

Public Policy-Making and Theories of Organizational Choice

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1. The Gap between Our Belief in and Understanding of Public Policy-Making

The purpose of this article is to contribute to the theoretical discussion about the *nature* of public policy-making. Focusing on the relevance of current theories of organizational choice, I shall attempt first to reconcile three basic models of decision-making, second to propose a new way of thinking about some aspects of political choice processes, and third to raise some questions related to a possible further integration of the theories of organizational choice found in the general social science literature.

An increasing number of people seem to believe that events should be understood in terms of decision-makers' choosing on behalf of themselves, organizations, nations, or mankind in general. These beliefs are closely related to the established ideas about how policy-makers confront some problems, generate decision-alternatives, outline their consequences, have some method for linking these consequences to some set of pre-established goals, and then choose the best alternative in terms of their preferences.

The two most popular versions of these models concern: 1) the polity, or the organized system of state government, viewed as a vehicle for solving well-defined problems in terms of well-defined goals and well-understood technologies, and 2) the polity viewed as a structure within which conflict is solved through bargaining and voting.

Although very attractive because of their (comparative) simplicity, these two classes of models sometimes give a poor description of what actually takes place. They do not always capture the basic features of public policy-making in a complex and changing world.

A third model assumes that 'choices' are the extraneous product of a set of simultaneous, independent activities, with little management or planning. There is a socio-political 'invisible hand' coordinating and aggregating individual and group choices and events through processes having a dynamic of their own. The

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model does not assume any direct relationship between individual and group purposes and policy outcomes. The polity may, under certain conditions, operate as a ceremonial apparatus providing rationalizations of the events taking place.

In the search for appropriate theories and models of choice, the strategy has often been to find the right model, or some universal set of ideas. Here another approach is used. It is assumed that each model will be relevant under certain conditions, that there is a need both for developing typologies of choice processes and for suggesting hypotheses about the conditions under which different processes will be found, as well as about the relationships between different types of processes and policy outcomes.

Our propositions about the conditions under which each model may provide an adequate framework for understanding public policy-making are heavily dependent upon the two closely interrelated processes: 1) *a process of activation*, through which potential participants come to attend to, or to ignore a specific choice in different ways and to different degrees, and 2) *a process of definition*, by which the issues, sentiments, values, and beliefs to be considered are fixed, and by which the 'meaning' of the choice is determined.

The next step, then, is to present a new way of looking at how the processes of activation and definition may in fact become interrelated, and public policy made. It is suggested that a key to the understanding of public policy-making may be to view a choice opportunity essentially as a garbage can into which various kinds of problems, solutions, and participants may – or may not – be dumped. Insofar as a public policy-making process can be described in garbage-can terms, the theory must concern itself with a relatively complicated interplay between the generation of problems, the activation of participants, the production of solutions, and the generation of choice opportunities for collective decision-making. We believe that the garbage-can model describes parts of the activities of most organizations but will describe no organization in all of its activities. Furthermore, it may be argued that although they are developed mainly through empirical studies of organizational choice, the major contributions of the garbage-can ideas may be related to our understanding of political choices at the macrolevel.

We proceed by first outlining in more detail the three basic models mentioned above and their correlates, using the versions found in organization theory. Then the garbage-can model is presented. The aim is to give only a rough presentation of the main ideas. Empirical data, although present,¹ will be used only for illustrative purposes. (A more formalized and technical version, i.e. a computer simulation of some important aspects of the model, is available.²) Finally, some aspects of the role of models of choice in the wider social science context are discussed.

2. Three Basic Models of Organizational Choice

Our first task is to identify the three models of choice, each of which emphasizes one aspect of decision-making behavior: 1) the intellectual aspect, 2) the socio-political aspect, and 3) the artifactual or non-decision aspect.

1. *The 'rational decision' (entrepreneurial) model.* In the framework of this model an event (or some set of events) is explained as the willed product of the activity of the decision-maker(s) in maximizing some utility function. The intellectual aspects of this activity are emphasized, making the balancing of means to ends the central feature of the model. The occasion for choice is taken as given, and value consensus is established before the decision, often by treating the organization as *one* person – the entrepreneur or manager. In this way organizational choice is seen as a product of a) predetermined preferences with well-defined rules for comparing different criteria, b) predetermined alternatives with search treated either as infinite or as being evaluated in terms of calculable costs and expected returns at the margin, and c) known techniques for relating preferences and alternatives, for instance maximization of expected utility. The 'rational decision' model assumes that participants generally know that they want and have the knowledge and power to get it.

Since most significant decisions are made in a world of risk or uncertainty, an important part of the research connected with this model is focused on improving the techniques for relating known preferences to known choice alternatives when consequences are understood only up to some probability distribution.

Some efforts have been made to modify the way in which preferences and alternatives are treated. The introduction of satisficing-man with 'bounded' rationality³ was a particularly important modification of the rational decision-maker model. For the most part, however, these efforts have been directed at understanding the ways in which alternatives are discovered and the ways of relating means to ends, i.e. the *intellectual* aspects of decisions.

2. *The conflict resolution (coalition-bargaining) model.* In this model, as in the previous one, we assume a close connection between the desires of the decision-makers and organizational events. However, here the organization is defined as consisting of rational individuals and subgroups with *different* interests, perceptions, demands, and resources.⁴ The prototypical situation is one in which some participants will be better off if a decision is made, but where no single alternative will satisfy *all* participants. Furthermore, no single participant alone can force a decision. The participants engage in a bargaining process, using threats, bribes, trades, and compromises as devices for establishing a combination of participants and participant demands consistent with resources. The central questions are: a) What coalitions will be formed? b) How will they divide the resources? The criterion of viability does not presume a value consensus (at least not in the same sense as is presumed in the decision model). The coalition structure is problematic, and, in some forms of the model, so are the alternative coalitions.

