Decisions in Format

	Format 1 (MCI)	Format 2 (MI)	Format 3 (CI)
Number of Options choices	4	4	4
Number of Attribute - rankings rankings and amendments	13	12	13
Lottery choices for MAUT constants	12	12	0
Consideration of specific sites and final option choices	12	2	2
TOTAL	41.	30	19

E_x (Extra Decisions/Amendments)

	Format 1	Format 2	Format 3
Amendment (via 'implications') of Internal Option choice	1	1	1
Amendment of attribute rankings	5	0	5
Amendment (via implications') of External Option Choice	1	1	1
Final Consolidation (for F1 & F2 on basis of specific sites) for F3 on basis of previous Internal and External Choices	12	12	2
TOTAL (Ex)	19	14	9

D5 The Relations between Task Performance Measures

Linear correlations between each of the task performance measures were calculated for the total sample (ie. all those playing the SCG). The general relations were as expected. For example, there was close correlation between unweighted and weighted measures, and also between important measures such as Time-W. Multiplexity and Time ($r = -0.8$)

Underlying most of the measures of performance is the relation between time taken and the number of decisions made during the game. The other measures are essentially transformations of these or are closely related to them. The strongest correlation found was between Time, weighted for format, and Time per Decision where $r = 0.92$.

In order to investigate the relation between Time and number of decisions further, scatter diagrams were constructed and these showed quite distinctive relations between variables corresponding to each format. The linear correlation, then, holds for each format. However, in attempting to obtain a general picture which would hold against a much wider variation in task complexity, then the relation between time and decisions seems to be better represented by the curve illustrated in Fig D5.1, which is the power curve obtained by taking logs of Time (x), Total Decisions (y), and Time per Decision (y_2).

It can be seen that as time increases from zero, time per decision increases quickly but then starts to increase at a proportionately slower rate. The same is true, of course, of Time against Total Decisions ($F + E$) so that for every increase in unit time it takes to play the game, the increase in number of decisions gets progressively smaller.
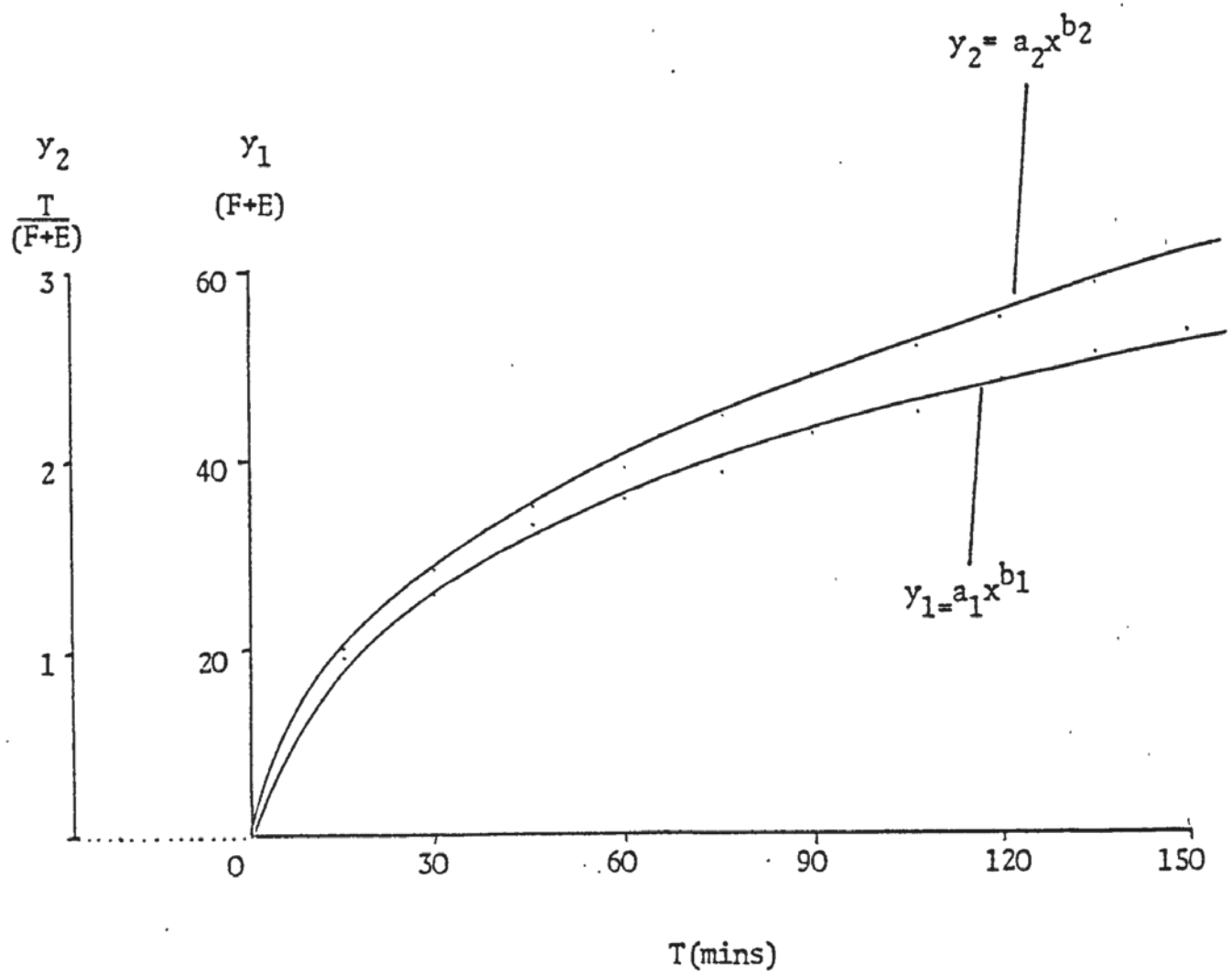
Figure D5.1 The relations between Time and Number of Decisions[1]

