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SERVICES AREN'T GOODS: POST-INDUSTRIAL PRINCIPLES FOR POLICY DESIGN

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ABSTRACT

As the United States moves from an industrial society to a post-industrial society, fewer people are engaged in the production of goods, and a majority now produce services. The processes of designing and producing goods and services are radically different. This differences calls for innovation in both the structure of the work setting and the policies which govern work in the society as a whole. The article examines differences between goods and services and proposes a new model for designing and producing services, as well as new principles for social policy for service production. The model and principles are illustrated with examples in health care.

INTRODUCTION

An industrial society and a post-industrial society may be distinguished in terms of the predominant product which most workers create. In an industrial society most workers produce various forms of tangible goods. In a society which may be called post-industrial a majority of workers produce intangible services of various forms.[1] The products comprising the service category vary considerably. Some, such as trade, transportation, and finance, are ancient, though technological changes have altered their form over time. The growing number of workers who provide a range of personal and professional services represent both the incorporation of traditional services into the market economy and the innovation of increasingly specialized services. In these contexts the concerns of a distinctly post-industrial society may be illustrated by the most rapidly growing service activities: health, social welfare, and information processing. What these services share in common is their role in connecting persons in some way and, in most cases, some personal contact between the service worker and one or more clients.

The process of producing services is different from the process of producing goods, and the principles involved in designing services are different from those involved in designing goods. However, the design and production of services suffer from a peculiar "cultural lag." Even though an increasing majority of workers are involved in producing services, the model used for designing the services which they produce is still in most instances a model more appropriate for the design of goods. Consequently, service workers are limited in their ability to provide services which are effective for their clients. As more and more workers are involved in producing services, it is essential to develop a model for designing their pro-

ducts which is appropriate to service production. More broadly, it is essential to develop a system of institutional supports which provide service workers with the resources necessary to produce effective services.

The scope of this article can be described by discussing briefly the nature of a design process. In the production of either a good or a service a worker is guided by an explicit or implicit model for designing the product. The design model provides principles to be followed in designing goods or services. Accordingly, the model may be considered a policy for design. The product of the design policy is the design of a good or a service. The process of following this design model or policy to produce a good or a service may be called, simply, a design process. The process of creating or designing a model or policy to guide design may be considered a process of meta-design. Products of a meta-design process include various sets of procedures, or policies, which may be followed in designing models for goods and services. The principles which govern the meta- design process may be considered to constitute a meta-policy.

Thus it is possible to speak about policy at two levels. One kind of policy governs the design (or production) of goods or services "on the line." The other kind, referred to as a meta-policy, provides general guidance for the design of goods or services throughout an entire organizational system. In this context it is possible to speak, for example, of a federal meta-policy for the design of goods or services. For stylistic reasons, examples of policy on the first level will be referred to here simply as "design models." Examples of policy on the second level will be referred to simply as "policies" (even though they are really meta-policies).

The article will first identify the design model most commonly used in the design of goods. Next, the article will point to significant differences between the production of goods and the production of services. On the basis of these contrasts the article will describe a design model appropriate for the design of services. Finally, the article will examine the requirements for a social policy to provide the resources necessary to carry out the service design model in service production settings.

PRINCIPLES FOR THE DESIGN OF GOODS

The basic principles of a common model for the design of goods may be found concisely stated in the chapter titles of a recent book on engineering design (Glegg, 1969):

(1) the design of the problem;
(2) the design of the designer;
(3) the design of design/the inventive;
(4) the design of design/the artistic;
(5) the design of design/the rational;
(6) safety margins.

First, the designer should make certain that the problem to be solved is itself designed appropriately. The problem should be identified clearly, so that the designer can understand what is problematic and can see what criteria must be met for the problem to be considered solved. Crucially, the problem should be set up in such a way that it permits solution. An explicit but insoluble statement of

the problem is useless.

Second, the designer should be conscious of the influence of the designer on the design outcome. The designer should consider the personality and style of the designer and the interpersonal setting in which the designer will work, insofar as they affect the design product. The designer should seek to maximize the influence of designer styles most likely to solve the design problem.

Third, the designer is ready to get on with design itself. Inventive, artistic, and rational approaches to design are all useful. Part of the process of discovering a solution may depend on unforeseeable insight. An aesthetic sense may help where design requirements cannot all be stated fully in advance. And there is never a good substitute for straightforward rational thinking to get from design criteria to a design solution.