The model assumes the thought processes involved in relating means to ends at the individual level, but it emphasizes the socio-political aspects of relating conflicting preferences. As a result, we cannot concentrate solely on *what* is said, but must also take into account *who* says it, *how* he says it, and the *resources* he can mobilize in order to get his means-ends chains accepted. We emphasize the role of the political leader and the political broker and the formulation of policies

in such ways that viable coalitions can be made. This is a question not only of providing information on alternatives and their consequences, but also of mobilizing support for an alternative by making potential participants see their interests, e.g. by 'log-rolling'. In this way each participant's success depends both on the demands he makes and on the resources he is able to contribute.

3. *The artifactual (non-decision) model.* The most important difference between this model and the two previously mentioned is that we do not specify any *direct* connections between the purposes and intentions of the actors and the events we want to explain. Events are not the realization of individual purposes, not even in the compromised way of the conflict resolution model. While both the rational decision model and the conflict resolution model view the organization mainly as a vehicle for the production of decisions, the basic premises of the artifactual model are quite the opposite. The automatic and unconscious aspects – or what Robinson and Majak have called the 'quasi-mechanical' aspects – are dominant. In this model the outcome is seen as a product of certain processes' having dynamics of their own, which by their interactions generate outcomes which are not intended by anyone. Alternatively, the outcome is seen as an artifact of the behavior of people focusing not on the event we want to explain, but on their roles in other games or decisions. They may act 'rationally' in relation to these situations (i.e. as described by the two models presented above), but the decision-making role in 'our' arena is simply a byproduct. There are several versions of this model. They have in common that none of them portrays the final outcome of a choice as a product of any conscious purpose, and none of them assumes any *deliberate* coordination between the interests of any actors. Outcomes are viewed as results of loosely coupled behavior of individuals and groups, sometimes guided by a socio-political invisible hand.

'Decision' in this model is a *post factum* construct produced by participants or onlookers because of their need for finding consistent patterns in what they are doing or observing. Events happen, and if they are afterward described in a systematic fashion as decisions, they then express more man's ability to form *post factum* theories of his own behavior than his ability to make goal-oriented decisions through established structures and processes.⁶

Although models of these three types are sometimes viewed as mutually inconsistent, we find it more fruitful to assume that each has its own place, depending on the nature of the organizational situation and the kind of phenomena we wish to understand. The decisive matching of models to situations will be empirical, but we will propose some hypotheses specifying conditions under which each model seems likely to provide a useful framework for understanding organizational events.

The main thrust of our argument comes from two simple ideas: 1) every participant in any organization is a part-time participant, at least when we study his behavior in relation to a single decision; 2) every decision opportunity in any organization is an ambiguous stimulus.⁷

1. *Part-time participants.* Only in very rare situations will a decision command the attention of all the potential participants. The statement appears obvious, but

students of decision-making often seem to err in assuming that *their* focus on a decision is matched by a similar focus by the members of the organization.

Every participant constantly faces the personal problem of allocating his attention among competitive claims on his time. On the one hand, we may assume that most decision-makers in most contemporary organizations are overloaded, in that organization tasks alone can consume more time than any participant has available. On the other hand, he must also play other roles as a member of a family, a neighborhood, and a friendship group, and as a member of local, national, and (sometimes) international communities. As a result, the character and outcome of any decision process in an organization is dependent upon other demands on the time of different participants, including both potentially quite extraneous outside demands and 'irrelevant' internal demands.

We propose, therefore, that an important aspect of any decision is the attention pattern for participants potentially concerned with the decision and that this pattern is only to a limited degree a function of the properties of the decision itself. It depends heavily on other decisions and other concerns that are currently activated.⁸

Because of the part-time character of participation, it becomes difficult to specify the relevant participants in advance,⁹ and the time demands of decisions become important. When actors are part-time, a theory must attend to the process of activation. We should be interested in a) the number of participants activated, b) the types of participants activated, c) the way they perform,¹⁰ and d) the turnover among participants.

2. *Ambiguity.* An organization is not simply a vehicle for solving given problems or for resolving conflict through bargaining. It is also a collection of choices looking for problems, issues and feelings looking for decision-in-process through which they can be mediated, and solutions looking for questions. An organization is not only an instrument, with decision processes related to instrumental, task-directed activities, it is also a set of procedures by which participants arrive at an interpretation of what they and others are doing.

This view of an organization as a mixture of issues, activities, feelings, and choices, each generated in part from extraneous factors, makes every choice opportunity an ambiguous stimulus. What is being decided will itself be determined through the course of deciding it.

Analyzing this process of definition, we will be especially interested in a) the *complexity* of the definition, for example multi-dimensionality of goals, the number of decision-making variables, the existence of algorithms for manipulating means-ends relationships, and b) the *stability* of the definition over time.

Thus, in this view, the decision process in an organization is heavily dependent on the two highly interrelated processes mentioned in the introduction: a process of *activation* (by which various potential participants come to attend to, or ignore, the choice in different ways and to different degrees), and a process of *definition*

(by which the issues and sentiments, values and beliefs to be considered are fixed, and by which the 'meaning' of the choice is determined).

Indeed, we believe that the choice among the three alternative models of organizational choice is dependent on precisely these factors.

Most decisions in most organizations most of the time are probably made by relatively few people who, because of special expertise or for other reasons, are expected to focus on certain issues and generate solutions. Their decisions are made on the basis of a set of procedures that make the outcomes widely acceptable most of the time. It may be expected that these people will establish stable values and beliefs related to their tasks and to deal with those tasks in terms of a comparatively stable definition of the situation, including implicit expectations of the demands of other, less-activated people. It may also be expected that the complexity of their 'model of the world' will be adjusted to their capacities for analysis and decision. The rational decision model seems likely to be particularly appropriate for a situation in which relatively few participants of the organization are activated and where the definition of the decision situation (i.e. which values, beliefs, and procedures are relevant) is stable and not too complex compared to the available analytical capabilities.