A similar analysis was undertaken for other tasks performance measures; firstly considering the linear correlations between measures, then considering the non-linear correlations and finally considering the linear and non-linear relations <u>for each format.</u>

The most significant linear correlations were as follows (all significant at 99%):

	Pearson r
Time and Total Decisions	0.80
Time and Time per Decision	0.85
Time and Level of Integration	0.57
Total Decisions and T-W multiplexity	0.70
Total Decisions and level of Inconsistency	0.72

[1] $F + E = 5.9 \, (T)^{0.44}$, (Pearson r = 0.84). $\dfrac{(T)}{(F + E)} = 0.25 \, (T)^{0.5}$, (Pearson r = 0.86)

Important non-linear correlations were found between the following variables:-

	Pearson r (Log. values)
Extra decisions (format weighted) and T-W multiplexity (format weighted)	0.65
Extra decisions (format weighted) and T-W multiplexity	0.77
Level of integration and T-W multiplexity (format weighted)	0.86

In the subsequent assessment of the SCG, the most important correlations proved to be those between Total Decisions taken and level of Inconsistency, and between Integration and T-W multiplexity.

The analysis also covered the strengths of correlations for different formats. Note that format weighted and non-weighted scores on each variable are the same when considering correlations for each format. The highest correlations for each format on task performance were as follows:

	r
Format 1	
Extra decisions/level of Integration	0.79
Extra decisions/T-W multiplexity	0.76
Format 2	
Level of Integration/Time	0.67
Level of Integration/time per decision	0.67
Extra decisions/T-W multiplexity	0.77
Format 3	
Extra decisions/Time	0.66
Extra decisions/level of Inconsistencies	- 0.72

The non-linear correlations indicate only slight differences to the linear ones except for the following log transformations:

	r		
	F1	F2	F3
Level of integration/T-W multiplexity	0.94	0.99	0.88
Time and Time for Decision	0.79	0.99	0.99

D6 Further Discussion of Task Performance

Task Performance on Different Formats of the SCG

Although the model posited earlier necessitates a consideration of task performance as a function of both task complexity (format) and Integrative Complexity and Information Level, it was necessary first of all to examine tasks performance on each format of SCG, irrespective of the cognitive 'ability' of the interviewee. The mean task performance scores on each format were presented in Table 8.7

In terms of extra decisions, it can be seen that those playing Format 1 (F1) tended to take a greater number of Extra Decisions than Format 2 (F2) and Format 3 (F3) respectively. Respondents, then, did take advantage of the greater complexity of choice available in Format 1, leading hopefully to more meaningful/ coherent choices. This is borne out by the lower average number of Inconsistencies in F1. Respondents to F1, however, did take correspondingly longer Time per Decision.