Finally, it is always wise to leave a safety margin for error and the unknown, because even the best-laid design process is likely to encounter both.

DIFFERENCES BETWEEN GOODS AND SERVICES

Services differ from goods in a number of ways which suggest that this design model may be less useful for designing services than for designing goods. The description of services here applies most directly to personal and professional services, although it touches on aspects of other services as well. The service work described involves characteristics of the activities of a wide range of practitioners, including teachers, health care workers, architects, attorneys, social workers, administrators, planners, and engineers. For stylistic reasons all these people will be subsumed in the label "service workers."

The basic difference between goods and services is that a good represents a static product, whereas a service is a dynamic process. A good is completed when a worker has performed certain operations on raw materials. The good can then be placed on a shelf or in a showroom for potential users to examine. These potential users can see the good in finished form and need only decide for themselves whether they have some need for it. They are free, as a salesperson might say, to take it or leave it.[2]

In contrast, a service consists of a process of interaction between two or more persons. For example, they may be a teacher and a student, an architect and a client, or a physician and a patient. In the process of this relationship--which may be called, for example, learning, designing, or healing--the service worker and the client work at solving a problem brought by the client. The service consists of this problem-solving process, as well as whatever solution may be designed in the process. One view of services distinguishes them as "hard" or "soft" according to the tangibility of the solution designed. Where the solution consists of new information, insight, learning, or other personal change, the service may be labelled a "soft" service. In contrast, where the solution includes such things as monetary payments, food, shelter, or employment, the service may be labelled a "hard" service. Yet the interpersonal relationship which leads to the choice of some particular solution for the client's problem is similar for both. The problem-solving facet of the service continues for as long as the service relationship goes on.[3] The problem solution, depending on its nature, may extend beyond the termination of the service relationship. Thus it is not possible, as with a good, to look over a number of finished service products before selecting

(or not selecting) one for use.

This difference between goods and services in the nature of the product reflects significant differences in the process of producing goods and services. The production of a good requires that a worker take certain actions in relation to certain inert materials to mold them into a product. The production process is governed by technical rules,[4] and the worker dominates the raw materials. The production of a service requires that a worker enter into a personal relationship with one or more other persons who actively participate in the process of rendering a service. The process of producing the service is regulated by social norms endorsed by the actors, and the service worker participates in a contractual relationship with active service recipients.[5]

The production of a good does not require interaction between producer and user. The production of a service not only requires but resides in interaction between "producer" and "user." This difference implies something further. In relation to a good it is possible to differentiate clearly a producer and a user. In relation to a service this differentiation is, at best, not clear. No service worker, for example, whatever his or her competence, can produce a service without a client. There cannot be teaching, for example, without a student. Further, effective design and production of a service require active participation of the client with the service worker. A physician, for example, cannot heal a patient who does not want to improve. In the service production process, then, it is difficult to differentiate one actor who is sole producer of the service and one actor who is the recipient of the service. In the service relationship all participants may be considered producers of the service in that their participation is necessary for the service to be delivered. It is reasonable to call the client the recipient of the service in that he or she receives some solution for a problem, but the label "recipient" should not imply that the client participates passively. Indeed, the client usually initiates the service relationship.[6]

In the ideal process of producing goods of a particular kind, every single good should be in all significant ways identical to every other good. Every clock or every automobile of a particular model should be identical with every other. Mass production is considered appropriate because large numbers of people are considered to have identical needs with regard to telling time or moving from place to place. In contrast, the ideal process of producing services is one in which every service is unique. Each teacher-student relationship or each attorney-client relationship is in some, albeit frequently small, way different from every other. Each service relationship is supposed to be unique because every service provider and every client is a unique person, and their relationship brings together a unique combination of needs and competences.

This difference has implications for measuring the quality of goods and services. In the production of goods, because the production process is expected to be uniform and all products of a particular kind identical, quality may be measured by taking samples from a batch of products at any given point along or at the end of the production line. If the samples are found to be good or bad, then the same may be considered true of the batch as a whole. Measuring the quality of services is far more complicated. Because the production of each service is considered dependent on the nature of the interaction between service worker and client and because each service product is expected to be unique, measuring the quality of services requires somehow assessing each service relation-

ship. At the least, both service provider and client should provide an evaluation of the quality of service. Further, because a service is a dynamic process, rather than a static product, a single evaluation of the service at the end of the service relationship may be insufficient to measure the quality of the service. Pragmatically, insofar as the service worker and client are interested in producing a high quality service, they may want to maker periodic assessments of the service as their relationship progresses, in order to ascertain that the service is good and to make any needed improvements.[7]