On the other hand, the conflict resolution model seems likely to be particularly appropriate in a situation in which several relatively part-time participants are activated, the group of participants is relatively stable, there is a somewhat stable agreement over the issues involved in the choice, but there is a somewhat stable disagreement over the values that should be used to resolve the issues.

Finally, the artifactual model seems likely to be particularly appropriate in a situation where both activation and definition of the situation are changing, where several participants are activated, and where the definition is complex, involving many values and decision-making variables, so that the situation is difficult to analyze and it is difficult to see and compare the consequences of the existing alternatives.

This review suggests not that one model will be particularly appropriate for one organization and a different model for another, but that each model will probably apply to any organization under appropriate circumstances. It is also easy to imagine that each model may be relevant for different polities or different sectors of polities. The artifactual model, assuming a very loosely coupled political organization with little guidance by any central political authority, seems to describe, for instance, present Norwegian research policy in most of its aspects. The conflict resolution model – which assumes that resources, manpower, information, and knowledge are distributed among several decision-making authorities, each acting on the basis of different values and perspectives – may be the model adequate for most sectors of Scandinavian politics today. It describes the consulting state, where all strongly organized groups will participate in some way or another when public policies are made. The rational decision model – which assumes only one conscious actor – will probably be adequate only in exceptional cases. It is often central in studies of international politics,¹¹ and it is the dream of some economists. How-

ever, the homogeneity in values and beliefs, the predictability, or the degree of centralization assumed by the model, is very seldom present in modern societies.¹²

A complete examination of the factors affecting the activation of participants and the definition of a choice situation in a complex organization is obviously beyond the scope of the present study. However, a general weakness of the theory is that models, or choice processes, are directly related to factors such as the number and types of participants, the complexity and stability of the problems, etc. We could easily end up with a very static picture. The next step, therefore, is to present the garbage-can model, which is an attempt to get around some of these difficulties. The model allows for changes both in activation and in definition and suggests a perspective whereby these two processes may be interrelated.

3. The Garbage-Can Model

Consider first the conditions under which we think this model will be relevant. These policy situations are characterized by three general properties:

1. *Problematic preferences.* It is difficult to impute to the decision situation a set of preferences that satisfies the standard consistency requirements of theories of choice. The policy process appears to operate on a variety of inconsistent and ill-defined preferences; it can be better described as a loose collection of ideas than as a coherent structure; participants seem to discover preferences through action more than to act on the basis of preferences.
2. *Unclear technology.* Although the polity manages to survive and even produce results, it does not understand its own processes. Instead, it appears to operate on the basis of a simple set of trial-and-error procedures, the residue of learning from the accidents of past experiences, and the pragmatic inventions of necessity.
3. *Part-time participants.* The participants in the decision situation vary in the amount of time and effort they devote to the decision; the extent of any one participant's involvement varies from one time to another. As a result, the boundaries of the organization appear to be uncertain and changing; the audiences and decision-makers for any particular kind of choice seem to shift somewhat capriciously.

These three properties of *organized anarchy* have been identified rather often in studies of complex organizations.¹³ We also believe they identify a class of choices that includes many significant situations in public policy-making in present-day society. It becomes important to investigate two major phenomena critical to a more adequate comprehension of choices in 'organized anarchies'. *First*, we need a better understanding of the ways public policy-making takes place without consistent,

shared goals and without a clear understanding of means-ends relations. We know that such public policy-making takes place without recourse either to explicit bargaining or to explicit markets (the two processes most commonly cited as procedures for decision-making in the absence of consensus). *Second*, we need to study how participants in public policy-making are activated, how occasional members become active ones, how attention is directed toward or away from a decision. Not everyone is attending to everything all of the time; we need to understand the attention pattern within different choice situations.

We can separate out four elements that play a central role in the elaboration of our perspective:

1. There are some choice *opportunities*. A choice opportunity is an occasion on which a polity is expected to produce behavior that can be called a decision. Such opportunities arise frequently. Any polity has ways of declaring an occasion for choice. Leaders have to be appointed, budgets made, contracts signed, and responsibilities allocated. Each choice opportunity may be characterized by a) an entry time (the calendar time at which that choice is activated for decision) and b) a decision structure (a list of participants eligible to participate in making that choice).
2. There are some *problems*. Problems are the concern of people, groups, and institutions within a polity, unresolved issues, feelings, and sentiments looking for an arena, a choice through which they can be mediated. Thus, problems can be latent, that is, present in the polity but not connected to any choice opportunity; problems can be 'in process', that is, connected to a choice opportunity; or problems can be solved and therefore leave the political arena. They might include highly individual matters of life style, family concerns, or the frustrations of work. They might include problems of careers, of group relations, of the distribution of status, jobs, or money. They might include ideology. They might also include the current crises of mankind as interpreted by existing organizational programs of action, the mass media, or the next-door neighbor. All of these require some sort of attention somewhere, and a possible place is the arena of collective choice within a polity. Each problem may be characterized by a) an entry time – the calendar time at which the problem becomes visible – b) an energy requirement – the energy required to resolve a choice to which the problem is attached under different assumptions about the solution stream – and c) an access structure – a list of choice opportunities to which the problem has access.
3. There are some *solutions*. A solution is somebody's product looking for a choice opportunity and a group of problems to which they fit. We assume a 'mating' model in which solutions pursue problems as well as the converse. A program for the education of medical students

worked out by a discontented faculty in one university is a solution that may find a problem it can be related to when a new university is established somewhere else. A candidate for political leadership is a solution looking for positions to fill and problems to solve. A computer is not just a solution to the problems of bankers, scientists, or politicians; it is an answer actively looking for questions or problems. Although we accept that in many situations it is impossible to find the solution before the questions are well formulated, it is also true that in many situations of public policy-making we do not know what the problem is until somebody presents some answer. Each solution may be characterized by a) an entry time and b) an access structure (a list of choice opportunities to which the solution has access, and a list of problems to which the solution may fit).