When the scores for Level of Integration are included, as they are in the Multiplexity measure, the pattern shown with regard to 'Extra Decisions' is again present, with F1 scoring highest, and F2 and F3 lowest respectively. This also applies when weighted for time as in the Time Weighted Multiplexity scores

These results are given some perspective when measures are weighted for differences in format. There the average time scores on F1 and F2 are equal and much lower than the average score for F3. One would, of course, ex pect time in Format 3 to be much less, because the number of decisions to be made in that format is much less. The main factor at play seems to be Time for Decision which is lower in F2 than F3, whilst F1 is highest, suggesting that those in F2 were able to accommodate a better balance between (or a more 'efficient' approach to) Time and Extra Decisions, that is, extra decisions were not taking a disproportionate amount of time. This is counterbalanced, though, in examining the average number of Inconsistencies where F2 along with F3 score highest and F1 lowest.

On the Time Weighted Multiplexity measure, weighted for format, the average scores on Format 1 and Format 2 are equal. Thus, although average scores for format weighted time are themselves equal, the high time per decision for F1 has the effect of lowering the format weighted time weighted multiplexity (weighted for format) whilst the low average time per discussion taken in F2 has the effect of raising the average time weighted multiplexity scores. Again, however, the trade-off with level of inconsistency, must be kept in mind.

The next stage in the analysis was to examine sub-sample differences in tasks performance on different formats of the SCG. In considering the first three measures for sub-sample groups in Table 8.8 (that is, Inconsistencies, Extra Decisions and Time per Decision) one can see that the means scores for the four area samples are generally better on Format 2 than on Format 3. The same applies to the combination scores, and to the format-weighted scores

Of these four sub-samples, only the two Saltley samples played Format 1 in addition to Formats 2 & 3. Their peformance was characterised on Format 1 by much higher mean Time per Decision, but by fewer inconsistencies.

The mean number of extra decisions taken by Satley I was higher on Format 1 than on Format 3 but lower than on Format 2, whilst Saltley II scored highest on Format 1.

The most appropriate measure of task performance is perhaps the Time-Weighted Multiplexity measure, weighted for format differences, where Saltley I & II respondents scored much lower mean scores on Format 1, the most probable reason being the effect of much higher time per decision on Format 1.

Thus all four of the area samples performed better on·Format 2 than on Formats 2 and 3, whether weighted for format or not. The general direction of the format differences are apparent, moreover:- respondents on Format 1 having lower levels of Inconsistency, as was hoped, at the expense of greater Time Per Decision; and those on Format 3 making less extra decisions but with far higher levels of Inconsistency.

The other three sub-samples scored consistently higher on most measures than the four area samples already mentioned. This applied to all formats.

Regarding Community Reps., scores for Extra Decisions were higher on Format 1, but were counterbalanced by higher mean time per decision. On all the combination scores and format-weighted combination scores this group did better on Format 1 than Format 2, although on Format-weighted multiplexity the difference is not large.

The Non-Planning students, in a similar vein, scored better on Format 1 than Format 2 for all task performance measures and with much less time per decision than Community Reps., though at the expense of less extra decisions. Thus whereas Community Reps. seemed willing to tackle the fully complexity of the game and to take correspondingly longer time, Non-Planning students achieved a similar level of Inconsistency in less time and with less extra decision making.

It is interesting that planning and non-planning students did equally well on Format 1, illustrating that lower average scores for non-planning students on Format 2 had the effect earlier (Table 8.8) of lowering scores for this group overall. The Masters (Planning) students scored higher on all measures than any other sub-sample, characterised especially by high Time-W. Multiplexity scores and by low time per decision and low levels of inconsistency.