This latter point suggests that the learning required to produce a service is significantly different from that required to produce a good. In order to produce a high quality good, learning about potential users' needs and ways of satisfying them should be substantially completed before production begins. This is all that seems required by the conventional conception of a good. In addition, the practical cost of investment in mass production capital supports this orientation. The appropriate learning process for producing goods is the engineering design process outlined earlier. In the production of goods the primary place for learning is a design process which is conceptually and temporally separate from the production and delivery processes. After designers have learned which design will solve the design problem, succeeding processes of producing the design and delivering products are straightforward and do not normally require learning.[8]

In contrast, the learning which is most directly related to assuring the quality of a service must take place during the production of the service--in the process of interaction between service worker and client. Development of skills prior to the establishment of any service relationship contributes to the effectiveness of the service. Yet which of the skills which participants bring to the service relationship will be most important in producing a high quality service can be learned only during the production of that service. At least as important, both the service worker and the client may learn new skills and insights which are crucial for making their service relationship effective only after they have entered and worked in the service relationship for some time. As in the production of goods, crucial learning may be said to take place during a design process. But, in sharp contrast to the production to goods, this design process cannot be separated from the production or delivery process. Only by tentatively producing and delivering services within the relationship can the service worker and client learn which service design most effectively helps the client.

In short, the design model or process which is appropriate for the production of goods is not appropriate for the production of services. In the production of services the design process itself, the service relationship, must begin before anyone can identify or design the problem which the service relationship should be designed to solve. Further, the process of "designing the designer" has a peculiar quality. Although participants in the service relationship can take steps to prepare themselves for effective service work prior to entering the relationship, they can acquire a full understanding of what qualities will be required of effective service designers only after they have engaged each other in the service relationship. Finally, the distinction between the design or image and the actual product is unclear when services are involved. One moment a participant in the service relationship forms an image of an activity composing an effective service and in the next moment acts on that image, both

to create its interactive counterpart and to learn whether the image has validity in action.[9] The processes of designing the problem and designing the designer are inextricably part of the process of designing the design, and the process of designing the design is intertwined with the process of producing the product, or service.

PRINCIPLES FOR THE DESIGN OF SERVICES

It is necessary to identify a design model for services which is different from that for goods. This model should include a set of rules or principles which participants in a service relationship should follow in order to design a service which will effectively solve a client's problem. Ideally, the service relationship is entered into freely by both the service worker and the client. The relationship is terminated after some long or short period during which the service worker and client feel that the problem at issue has been solved.[10] Because the service relationship is a social relationship, its content includes both rational and nonrational material, and participants in the relationship will be motivated and affected by this material regardless of whether it is made explicit. Clinical evidence suggests that interpersonal problem-solving is impeded by a failure to admit nonrational material to examination.[11] Hence in order to design effective solutions for problems, a service relationship must permit--but need not require--the service worker and client to acknowledge and respond to any parts of their interaction which either of them deems relevant to designing a service to solve the problem(s) at issue.

However, although every service relationship should permit responses to any rational or nonrational component of the service relationship, relatively few service relationships may require extensive concern with nonrational interpersonal material. Many service problems may be relatively simple, and more than a superficial inspection of interpersonal material may be both unnecessary and a diversion. Pragmatically, many problems may require relatively quick solution, and they may not permit much attention to interpersonal material. For many of these problems the likely cost of ignoring interpersonal material is low.[12]

Another way to characterize this service relationship is as one kind of temporary problem-solving system. The process of learning in termporary systems has already been studied (for example, Argyris and Schon, 1974, Bennis, Benne, Chin, and Corey, 1976; Bennis and Slater, 1968; Jun and Storm, 1973; Miles, 1964; Mills, 1967). This evidence should help to identify a learning or design model appropriate for service relationships. In the temporary system participants both learn and, in so doing, learn how to learn. At the point when they conclude that they have learned what they set out to learn, they have succeeded in designing the learning process. Observers of the development of personal relationships in temporary problem-solving systems note that relationships in these systems typically progress through modal stages. Whatever the duration or purpose of the system, its participants normally move through similar identifiable stages. The length of the stages in a particular relationship is conditioned by participants' perceptions of the expected purpose and duration of the relationship. The character of these stages has been variously described by different observers. One formulation (Tuckman, 1965) of the stages which small groups typical of service relationships

go through identifies four modal stages: (1) forming, (2) storming, (3) norming, and (4) performing.[13]