4. There are some *participants*. Participants come and go. They bring in and remove energy and skill, but also problems, making it more or less difficult to make a decision. Participation (e.g. gathering information, providing interpretations, testing subgoals for consistency with objectives on a higher level, building coalitions, etc.), is costly and participants can be described by the amount of energy and skill they have available for a specific choice. Since every entrance is an exit from somewhere else, the distribution of 'entrances' depends as much on the attributes of the choice being 'exited from' as it does on the attributes of the new choice being 'entered into'. Attention is allocated in terms of a variety of queuing and priority rules. These rules can easily result in substantial variation in who participates in what decision, as a function of other demands on their time rather than as a function of the decision under study. Each participant may be characterized by a time series of energy available for organizational decision-making. Thus, in each time period each participant can provide some specified amount of potential energy to the organization.

We suggest that a polity defined by unclear goals, unclear technologies, and part-time participants can be viewed as a meeting place for four streams: 1) a stream of choice opportunities, 2) a stream of problems, 3) a stream of solutions, and 4) a stream of participants or energy and skill.

In this perspective a polity is a collection of choice opportunities looking for problems and solutions, issues and feelings looking for decision situations in which they may be aired, solutions looking for issues to which they might be the answer, and decision-makers looking for work. *Thus in the garbage-can perspective a policy is an outcome or an interpretation of the four streams.*

It is now necessary to make some assumptions about the ways in which the four streams may flow together or become related to each other.

1. *A pure anarchy situation.* Here choice opportunities, problems, solutions, and

participants are attached to each other only as a *function of timing*. Choices, problems, solutions, and energies exist in a time frame. There are no obstacles to their flowing together. Both the access structures for problems and solutions and the decision structure are completely 'open'. The process and the outcome will be affected less by the type and character of the choice opportunity than by the problems, solutions, energy, and other choice opportunities present in the same time period. We experience new and unexpected connections among the four streams. The average number of problems in process, in relation to choice opportunities, solutions, and energy present, will affect how broad or narrow the definitions of choices will be, and the time it takes to choose. Decision-makers distribute their time and energy (to the extent that they have any) to choices and problems in a 'fire station' manner.¹⁴ In a world in which there is any scarcity in one or more of the streams, the timing of the several flows will greatly affect the outcome.

2. *Polities where there is some degree of understood feedback from earlier actions and events.* Here the streams may be linked as a *function of learning*. Problems learn to seek attachments to choice opportunities that solve them; solutions learn to seek problems they can handle successfully; managers learn to use their energy in areas in which they have success. Since such learning affects behavior (e.g. the tendency of a specific problem to be attached to a specific choice – if it is available) and behavior in turn affects the outcome, the results of the learning process are not necessarily stable connections.

3. *Polities that use organizational means and administrative practice in order to regulate the four streams.* Hierarchy, specialization, the distribution of information, the institutionalization of time limits, agenda building, etc. are all devices for regulating the relationships between the four streams, and for avoiding unexpected and undesired connections between choice opportunities, problems, solutions, and participants. Here the connections between the four streams will be a *function of organizational segmentation*. The average number of latent problems (i.e. with no access to choices) will indicate the general social 'climate' in the organization. It will tell us something about the possibilities for conflicts in the organization and what will happen if an open choice suddenly arrives (a choice which is open to all types of problems). We will also in the long run have an opportunity to study the effects of an increasing number of latent problems on the organization's ability to keep problems, solutions, participants, and choice opportunities segmented, and under which conditions such segmentations will break down.¹⁵

Learning and segmentation will be closely related to each other most of the time. Regulations through organizational devices can be fundamentally viewed as products of an adaptive process. As an organization gains experience, it learns more and more about coping with its environment and with its internal problems. The normal pattern is then that the organization tries to perpetuate the fruits of its learning by formalizing them.¹⁶ The general idea is that 'when the problem is solved, mass production begins'.¹⁷ This is a situation where we find extensive differentiation between major types of roles and between different spheres of the polity.

In order to run the model, several more specific assumptions are needed, i.e. assumptions about additivity of energy requirements and specification of the ways in which participants, solutions, and problems are attached to choice opportunities. These specifications have to take into consideration not only the *access* aspect, but also the *attractivity* aspect. Given that a participant, a solution, or a problem may have access to several choice opportunities, we need to understand which will be 'chosen'. Under what conditions will one opportunity be left, and participants, problems and solutions link themselves to a new choice opportunity?¹⁸ We shall not explore these questions in any depth here, but shall concentrate instead upon a few general properties of the garbage-can model.¹⁹

Accepting a garbage-can view of public policy-making means focusing attention on the ways in which the 'meaning' of a choice changes over time. It calls attention quite explicitly to the strategic effects of timing, i.e. to the introduction of choice opportunities, problems, and solutions. Furthermore, it becomes important to study the amount and pattern of energy and skill available and thus the length of time a choice opportunity will stay in the political arena. Finally, the model focuses attention on the impact of organizational structures on these factors. In sum, the mix of garbage in a given can (i.e. the definition of a choice) depends partly on the labels attached to the alternative cans; it also depends on what garbage is currently being produced, on the mix of cans available, and on the speed with which garbage is collected and removed from the scene.