APPENDIX D7

	Independent Variables	Dependent Variables (LOG.values)						
		Time	Level of Integration	Extra Decisions	Level of Inconsistencies	Time per Decision	Time-W Multiplexity	Format Weighted Multiplexity
STEP 1	Format Complexity	0.81 (0.81)	0.12 (0.12)	0.46 (0.46)	0.19 (-0.19)	0.47 (0.47)	0.64 (0.64)	0.03 (0.03)
STEP 2	Integrative Complexity (Log)	0.82 (0.42)	0.62 (0.61)	0.51 (0.38)	0.20 (-0.09)	0.49 (0.33)	0.72 (0.56)	0.45 (0.42)
STEP 3	Information Level (Log)	0.82 (0.41)	0.75 (0.70)	0.52 (0.43)	0.21 (-0.14)	0.49 (0.30)	0.77 (0.67)	0.58 (0.53)

TABLE D7.1 Relations between (Log. equivalents of) IC, IL, Format Complexity and Task Performance: Multiple coefficients of correlations (Simple correlation coefficients are in parentheses)

NON-LOG

Dependent Variables

Independent Variables	Change in IC	Marginal Change in IC
Integrative Complexity	0.51	0.69
Format Complexity	0.59	0.76
Time	0.59	0.76
Level of Integration	0.64	0.78
Extra Decisions	0.67	0.78
Inconsistencies	0.67	0.78
Time Per Decision	0.70	0.80
T-W Multiplexity	0.72	0.82
Format - weighted Mutiplexity	0.72	0.82

LOG

Dependent Variables

Independent Variables	Change in IC	Marginal Change in IC
Integrative Complexity	0.71	0.68
Format Complexity	0.71	0.69
Format Weighted Multiplexity	0.72	0.69
Inconsistencies	0.73	0.69
Time	0.74	0.71
Level of Integration	0.78	0.78
Time Per Decision	0.78	0.78
Extra Decisions	0.78	0.79
T-W Multiplexity	0.80	0.82·

TABLE D8.1 Correlations between Format Complexity, task performance and changes in IC and IL: Multiple r's for task performance measures

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APPENDIX E

Dimensions of Content and Definition in Environmental Stimuli

Dimensions of Content in Environmental Stimuli

The primary focus of interest which is being suggested is not, for example, as Lynch's was, the relation between the physical form of a city and the environmental images of its inhabitants. Rather, the paradigm which is being suggested is concerned with the strategic environmental images of the inhabitants of an area, the apparent congruence (or otherwise) of different groups' imaginal representations (in particular differences between 'planners' and 'public' representations) and the problems these pose for obtaining a response to strategic planning problems.

Although one might place strategic environmental processes within dimensions of scale, and human-influence, it would be of little use in discriminating between environments. One requires other dimensions to make any such classification meaningful. Tentatively, one can propose two dimensions along which environments might be better place - the first relating to Specificity/Generality, and the second relating to the Concrete/Abstract dimension.

The first dimension refers to whether the environmental element or display is of a specific entity or of a general category. A specific element might be <u>slum housing in the West Midlands</u>. An example of a general element would be <u>slum housing in conurbations</u>.

The second dimension refers to the difference between those elements which might be observed, and those which can only be deduced by inference. The concrete elements are therefore in material/perceptual space, the abstract elements are in conceptual/cognitive space.

An example of the resulting scheme is outlined below:

	Specific	General.
Concrete	Socialist Parties in in the West Midlands	Socialist Parties
Abstract	Socialism in the West Midlands	Socialism

Figure 1

Although it is always difficult to fit examples to such classifications, it is obvious that our concern is with <u>Specific</u>, <u>Abstract</u> environmental displays*. One could characterise another element thus:

	Specific	General
Concrete	Slum Housing in the West Midlands	Slum Housing in Conurbations
Abstract	Urban Decay in the* West Midlands	Urban Decay

Figure 2

To make the taxonomy more rigorous and useful as a conceptual framework, one could superimpose the three dimensions which Lynch used to discriminate between elements of an image, or in this case environmental display - identity, structure and meaning. However, this is being the scope of this study.