These four stages comprise a process of learning within a group. This process, repeatedly observed in temporary small interpersonal relationships, reveals a model for learning or design which differs from the engineering model. To begin with, the establishment of a working relationship for the design, production, or delivery of a service is not taken for granted, as it may be with the production of goods. In the process of designing (producing) goods, designers (for example, industrial workers) get together and commence working because, so the model suggests, they are already committed to the design problem and want to get on with the process of solving it. Although for some services the design process is rather easily initiated, for others there is ambivalence about entering into the learning process at all. The beginning of any relationship--forming--involves asking questions simply about who is in the relationship and who is outside it. Participants may get together with an ambivalent commitment, at least, to establishing some relationship. However, often the client hesitates to enter the service relationship because of a feeling of guilt or embarrassment about "having" the problem which the service relationship is intended to solve. A worker and a client may seek to clarify who besides themselves may be in the relationship. For example, a physician and a patient may be in the service relationship. What about the physician's partner or the patient's colleagues or family? In many service relationships these questions are quickly resolved, though in some, particularly consulting and counseling relationships, they may take some time to clarify.

If the service worker and client are able to establish a working relationship, only then will they be able to begin to clarify what task or design problem they will work on. This is a stormy process. The participants may have entered the relationship with related but often quite contradictory notions of their purpose for getting together. They may have seriously conflicting expectations of one another. They begin to test each other to see what each considers the purpose of the relationship to be. As part of this challenging, they attempt to find out what each wants to contribute to the relationship and what each can contribute to the relationship. Frequently this process revolves around the client's efforts to test the competence, expectations, and loyalty of the service worker before revealing to the worker what the client perceives to be the real nature of the client's problem. For example, does the physician expect the patient to make a change in life style? Does the client expect the management consultant to take responsibility for solving major organizational problems? At other times this testing may involve the worker's efforts to ascertain whether the client is prepared to accept the efforts of the worker in good faith. For example, is the client seriously committed to acting on a decision reached by the worker and the client, or is the client "shopping around" among workers or only passing time?

After a period of comparing and testing assumptions about the purpose of the relationship, participants may gradually come to some consensus about the purpose of the relationship--norming. They may finally settle on some description of the problem which they are to solve together. The storming process may have led participants in the relationship to decide that the real problem which they expect the service to solve is not the problem which was presented when the relationship was initiated. The problem which the participants finally settle on as the design

problem for their relationship may truly have been unknown to any participant before they joined a relationship. Persons who have had experience in service relationships may even explicitly anticipate that the design problem will emerge only after much discussion, but they still will not know for certain in advance what the problem will be. In addition, the storming process may simply have permitted them to deal in some way with nonrational interpersonal issues which took priority over the basic problem which the service relationship was formed to solve. For example, a physician may quite cogently explain to a woman why breast surgery would be an essential treatment for cancer, but until the physician and the patient can resolve the patient's ambivalence about listening to the physician and acception the definition of the problem, the patient will not be persuaded to undergo even life-saving surgery. Similarly, a teacher may provide a very logical explanation of the axioms of geometry to students, but if students are still concerned about testing their teacher's competence, they will not be ready to learn and will not hear the teacher.

Finally, once the service worker and the client have agreed on the goals of their relationship, they are ready to begin performing, or working on problem-solutions which will meet those goals. It is important to note, however, that the process of learning to design solutions for human problems is inconsistent and uneven. Some problems may have relatively straightforward solutions once they have been identified. For example, once a physician and a patient have agreed that removal of certain tissue is crucial to the patient's well-being, they may move directly, even if painfully, toward surgery as a solution. Other problems may be more complex and involve a great deal of experimentation, trial and error, and inductive learning. A teacher and a student may agree that it is essential for the student to learn to read, but they may have to experiment with several methods for a long time before the student learns to read. They may have to work their way through a process of testing hypotheses, discovering unseen sub-problems, experimenting with solutions for various sub-problems, learning from these experiments, and so forth.