If a decision requires – or is made to require – an extended period of time and if no alternative choice opportunities arise during the same period, the resulting choice will become a very general one, encompassing a wide range of problems, solutions, and participants. The garbage can will be filled to overflowing.

At the other extreme we have choice situations in which there are a) many alternative choice opportunities, b) few problems, and c) rapid decisions (caused by the combination of energy, skill, and solutions available). In such a setting any particular choice will be made in terms of a narrow range of issues and problems and a narrow range of participants. As the number of choice opportunities decreases, or the decision time increases, the choices become broader, with respect both to the range of problems defined as relevant and to the range of participants.

These propositions are substantially independent of the explicit *a priori* content of the choice. The organizational meaning of the choice is provided to a great extent during the decision process.

Either the number of alternative choice opportunities or the number of problems may change over time. Our model suggests that if the number of alternative choices decreases or the number of problems increases during the decision period, we would observe essentially the same phenomenon of broadening in meaning and increase in number of active participants. On the other hand, if the number of alternative choice opportunities increases after a choice has accumulated a set of problems and participants, we would predict that the number of participants involved in the choice would decrease almost immediately. The number of problems associated with the choice, however, would decrease more slowly (primarily because activa-

tion costs a certain amount of time and energy, while a problem after it is raised may follow the choice, e.g. as a written document, without any such costs). As a result, the choice would become one associated with a relatively broad range of issues but commanding the attention of only a relatively narrow range of participants.

A major feature of the garbage-can process is the partial decoupling of problems and choices. Although we think of decision-making as a process for solving problems and conflicts, that is often not what happens. Problems are worked on in the context of some choice, but choices are made only when the shifting combinations of problems, solutions, choice opportunities, and decision-makers happen to make action possible. Quite commonly this occurs either after problems have left a given choice arena or before they have discovered one, i.e. where decisions are made by flight or oversight.

Choices are made by oversight if a choice opportunity is activated when problems are attached to other choices and if there is energy (decision-makers) available to make the new choice quickly. It will be made without any attention to existing problems and with a minimum of time and energy. A choice is made by flight when problems, after having been associated unsuccessfully for some time with a choice opportunity, leave that choice opportunity and go to a more attractive opportunity. Decisions are frequently made because problems 'leave'. Resolution of problems as a style for making decisions is not the most common style except under conditions where flight is severely restricted or where participants have a very light work load.

Furthermore, subject to structural restrictions on behavior, decision-makers work on active problems in connection with active choices; both decision-makers and problems often seem to track one another through series of choices without appreciable progress toward solutions. We would expect a frequent result to be that decision-makers would feel that they were always working on the same problems in somewhat different contexts mostly without results. Problems, in a similar fashion, meet the same people wherever they go with the same result.

When problems are solved, it is rarely by the choice to which they are first attached. A choice that might, under some circumstances, be made with little effort becomes an arena for many problems, which results in its becoming almost impossible to make – until the problems drift off to another arena. Important choices seem particularly likely not to solve problems. Most often they are made by flight and oversight.²⁰

If we believe that the garbage can is a good model for understanding some significant policy-making situations, there is a strong need for elaborating on the implications of the model. That is, attention should be concentrated on examining the consequences of different rates and patterns of flows in each of the four streams, and of different organizational procedures for relating them. Another major task will be to specify the conditions under which the generation of each stream and their all flowing together will be more or less consciously controlled through organizational means. There is a need to identify certain pure structural

variations and to suggest how variations in segmentation might be related systematically both 1) to factors inside the model (i.e. to study structural changes as a response to decision outcomes through organizational learning) and 2) to key exogenous variables. That is, to relate the model to more general societal variables.

We think especially that the degree of structural segmentation should be related to the generation of new value and belief systems in society. An extensive differentiation between major political roles (i.e. segmentation of the decision structure) and between different spheres of the polity (i.e. segmentation of the access structures for problems and solutions) will probably be found mainly in societies with a stable consensus (among influentials) connected to major services and tasks. Here we will find deliberate efforts to derive the advantages of delegation and specialization. The demands of organizational structures will be that they are efficient in 'mass production' and in maintaining the values and beliefs on the basis of which organizational programs are built. Following the contraction-detraction theory of Jacobsen,²¹ it may be expected that in periods in which new value and belief systems are generated (or the strategic position of groups altered), producing value and technological heterogeneity, the segmentation of the four streams will be modified or broken down. New relationships between choice opportunities, problems, and solutions will develop, and new groups of participants will be activated in public policy-making. We may expect the garbage-can ideas to be of little relevance in a very segmented polity. They will be most relevant in periods during which new value and belief systems are generated, and *before* they are fully understood and ordered in a new hierarchy, and thus used as basis for new segmentation.²²

Rational decision-makers play a much less heroic role in the garbage-can version of public policy-making than in classical theories of choice in economics, political science, and organization theory. The development of empirical theories of organizational decision-making has been described in terms of a set of constraints upon this classical model, where a choice situation is analyzed in terms of the behavior of one actor, completely informed, infinitely sensitive, and rational. That is, he can weakly order the states into which he may find himself, and he makes choices in order to maximize some utility function.²³ Measured by the latter standards the phenomena produced by the garbage-can model look pathological. However, in developing a theory about the conditions under which each model will work, we find that the preconditions for the garbage-can model are exactly the opposite of those assumed by the classical theorists.

In this perspective the garbage-can model represents an attempt to *enlarge* our collection of relatively systematized frameworks for interpreting 'choice processes'. In fact we think such an expansion will be one important prerequisite for a further integration of theories of choice with the social sciences. Some intersections between our version of decision-making theories and other bodies of literature should be obvious, e.g. with theories of political participation, bureaucratization, and political institutionalization. However, we shall now concentrate upon one more fundamental aspect of such an integration.