Dimensions of Definition of Response to Environmental Stimuli

The discussion above also allows one to create dimensions along wich one can place categories or types of response. There are, it is generally assumed, general cognitive processes which enable individuals to cope with information from their total environment. Individuals, however, have limited information processing capacities, and the internal representations necessary for individual adaption to the everyday spatial environment reflect this. It is perhaps for this reason that much work has been done on spatial cognitive mapping.

Yet the cognitive processes which allow of everyday activity must be linked to functions which deal not with environments that are proximate but with symbolic environments. These processes themselves are not proximate, that is, they do not deal with the personal, immediate 'life-space', but with long-range planing, with "contemplative thought" - Kaplan (1973). The urban knowledge we are dealing with has, as one of its major properties, the characteristic of <u>abstraction</u>. We are concerned with concepts, with categories and with the structure and meaning of images. In fact, our concern is with the <u>general</u> catgory of images, that is, "all conscious subjective presentations of a quasi-sensory but nonperceptual character" (Holt 1964).

For this reason, and in order to provide classifications for techniques which include categories of <u>definition</u>, one needs to distinguish between definitions of response which involve constraints and those which do not. More specifically one needs to recognize the extent to which the response may be guided, interpreted, and possibly distorted by, the technique itself. This can be done by placing the technique along two dimensions. Firstly, the technique is placed according to whether the object of the response (that is, the <u>content</u> of the environment) is detailed and imposed upon the respondent by the technique (Content-imposed), or whether it is (Content-free).

An example of content-imposed techniques might be where a building, or photograph is presented to the respondent as a specific stimulus. Content-free techniques include Kelly's Role Matrix where the respondent is prompted to describe e.g. "the people in my life" or "the problem of the West Midlands", and his answers become the stimuli for the technique. Therefore there is no detailed, well-drawn stimulus imposed upon the respondent.

Not only is the content of the environment important but so also is the response-type, i.e. the behaviour associated with the stimulus. The second dimension therefore refers to the extent to which the technique limits response modes. The dimension ranges from Criterion-imposed to Criterion-free.

The criterion dimension includes limited cases such as open-ended or forced-choice questions but is treated in a much more general way than this. Thus, 'criterion-imposed' would characterize techniques where a respondent is asked to react to the stimuli using pre-defined criteria, or where these criteria are judged to have determined his response. An example of criterion-imposed techniques would be multi-attribute techniques where the attributes (the evaluation-criteria) are determined before the technique is administered.

Criterion-free techniques would include for example the Semantic Differential within which the verbal response is not constrained, but is interpreted subsequent to the administration of the technique. That is, constructs or categories are applied to response determined primarily by the respondent's own criteria. Thus, one can place a number of techniques along these two dimensions of 'definition':

	Criterion free	Criterion imposed
Stimulus (content) free	Kelly's R.G. Integrative Complexity Tests	M.A.U.T. Clarke's Budget Pie
	Attitude Scales	
Stimulus (content) imposed	Semantic Differential	S.C.G.
	P.E.T.	

One can note that none of the techniques can be placed at the end-point of a dimension. This reflects the fact that a technique cannot completely control response nor can it completely remove its inherent influence on response.

Thus for many purposes the conventional classifications of content and definitions are not adequate. For both explanatory and prescriptive purposes we require classification schemes which can take account of the problematic nature of the 'environment'.

If one considers the dimensions of content in environment displays (Fig. 1 and 2) then the environments of concern to structure planning can be characterised as Specific/Abstract. Yet there is little evidence of practitioners using techniques which attempt to present and elicit response to such environments.

To re-iterate. The term 'environment' is essentially problematic. Two major questions arise which have implications for research into social response by the public to structure plan issues. First, how do people respond to planners' treatement of the environment, and secondly, to what extent do the public share planners' cognition of the large-scale environment?

Turning to the dimensions of definition of resposne to environmental stimuli (Fig. 3), one can see that quite different techniques are required to answer the two questions above. In order to assess the similarities or differences between diverse groups' cognition of the large-scale environment one requires a technique which is stimulus-free and content-free. The research described here has used techniques derived from Harvey's conceptual systems theory.