This uneven process can be described more explicitly. It may involve some regression and progression back and forth through re-norming, re-storming, and re-forming before the problem is solved. Although performing can take place only after some amount of forming, storming, and norming, these processes may not be definitely separable in time. Any particular activity may involve tasks relating to several stages at once.[14] This process may be most clear in a deliberately psychotherapeutic relationship, but it appears to take place in more elaborate or more straightforward form in a wide range of service relationships, regardless of the substantive service area.[15]

This four-stage pattern of development is widespread among small group relationships like those in which services are designed and produced. Apparently participants in these relationships at least subconsciously repeatedly "choose" this pattern because it enables them to deal with both rational and nonrational material that affects the solving of problems within the relationship. This pattern amounts to a tacit model for the designing of services. The frequent "choosing" of this structure for the problem-solving process represents a process in which many participants in diverse task-oriented interpersonal relationships have at least subconsciously developed the same basic model for the design of a service to solve a problem.

If this model of development were made explicit as a model for a service design process, it would have the following steps:

(1) designing the design group (forming);
(2) designing the conflict over the design problem which the design group will work on (storming);
(3) designing the design problem (norming);
(4) designing the design (performing), including being willing to experiment with designs, experiment with re-designing the problem, experiment with re-designing the conflict over the design problem, and experiment with re-designing the design group, all experiments being made with the purpose of learning how to design the design.

THE ROLE OF THE SERVICE DESIGN MODEL IN PRACTICE

It appears that two design models influence a service design process. The model just described is drawn inductively from empirically observed problem-solving relationships. Evidence suggests that, at least on a subconscious level, this model actually governs the process of problem-solving in a great number of service relationships. Yet this model is rarely presented by either service workers or clients as the process which they would like to follow or the process which they believe they actually follow.[16]

Insofar as either service workers or clients offer any model for the service design process, the model usually resembles the engineering model more than the service model just described. At the least, the engineering model, probably because of its reputed effectiveness in designing goods, is considered an ideal for design generally, whether goods or services are involved. In addition, both the professional training and the conditions of practice for most service workers reinforces a tendency to follow the engineering design model.

A primary concern of the service worker as a professional problem-solver is to reassure the client that the service worker can provide a solution for any problem. Professional training provides service workers with a repertoire of techniques which in the past have provided solutions for clients' problems. The service worker's ability to perform these techniques is a basic requirement to support any claims to professional status. The professional service worker, then, brings into practice a number of tested solutions which he or she will attempt to match with problems which clients will present. Over time, service workers, in order to accommodate their own and clients' desires for the worker to contribute to the solution of problems, tend to select a clientele with whom their repertoire of techniques and personal styles will "work."[17]

Two aspects of these conditions of practice reinforce a tendency for the service worker to seek to follow the engineering design model. First, the widespread cultural supports for this model make it the most persuasive way in which the service worker can present to the client the procedures which the worker will follow. After all, it is a tested engineering method, and no clients want to believe that there is any uncertainty about whether his or her problem will be solved. Second, insofar as the service worker has taken some care in selecting a clientele with whom his or her repertoire of techniques will bring satisfaction, going through the engineering design process with the client will "succeed," in

providing the client with satisfaction. The degree to which the process and the techniques carried out are effective in solving the client's problem will depend on the skill and sensitivity of the service worker and the client.

Thus service workers' and clients' belief in the normative value of the engineering design model leads them to attempt to follow it in service relationships. However, empirical study of temporary problem-solving systems suggests that, at least on a subconscious level, the relationship between service worker and client is governed by the service design model just described. The way in which service design actually proceeds probably represents a syncretism of the two models, in which the conscious engineering ideal is subconsciously adapted to carry out the tasks required in the service model described here.[18]

IMPLICATIONS OF THE SERVICE DESIGN MODEL FOR DESIGNING SOCIAL POLICY

The prevalence of the tacit four-stage design model implies that service relationships will be effective in problem-solving to the degree that they explicitly acknowledge and accommodate participants' needs to accomplish certain interpersonal--and nonrational--tasks in the process of designing services. The remainder of this article examines the requirements of a social policy for services which would provide the resources necessary for the service design model to be followed in diverse settings. The model is illustrated with examples from health care.

Elaborating the Service Design Model

The first step in developing principles for a service policy involves elaborating the service design model and incorporating it into settings where services are produced. To begin with, it is necessary to translate the general description of stages to be followed in designing services into specific practices which may be carried out in particular service settings. What it means to design the design group, for example, is likely to be significantly different in elementary education, city planning, and emergency medical care. Similarly, the range of available problem definitions may differ greatly, for example, in accounting, employment counseling, and architecture. Workers and clients will need to identify specific procedures which correspond to the general service design principles in particular settings.