4. Some White Spots on the Map

A basic argument has been that empirically there will be systematic covariations between different types of choice processes, and a) some set of conditions²⁴ and b) some set of outcomes, the choice process working as a mechanism of 'conversion'. In some cases (e.g. the rational choice and the conflict resolution situations) these processes are fairly well understood. In others (e.g. the artifactual situation) our comprehension is more modest. However, in places the map seems to have completely white spots. We do not understand how behavior is linked to outcomes. In fact, it may be argued that under some conditions there is only a very loose coupling of 'rational' behavior and 'policy outcomes'.

One crucial challenge is found in situations where there is systematic covariation between some set of conditions and outcomes, but where we are not able to comprehend the intervening process. Examples are found in the discussion about the relative importance of economic and political variables arising from Dye's book.²⁵ Here the problem will be illustrated by means of a recent study of Norwegian politics.

In his analysis of the localization of the new district colleges and the Norwegian universities since 1811, Stava²⁶ shows that the model doing the best job in predicting the actual locations is a weighted distance model. Here it is assumed that the political process locates the educational institutions so that the distance between politically relevant clientele and the nearest institution is minimized. Several weights are tried. The one giving the best predictions is total number of eligible students.²⁷ Although this was a highly 'politicized' choice that got a lot of attention and generated much discussion and political activity, models taking into consideration the behavior of actors, their values, beliefs, and demands, their resources, etc. do not improve the predictions. In fact, they do a much poorer job. Stava's interpretation is that the more stable, normative context, especially norms of justice and equity (generally accepted, and therefore not discussed very much), seems to be the main determinant of the localization patterns. The activities of 'participants' and decision-makers seem to be relevant – if at all – only in order to explain minor deviations within the basic patterns produced by the normative context, i.e. the normative context gives room for some variations, in the sense that it defines a few feasible alternatives.²⁸

While Stava in this way connects a set of conditions and outcomes, he shows that initiatives, lobbying activities, etc. apparently do not have any significant impact upon the basic pattern for localization of these educational institutions, but does not provide any systematic explanation of the process linking structural elements of Norwegian society and policy outcomes. On the one hand it may be asked whether there are some 'deep' and not well comprehended social processes which we should try to explore. On the other hand we may ask whether there are any systematic relationships between the 'political process' (i.e. behavior as defined above) and the more stable, normative context which Stava assumes.

In a case study of budgeting in a Norwegian commune the present author²⁹

made an attempt to throw new light on one aspect of the latter question. It is argued that the patterns of behavior observed cannot be understood if we assume that the formal budgetary process in this case is mainly a decision process, where money and other resources are allocated. It is argued that the data give much more meaning if the process is looked upon as a ritual or ceremony mainly contributing to the formation of legitimacy, compliance, and consensus related to resource allocations already made (mainly commitments throughout the year and prescriptions from the regional and central levels). If this hypothesis is true, the main effect of budgetary behavior under the conditions studied is to maintain the existing normative context of local budgeting, i.e. to produce and maintain acceptance and support for the actual distribution of resources (who gets what) and for the present organizational apparatus and institutions. In some cases such 'decision-making processes' may be window-dressing. Participants consciously try to legitimize their activities through giving outside groups an image of rationality and control.³⁰ However, in other situations we may find people acting as though they were making decisions and believing they are, but empirically we are not able to establish any link between, on the one hand, their preferences, beliefs, activities, and resources – the way they 'understand' the process and their acts – and, on the other hand (substantive) 'policy outcomes'. In both cases important *mutual* interdependencies between 'behavior' and normative context may exist.

These points of view imply that we must return to the basic axiom of the 'realist' or 'behavioral' approach, that in order to understand public policy (decision outcomes or who gets what) we must study the political process, that is, the behavior of persons, groups, and organizations as they use their intellectual and material resources in order to solve their own problems and satisfy their own preferences. The research problems become complicated by the fact that our arsenal of process models is rather small. Using those we have, we may systematically over-communicate the rational and behavioral aspects of policy-formation. At the same time we may under-communicate the impact upon policy of a complex interaction between structural elements, chance elements, and the *indirect* aggregation of individual and group behavior. Finally, the research problem is complicated by the fact that we have to take into consideration *several* types of outcomes of decision processes. We cannot limit ourselves to the analysis of effects upon the distribution of substantive goods, but have to take into consideration several types of effects, and especially those upon the social system in which decisions are made.³¹

The hypothesis put forward is that the further integration of theories of choice with other parts of the social sciences, and thus our understanding of the impact of elements of human choice upon public policy, will be heavily dependent upon our answers to the questions outlined above.

NOTES

1. The garbage-can ideas have been developed by a team effort of American, Danish, and Norwegian colleagues. The teams were organized around James G. March, Stanford University, who has been the major source of inspiration for the rest of us. The empirical