The second question, and the one most pertinent to metropolitan and regional planing, concerns eliciting meaningful responses from the public to problems which have been defined and represented with all the vagueries of language, category, and concept common to any profession. They are 'planners' problems'. The requirements of an adequate technique are therefore that it be stimulus-imposed and to a large extent criterion-imposed.

Thus the contention is that in order to respond to problems which concern the profession, respondents must be made aware of the criteria that the profession use. Thus, if a site for development is to be considered, the respondent should evaluate the site with respect to access to employment, landscape value etc. However, techniques should allow the respondent to 'weight' these criteria according to his own wishes and to introduce his own criteria which may override some of those given to him for his consideration. The S.C.G. does this.

APPENDIX F

Collective (Social) Choice Criteria

COLLECTIVE (SOCIAL) CHOICE CRITERIA

1a. Arrowian Social Welfare Function

The works of Bergson (1938) and Samuelson (1947) represented breakthroughs in studies of social choice. Arrow (1951) extended their ideas and asked some of the more pertinent questions concerning social welfare functions. In particular, how woud the function W (usually the social ordring R) depend on individual preference orderings? i.e., what should be the collective choice rule? (C.C.R.)[1] (See Definition 1).

Arrow's S.W.F. is a particular type of collective choice rule, taking orderings of individuals over a set of alternative social states as its foundation. The preference order of the society is therefore a function of individual preference orderings, each social preference being an _ordering_, i.e. transitive, reflective and complete (see definitions 2,3, and 4). Some of Arrow's work on S.W.F.'s applies more generally to all C.C.R., other aspects (e.g. the 'impossibility theorem') are specific to S.W.F.'s only.

The last point is important. The 'impossibiilty' result is valid for S.W.F.'s but not for Social Decision Functions (see Sen 1969). Thus, if we require that from any environment, there must be a chosen alternative (S.D.F.), this can be guaranteed by relaxing the transitivity criterion, and requiring acyclicity instead (see Definition 5). This is sufficient for a choice function. The stronger condition of quasi-transitivity is also sufficient (see definition 6).

When considering individual orders and choice rules, the values of individuals are of great significance[2]. For example, Arrow's impossibility theorem arises when conditions U, P, I and D, are imposed on a C.C.R. subject to condition O (i.e., the range is restricted to the set of orderings over x). Obviously the values cannot all be basic. However, the impossibility arises because of the demand that the C.C.R. works in _all_ cases, a restriction which can be relaxed.

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1. Note: Arrow's use of social welfare function is different from Bergson and Samuelson. See Hicks (1939).
2. In particular, the basic/non-basic distinction (see definition 8).

1b. Pareto-Extension Rule and Methods of Majority Choice

(See Definition 7). The difference between the majority rule and the Pareto-extension rule of collective choice, although appearing to be various, is small in terms of the underlying conditions. They both satisfy the conditions of independence, anonymity, neutrality, non-negative responsiveness, the strict Pareto principle and unrestricted domain. Where they differ is that the MMD satisfies positive responsiveness, which the Pareto extension rule does not; and the Pareto extension rule satisfies quasi-transitivity which the MMD does not (see Definitions 9 and 10).

2.

As noted earlier, a S.D.F. is more choice-oriented than a S.W.F. (which is usually a special category of S.D.F.). However, the problem of combining different principles of choice also occurs in S.D.F.'s leading to set sof conditions which do not seem reasonable and which can conflict (e.g. the various 'impossibility theorems').

Another approach is to demand less than a S.D.F. which requires that the social preference must generate a choice function. Instead, a quasi-ordering, which is incomplete, can give guidance in many collective choice situations (see Definition 11). It incorporates weaker (more reasonable) principles providing a range of other collective choice formulations.

Attention has been focused mainly on conditions P and I of Arrow as offering the most promising prospect for develpment. Together, they require that social preferences be derived entirely from the ordinal preferences of individuals. In partiuclar, the relaxation of condition I (a condition which outlaws the classic approach of utilitarianism) opens up a number of possibilities each permeated by the problem of interpersonal comparability. The most important distinction here, and on which allows comparison of a number of collective choice formulations, is that between (i) obtaining a cardinal measure of individual welfare and (ii) obtaining a technique for interpersonal comparisons.