Further, both designing these new procedures and carrying them out--designing the design, or the solution for the problem--will require the development of new techniques, skills, and ways of thinking. Service workers and clients will need to appreciate the importance of following the service design model in order to design the services which they want. In addition, they will need intellectual, emotional, and interpersonal skills for working through the design process productively. General education should include training in these areas, where students now learn only the engineering design model.

It will be necessary to identify the characteristics of a service design setting which will be most conducive to carrying out the design process creatively. Above all, the setting should permit learning--about who should be involved in the design process, about the nature of the problem, and about possible solutions for the problem. The setting should bring together a wide range of skills. The setting

should permit flexibility in designing the design group, designing the problem, and in designing solutions. These general requirements must be translated into specific arrangements in specific areas. For instance, the range of skills necessary to design a service is certain to be different in architecture and in social work. In each case, service workers and clients together should identify the crucial characteristics of the work setting.[19]

The contrast between this service design model and the engineering design model may be illustrated in the health care field. Most traditional medical care follows the industrial, or engineering, model of design. First, it is usually taken for granted that the physician will be the sole designer, or decision-maker, regarding the problem and its solution. Commonly, a physician meeting a client uses established medical criteria for clinical decision-making to define the client's problem. The client is asked for information to help the physician define the problem, but the client is not invited to participate in defining his or her problem. The client's participation is not considered necessary, since all clients are considered to be similar in relevant--that is, medical--respects, and medical criteria are considered sufficient for defining any client's problem. The use of medical criteria for defining a client's problem leads to definitions of the problem in terms of medical injury or illness. These criteria tend to exclude social or psychological definitions, just as they tend to minimize the possibility that the physician will find no problem.

Once having defined the client's problem, the physician, as sole designer, examines his or her techniques and prescribes a treatment, or solution, in terms of one or more of these techniques. The physician is likely to take an accounting of his or her techniques before making a final judgment about the definition of the client's problem. In this way, the problem is likely to be defined in terms which permit the physician's self-perceived expertise to constitute the solution. Further, these treatment techniques are likely to involve the physician acting on the client, who receives treatment without participating actively in either the selection or the implementation of the presumed solution for his or her problem. The physician's selection of a solution from available techniques is considered appropriate on the assumption that any technique is expected to have an identical effect on every client. Throughout, the physician tends to follow a model of independent practice, in which he or she makes decisions about design of the service without consulting either the client or other health care practitioners.[20] Dentists, optometrists, nurses, and other health care practitioners tend to follow a similar model of design, or problem-solving, with differences residing primarily in their power to act autonomously from other practitioners.

In contrast with this industrial, or engineering, model of design in health care, the service model is in use in a small number of primary health case settings (for example, Beckhard, 1972; Beloff and Weinerman, 1967; Golden, Carlson, and Harris, 1973; Hollister, Kramer, and Bellin, 1974; Levy, 1966; Parker, 1977; and Stitt, 1967). In these settings, the identity of the designer is not pre-determined, except that it is understood that the "designer" will comprise the client and one or more health care practitioners. In primary care, the "service worker" is usually not an individual but a team, commonly consisting of a physician, a nurse, a social worker, and perhaps a nurse-practitioner, a psychologist, or allied health practitioners. When someone enters a primary care center with a problem, one worker talks

with the client and comes to a decision about which specific practitioners would be most appropriate to work with the client in formulating and solving the client's problem. In this consultation the intake worker may be able to make a specific assessment of the nature of the client's problem, or the worker may make the judgment that the problem lies generally within the expertise of the team of workers whom the intake worker designates. For example, if the problem is assessed as a serious medical problem, the "designer," or health care team, may be constituted of a physician with appropriate collaborators, working with the client. If the medical problem is considered to have social or psychological concomitants, the active health team may include a psychologist, a nurse, a social worker, or some combination of these practitioners as their skills would suggest. If the problem is initially assessed as a relatively simple medical problem or as a problem requiring social interventions, the health care team may not include a physician but may be constituted of a nurse, a social worker, and the client. The team then works with the client in resolving questions about responsibilities, making a final definition of the problem, in designing a treatment which may solve the problem, and in implementing that treatment.