- studies have mainly focused upon universities: S. Christensen, *Institut- og laboratorieorganisation på Danmarks tekniske Højskole*, Copenhagen: Driftsteknisk Institut, AMT, Danmarks tekniske Højskole og Institut for Organisation og Arbejdssociologi ved Handelshøjskolen i København, 1971 (mimeo); M. D. Cohen and J. G. March, *The Organization of Ambiguity: The American College Presidency*, New York: Carnegie Commission on Higher Education, 1972; M. D. Cohen, J. G. March and J. P. Olsen, *A Garbage Can Model of Choice*, 1971 (mimeo) (to appear in *Administrative Science Quarterly*, 1972); H. Enderud, *Rektoratet og den centrale administration på Danmarks tekniske Højskole*, Copenhagen: Driftsteknisk Institut, AMT, Danmarks tekniske Højskole og Institut for Organisation og Arbejdssociologi ved Handelshøjskolen i København, 1971 (mimeo); J. G. March, 'The Technology of Foolishness', *Civiløkonomen* (May 1971); A. Mood (ed.), *More Scholars for the Dollar*, New York: Carnegie Commission on Higher Education, 1971; J. P. Olsen, *A Study of Choice in an Academic Organization*, Bergen: Institute of Sociology, University of Bergen (1970) (mimeo); J. P. Olsen, *Reorganization of Formal Authority in a Norwegian University*, Bergen: Institute of Sociology, University of Bergen (1971) (mimeo); K. Rommetveit, *Framveksten av det medisinske fakultet ved Universitetet i Tromsø*, Bergen: Institute of Sociology, University of Bergen, 1971 (mimeo); and P. Stava, *The Location of Norwegian District Colleges and Universities*, Bergen: Institute of Sociology, University of Bergen, 1971 (mimeo). The theoretical ideas, however, have a broader parentage. In particular, we acknowledge a debt to G. T. Allison, 'Conceptual Models and the Cuban Missile Crisis', *The American Political Science Review* 63, 3 (1969); D. Braybrooke and Ch. E. Lindblom, *A Strategy of Decision*, New York: The Free Press, 1963; J. S. Coleman, *Community Conflict*, Glencoe, Ill.: The Free Press, 1957; R. M. Cyert and J. G. March, *A Behavioral Theory of the Firm*, Englewood Cliffs, N.J.: Prentice-Hall, 1963; C. E. Lindblom, 'The Science of Muddling Through', *Public Administrative Review* 19 (1959); C. E. Lindblom, *The Intelligence of Democracy*, New York: The Free Press, 1965; N. Long, 'The Local Community as an Ecology of Games', *American Journal of Sociology* 44 (1958), pp. 251-261; J. G. March and H. A. Simon, *Organizations*, New York: John Wiley, 1958; J. A. Robinson and R. R. Majak, 'The Theory of Decision-Making', in J. G. Charlesworth (ed.), *Contemporary Political Analysis*, New York: The Free Press, 1967, pp. 175-188; J. A. Robinson and R. C. Snyder, 'Decision-Making in International Politics', in H. C. Kelman (ed.), *International Behavior*, New York: Holt, Rinehart and Winston, 1965; W. R. Schilling, 'The H. Bomb Decision: How to Decide Without Actually Choosing', in R. W. Nelson, *The Politics of Science*, New York: Oxford University Press, 1968; J. Thompson, *Organizations in Action*, New York: McGraw-Hill, 1967; and G. Vickers, *The Art of Judgement*, London: Chapman and Hall, 1965.
2. Cohen, March and Olsen, *op.cit.*
 3. H. A. Simon, 'A Behavioral Model of Rational Choice', *Quarterly Journal of Economics* 49 (1955); H. A. Simon, 'Theories of Decision-Making in Economics and Behavioral Science', *American Economic Review* 69, 5 (1959).
 4. In political science A. F. Bentley, *The Process of Government. A Study of Social Pressures*, Evanston, Ill.: The Principia Press of Illinois, 1935 (originally published in 1908) and D. B. Truman, *The Governmental Process: Political Interest and Public Opinion*, New York: Knopf, 1951, launched major attacks on viewing political choices mainly as an intellectual activity.
 5. Robinson and Majak, *op.cit.*
 6. There are important differences in the legitimacy of the three styles of decision-making. The *entrepreneurial* style secures its legitimacy from widespread social acceptance of the postulates of rationality. The *political* style secures its legitimacy either from its adherence to Pareto optimal solutions or from widespread social acceptance of both the postulates of politics and the distribution of political power within the system. For the most part, the *non-decision* style appears to have little or no normative legitimacy and to be subject to normative attacks both from those who believe in the necessary legitimacy of rationality and from those who believe in the necessary legitimacy of politics.
 7. Studying serial decision-making, we have to include a third idea: Each choice opportunity is an opportunity for organizational learning. (Olsen, *op.cit.*, 1970). On the one hand events are perceived, interpreted, and reacted to via a simple 'model' of reality, but on the other hand events also affect existing 'models' (by giving reassurance, making the model

more clear, broadening it, changing it, substituting it completely, etc.). Studying an organization making a series of decisions over time, we have to take into account two types of output: a) the substantive content of the choice and b) the state of the system after the choice, including the 'model' which different participants are left with and which is one important determinant of their future behavior. In this way the output of one choice will be an input in the next. This organizational learning may, however, vary from 'real' to 'fictitious'. A general property of such learning seems to be that the 'explanations' invented after the fact tend to be governed by deterministic models, rather than by probabilistic models or the recognition that the events were too obscure to be described by any simple model. We may speculate that (given that man will try to find meaning and order in confusing and ambiguous situations) the more important a set of events, the less people (at least in our culture) will be willing to accept probabilistic or random models as 'explanations'. One important variant of this tendency to rid explanations of uncertainty and ambiguity is to perceive events as a willed product of some group of leaders and make subsequent inferences about the good or bad will and motives of these actors.

8. For example, during one of the most important crises the world has experienced in recent years, the Cuban missile crisis, one major participant (President Kennedy) found it necessary to leave the arena in order to make an election speech, while another (the U.S. Director of Central Intelligence) left Washington for a month's honeymoon on the Riviera (Allison, *op.cit.*, pp. 696, 713, and 715). Not even this extraordinarily important decision could attract all of the attention of two principal actors.
9. R. A. Bauer, 'The Study of Policy Formation: An Introduction', in R. A. Bauer and K. J. Gergen, *The Study of Policy Formation*, New York: The Free Press, 1968.
10. We will need distinctions between more or less time-consuming ways of activation. A first approach to this problem may be to make a distinction between the following:
 - a. Activities focused on generating alternatives and having them accepted (e.g. information-seeking, agenda-building, coalition-building);
 - b. Activities focused on generating criteria for choice, that is generating criteria for testing alternatives (e.g. stating demands, comparing alternatives with demands);
 - c. Activities which can be described more as reactions than actions. The participant will not himself take any initiative, but confronted with a certain organizational setting (e.g. a meeting), he will be strongly expected to act (vote, give his opinion) even if he has no interest in the choice, has no information, etc.