2a. Majority Rule, Pareto-extension rule

Under conditions of noncomparability, with ordinal welfare one can formulate majority rule and Pareto extension rules, as discussed in the previous section.

2b.   Rawlsian ('maximin') orderings and grading principles

Under conditions of ordinal comparability, interpersonal comparisons can be made byputting oneself in the position of another[3]. This introduces concepts of 'equity', 'justice', 'fairness' and 'ethical' (as opposed to subjective) preferences. Rawls' analysis of fairness makes use of a hypthetical situaiton (the 'original position'), where individuals choose whilst in a position of ignorance regarding their own placing in social states. Rawls' work is too extensive to review here (see Rawls (1958), (1963), (1967), suffice is to say that his analysis revolves around the welfare of the worst-off individual, whose welfare level should be raised as high as possible. This represents in fact, a <u>maximin</u> criterion, and although his emphasis was on institutional types, the maximum principle can be used to order social states based on indiviual orderings.

Although the maximin criterion seems appealing as a social decisoin rule, it has severe limitations:

-       it satisfies only the weak Pareto rule
-       it does not reflect values about inequality
-       it does not reflect magnitudes of gains and losses (it is ordinal).

Whereas the maximin criterion and the utility principle (which by the way, are in some sense conflicting) yield complete social orderings, Suppes' (1977)' grading principles yield only partial orderings, they are incomplete (definition 12). Nevertheless, it does satisfy the condition of universability (definition 13) and does not require interpersonal comparisons of welfare, and thereby is productive in operating the most valid elements of the two other formulations (see Sen 1969). It is not strictly a C.C.R. (as defined earlier, following Sen) being asymmetric and transitive, but a more general definition of such rules can be made.

Under conditions P and I, no account is taken either of the strength of preferences held by an individual or of the relative strengths of preferences among individuals (utility being seen as purely ordinal). Arrow showed that such ordinal, private preferences (in the context of 2 axioms and 5 conditions) were not sufficient for the determination of social choice. If utility were an objectively measureable,

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3.   Moving from alternatives (x,i) (y,i) etc., (where i isthe position of an individual in social state x) to a position where R_i is defined over alternatives such as (x,i) (y,j) etc.

comparable, cardinal magnitude then the maximisation of aggregate utility would constitute a rule for a complete ordering of social states. Again, cardinal utility functions can be used with or without interpersonal comparability (Note that it is comparability of units, whereas comparability of welfare can also be used - Rawls).

2c. Aggregation Ordering

The question of arbitrariness of individual utility units is largley a reflection of the problem of interpersonal comparability. The behaviouristic measure of utility (in terms of people's expressions) includes an interpersonally comparable element, and marginal comparisons may be possible (see Little 1950). In the case of full or unit comparability, a one-to-one correspondence is established between the welfare functions of individuals, and with cardinal welfare, R^a (the binary relation of aggregation) is a complete ordering[4].

2d. Nash's Bargaining Solution

Nash's solution to the 'bargaining problem' takes the product rather than the sum of individual welfares, in an attempt to maximise the product of utilities after a suitable choice of origin. The origins are subtracted out, without changing the orderings, hence the absence of interpersonal comparability. In aggregation approaches, with complete unit comparability a complete ordering is produced; in noncomparability only Pareto preferences and indifferences are reflected in the social choice (between the two extremes a range of quasi-orderings are produced - section 2e).

However, a best prediction (in a bargaining battle) is not necessarily a just outcome. Contrasts with, for example, Harsanyi's 'ethical models', Rawls' fairness and justice models, Suppes' grading principles, and methods of majority decision provide a useful contrast. In particular, Nash's dependence on the status quo, and emphasis on threat advantages, and the complete avoidance of interpersonal comparisons, make ethical judgements irrelevant, and thereby delimits the use of the technique in collective choice rules.