This arrangement combines a diversity of skills and resources with flexibility in the manner in which they are brought together in the design process. Expertise on call at the center includes different types of technical specializations, as well as different types of psychological, interpersonal, and social skills. This range of resources permits several types of flexibility. First, it is possible to make an open choice about the composition of the designer on the basis of the client's problems. In addition, it becomes possible to allocate different roles on the design team--for example, leadership in clinical decision-making, team management, or primary contact with the client--to workers with different skills. Further, this range of expertise permits greater discretion in defining the client's problem. Finally, the diversity of skills supports greater freedom in designing a solution for the client's problem.

It is essential to note that, although this example is drawn from the field of health care, neither the appropriateness nor the possibility of this type of flexibility is restricted to this field. This approach is no less applicable in such fields as social work, city planning, or, even, engineering.

Identifying System Policy Characteristics

Once the components of the service design model have been elaborated in a number of settings, generalizations can be drawn from these examples to identify the characteristics of a policy which would be necessary to govern a system of resources which could support the requirements of specific service design settings. In thinking here about a social policy for services, it is helpful to return to earlier discussion of differences between the production of goods and the production of services. For goods the production process is separated conceptually, temporally, and organizationally from the design process. The workers who produce goods receive a design for their product from other workers who have developed the design. There is no need for personal contact between producers and designers. Because the major uncertainty confronting designers concerns their ability to solve probelms within the bounds of uniform laws of nature, the design process may be centralized. In practice, the uneven distribution of raw materials,

the uneven distribution of markets for goods, as well as administrative problems in managing large production centers, lead to various amounts of decentralization in different industries. Yet, however production is organized, production workers in each location will follow a standard design and will require a standard set of skills and resources, which they will combine in standard production procedures.

In the production of services the production process is conceptually, temporally, and organizationally joined to the design process. Services which are appropriate to clients' needs can only be designed on the "production line." The persons who produce a service are the same persons who have designed the service.[21] Insofar as services must be unique to fit the unique circumstances of clients, their production must be decentralized as widely as clients are dispersed. Because service designers participate in the production of services, and because the major uncertainty in the design of services stems from the unique characteristics of each client, service design must also be decentralized.

The basic difference in principle between a policy for the design of goods and a policy for the design of services, then, is that a goods policy may be centralized and uniform, whereas a services policy must be pluralistic and decentalized. In past practice, however, service policies have been much like goods policies: centralized and uniform. One reason for this concerns the financing of services. Central governmental units or large corporate enterprises have financed many of the services. Taking a lesson from the mass production of goods, these units have operated on the premise that uniform central policy will lead to the most efficient use of resources. Efficiency, it has been assumed, leads to cost-effectiveness. This assumption is crucial in a sector where production is highly labor-intensive and, consequently, each unit of output is relatively expensive. For these units a uniform service policy facilitates both performance monitoring and cost-accounting. A second reason for the development of uniform central service policies concerns the professionalization of service workers. In many service areas workers with particular skills have organized to claim exclusive expertise and exclusive authority to practice problem-solving. Insofar as they are successful in gaining monopolistic control over practice in specific service areas, then the techniques which they wield and the resources which they use become identified in people's thinking as the only "proper" solutions for problems in these areas. This view is supported by the expectation derived from the production of goods that, in fact, any problem may have only a single or a narrowly defined solution. As an example, problems in the broad area of health become associated with the limited repertoire of "solutions" which the medical profession can offer.

Current national service policy reflects these influences. Service legislation and program guidelines are uniform and generally not sensitive to even regional differences in conditions.[22] Such policies leave relatively little discretion to service workers and clients who enter into service relationships far from the site of policy-making. Yet, if the evidence of temporary problem-solving systems is valid, this kind of uniform central policy places real limits on the effectiveness of services. Efficiency may be realized at the cost of effectiveness. If service policy-makers have a commitment to designing service systems which effectively solve clients' problems, then they need to consider principles for a system in which service design is pluralistic and decentralized. Principles for the design of such a policy would include the following.

Principles for a Service Policy

Fundamentally, service design settings should include a diversity of human skills and tangible resources, so that service workers and clients may make use of whatever skills or resources they believe would help them to define or solve the clients' problems. This requirement contrasts with present policies which, following an industrial design model, provide a narrow range of skills and resources for service settings. The settings should be located in such a way as to maximize geographic, economic, cultural, and communicational access of potential clients to service relationships. Policy-makers presently reflect concerns from the marketing of goods by looking primarily at geographic or economic access. This requirement of broad accessibility implies that an effective service system will have to support a greater pluralism of settings than at present. In practice, many clients' problems will be similar, and the skills and resources required to work on them will be similar. This does not mean that a narrow range of skills and resources will be required. Rather, experience suggests that a common relatively wide range of skills and resources may be appropriate for many problems. The necessary variety of settings will be limited.