These three types of activation have very different consequences. On the one hand, activity focused on generating solutions will make it easier to reach a compromise; statements of constraint (at least in a non-slack situation) will make it more difficult. On the other hand, the activities involved in generating solutions are ordinarily more time consuming than the activities involved in testing them. The latter activities are consistent with a basic 'on-looker' position toward a decision. The pure reactive form will from a time-energy point of view be even less costly than the testing type of activation.
11. Allison, *op.cit.*
12. For an interesting comment upon the role of economic models in economic decision-making see L. Johansen, 'Planlegging og Spill', in *Økonomi og Politikk*, Festskrift til Ole Myrvoll, Oslo: Aschehoug, 1971. He does not, however, discuss the political relevance economic models may have had in terms of *legitimizing* events taking place in the economy.
13. See the literature mentioned in note 1.
14. Cyert and March, *op.cit.*
15. Segmentation in general means erecting barriers to 'trading' across different choices. The idea of organizational segmentation may be contrasted with Coleman's idea of increasing the number of issues, participants, and choices in order to make more 'trades' possible and therefore avoid conflicts and breakdowns in decision-making systems (J. S. Coleman, 'Foundations for a Theory of Collective Decisions', *The American Journal of Sociology* 71, 3 (1966)).
16. W. H. Starbuck, 'Organization Growth and Development', in James G. March (ed.), *Handbook of Organizations*, Chicago: Rand McNally, 1965, p. 480.
17. C. Perrow, *Organization Analysis: A Sociological View*, Belmont, Calif.: Wadsworth Publishing Company, 1970, p. 68.

18. Olsen, *op.cit.*, 1971, focuses upon one aspect of these problems, viewing participation in university government as a rational choice.
19. The problems posed by the garbage-can model with respect to a normative theory of decision-making will not be discussed here. There are three major problems. *First*, we need to develop a normative theory of intelligent decision-making under ambiguity (i.e. in situations in which goals are unclear or unknown). Can we provide some meaning for intelligence that does not depend on relating current action to known goals? *Secondly*, we need a normative theory of attention. Participants operate within the constraint of a scarce resource – the attention they can devote to the various things demanding that attention. Since a substantial part of the variability in behavior within organized anarchies stems from variations in who is attending to what, decisions with respect to the allocation of attention are prime decisions. *Thirdly*, organized anarchies require a revised theory of management. Significant parts of the present theory of management introduce mechanisms of 'control' and 'coordination' that assume the existence of well-defined goals and a well-defined technology as well as the substantial involvement of the energies and emotions of participants in the affairs of the organization. Where goals and technology are hazy and participation is fluid, many of the 'axioms' and standard procedures of management collapse. For a further discussion, see March, *op.cit.*
20. This brief summary is based on the simulation study (Cohen, March and Olsen, *op.cit.*) and the case study of the selection of a new dean in an American university (Olsen, *op.cit.*, 1970).
21. K. D. Jakobsen, *Teknisk hjelp og politisk struktur*, Oslo: Universitetsforlaget, 1964.
22. A variable closely related to the orderliness and heterogeneity-homogeneity of values and beliefs is the degree of *slack*. Cyert and March, *op.cit.*, have proposed that slack (that is, the difference between existing resources and activated demands upon these resources) will absorb a substantial share of the potential variability in an organization's environment. We assume, like Cyert and March, *op.cit.*, and Lindblom, *op.cit.*, 1959 and 1965, that people can often hold the assumption that they share common values and beliefs only because these values and beliefs are poorly defined and understood, that they are abstract rather than concrete, and general instead of marginal and incremental. It is often assumed that if decision-makers clarify their values and beliefs, conflict will result. However, it also seems to be true that if conflict arises and the decision-making unit cannot produce a solution, the participants will start clarifying their values and beliefs (Olsen, *op.cit.*, 1970).
23. J. Feldman and H. E. Kanter, 'Organizational Decision Making', in James G. March (ed.), *op.cit.*
24. Today there is no consensus about what the relevant conditions are, or how they should be made into a typology. See, however, Robinson and Majak, *op.cit.*, and Robinson and Snyder, *op.cit.*
25. T. R. Dye, *Politics, Economics and the Public: Policy Outcomes in the American States*, Chicago: Rand McNally, 1966.
26. Stava, *op.cit.*
27. *Ibid.*, esp. pp. 32–33.
28. *Ibid.*, p. 70.
29. J. P. Olsen, 'Local Budgeting, Decision-Making or a Ritual Act?', *Scandinavian Political Studies*, Vol. 5, Oslo: Universitetsforlaget, 1970.
30. As already noted, there may be an important discrepancy between the legitimacy of different processes of choice, and the frequency of their use. Braybrooke and Lindblom, *op.cit.*, p. 3, also comment upon the paradox that policy-makers habitually resort to certain practices that enable them to cope with the task of organizing information in ways relevant for making policy decisions, yet their conceptions of evaluation and decision-making typically imply contempt for these practices.
31. See note 4 and also J. P. Olsen, *Voting Sounding Out and the Governance of Modern Organizations*, Bergen, 1971 (mimeo) (to appear in *Acta Sociologica*, 1972).