This problem applies not only to Nash's approach, but to all uses of cardinality with noncomparability. Not merely aggregation, but all Pareto inclusive, non-dictatorial, independence from irrelevant alternatives rules of deriving a social

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4. The absolute levels of individual welfare are not comparable, but welfare differences are comparable.

ordering from individual orderings will fail, even if individual cardinal utility functions are used rather than individual orderings (as with a Social Welfare Functional)[5].

2e. Aggregation Quasi-orderings

As was noted earlier, if noncomparabiilty is assumed, the aggregation quasi-ordering will coincide with the Pareto quasi-ordering. However, the choice is not between comparability and noncomparability, there are a range of <u>partial comparabilities</u> between the two (definition 14).

If one also generalizes the type of welfare measure to an <u>ordinal-type</u> welfare (Sen 1970), the form of the C.C.R. formulations becomes apparent (definition 15).

Thus with ordinal-type utility and partial comparability, it is possible to obtain a quasi-ordering of aggregation such that if x is at least as large as y a welfare sum of y under every measure of individual utilities (measurability assumptions) and under every interpersonal correspndence (comparability assumptions), then and only the, x is at least as good as y.

This therfore provides an umbrella term for categorizing C.C.R.'s (in this case for individual utilities).   The quasi-ordering is reflexive and transitive, but not necessarily complete.

3.

Once can therefore consider alternative frameworks for collective choice, with differing views on the <u>elements</u> of such a choice, varying from individual orderings a la Arrow, to individual welfare functions, both with or without comparability, and without interpersonal comparability. The particular choice rules outlined up to 2d inclusive were of this type. All produced quasi-orderings, and incorporated at least the Pareto quasi-ordering.   The stricter the measurability and comparability assumptions, then more extensive will be the quasi-ordering (with the possibility of a complete ordering).

The great variety of collective choice alternatives reflects the fields in which the problem area arises. Thus, although thee may appear to be a great variety of collective choice procedures (there are more permutations and formulations than could be outlined here), the applications of each is severely limited in terms of the

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5.   Thus confirming Samuelson (1967) who also assumed noncomparability.

function it is designed to perform. Majority rule may be more reasonable in certain institutional/political situations, whereas aggregation rules or maximum rules might be more appropriate in certain planning decisions (and are often used implicitly).

The method of social choice in an environmental evaluation framework can obviously influence the kind of data available. Conversely, and perhaps more important, the evaluation methodology must be responsive to the choice criteria used. For example, the distinction between equity, income redistribution, and reallocation of resources as elements of methodologies.

Definitions

1. **C.C.R.**
   A method of going from individual orderings to social preference i.e.
   $$R = (R_1, \ldots R_m).$$

2. **Transitivity**
   If x is at least as good as y, and y is at least as good as z, then x should be at least as good as z.

3. **Reflexivity**
   When every alternative x must be thought to be at least as good as itself.

4. **Complete**
   For any pair of alternatives x and y, either x is at least as good as y, or y is at least as good as x (or both).

5. **Acyclicity**
   If x, is preferred to x_2, x_2 to x_3 and so on up till x_n, then acyclicity requires that x, be regarded as at least as good as x_n.

6. **Quasi-transitivity**
   If x is preferred by y, and y to z, then x should be preferred to z.

7. **Pareto-extension rule**
   This follows the Pareto rule, and declares that all Pareto-incomparable pairs are socially indifferent i.e., quasi-transitive, complete and subject to conditions U, I, P and A.

8. **Basic/non-basic**
   A value judgement can be called 'basic' if if applies over all conceivable circumstances, and it is 'nonbasic' otherwise.

9. **Anonymity**
   If a given set of preferences is permuted among the individuals, social preference is invariant.

10. **Positive Responsiveness**
    Requires that the relation between individual and social prefernces must be positive.

11. <u>Quasi-ordering</u>
Reflexive and Transitive

12. <u>Partial-ordering</u>
Reflexive and Transitive and anti-symmetric

13. <u>Universabiilty</u>
In exactly similar circumstances exactly similar judgements would have to be made.

14. <u>Partial comparatibility</u>
All cases of comparability between unit comparability and non-comparability.

15. <u>Ordinal-type</u>
Welfare represents those cases more restricted than cardinal measurability and less so than orldinal measurability.

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