It is important that skills and resources can be flexibly combined as needed in any particular service relationship. This means, first, that a large pool of skills should be potentially available for any service relationship. This pool should include skills which are relatively specialized and skills which are infrequently used. In addition, it should be possible to combine any of the skills in the pool in any service relationship. These requirements contrast with present policies which draw sharp boundaries between "problem areas" and narrowly define the skills and other resources to be used to deal with problems in each "area." These divisions, which may be appropriate in the mass production of variously differentiated goods aimed at different parts of "consumers," are inappropriate for the production of services designed to treat human problems reflecting the actions of whole personal systems. Each problem may be in some way unique and may require some peculiar combination of skills for its resolution. Relatively specialized, infrequently used skills may be made available to a large number of service relationships by organizing workers with these skills into "pools of competence."[23] The competence pools would be home bases for specialized service workers, and individual members could be brought into particular service relationships when their skills were instrumental. The cost and relative scarcity of these skills may require a certain amount of centralization, but what is important is to get the skills from centers into service relationships as easily as possible.

Both the accessibility of skills and the flexibility of their combination should be supported by educational programs which prepare service workers to use a wide range of skills and to work in teams with others similarly trained. The implementation of any service policy rests in the actions of the service workers.[24] This requirement contrasts with present occupational training policies which concentrate on developing relative specialists who work with minimal active collaboration. Service workers must understand the service design model, must be able to work in interdisciplinary service teams, and must be willing to acknowledge limitations in their personal expertise.

The contrast between these service policy principles and the use of industrial principles for policy design may be illustrated in the health care field. Most current health policy is characterized by principles of industrial specialization. First, federal health policy has tended to set forth at the beginning a list of problems to be used for defining the problem when a client appears before a service worker. Federal research programs, promoted by medical practitioners and institutionalized by the National Institutes of Health, focus on specific disease entities. Each disease is examined in isolation from other diseases. Moreover, most of the research is biomedical research, which examines physiological or anatomical issues in isolation from the social, psychological, and environmental conditions of the persons who may contract diseases. Further, this view of health problems tends to preclude social definitions of health problems. Finally, this focus on disease entities as health problems minimizes attention to organizational issues, such as those related to designing or managing health care systems.[25] Thus federal policy strongly tends to limit definitions of clients' problems which will be used when clients present themselves to health care workers.

Further, the training of health manpower, the designers of problems and the designs which will solve clients' problems, reinforces this tendency. Health care practitioners--for example, physicians, nurses, social workers, pharmacists, and dentists--are each educated in separate programs. Each type of program receives federal support from a distinct funding source, and each program responds to distinct standards set by separate certifying and licensing boards.[26] This separation in education has several effects. First, graduates from a program in a particular field emerge as more or less uniform products. For example, most physicians resemble other physicians in their diagnostic orientation and skills, and they are likely to take pains to distinguish themselves from nurses. In addition, this separation produces practitioners who focus on specialized problems and who work in intellectual, if not social, isolation from other practitioners who focus on different problems. Consequently, any group of practitioners is likely to permit a narrow range of definitions of designers, problems, and potential solutioans for problems. Moreover, the practitioners are unlikely to be inclined to collaborate with other practitioners who could, with them, offer a broader range of possible problem-definitions, skills and designs of solutions. Thus a combination of federal policy and the political actions of health care occupations tends to restrict the range of designers, problems, and designs which will be available in working on health problems.

A service policy which conformed to the principles set forth in this article would contrast with this current pattent of policy in a number of significant ways. First, the variety of definitions of problems which could be knowledgably applied to clients' problems should be expanded by a restructuring of national research priorities. Biomedical research should be supplemented by sociomedical research. Health research should respond and correspond to trends in problems experienced and described by clients coming to health care workers. For example, research on cancer should be reoriented from studies of animals' responses to injections of foreign substances to studies of people's responses to repeated contacts with occupational and environmental health hazards. Mental health research should be reoriented from studies of the chemical reactions associated with psychiatric diagnoses to studies of personal stress reactions to poverty, the work environment, and the social environment. Expertise about a wider range of problems would

permit greater choice for health care workers and clients in defining problems and in selecting designs of possible solutions for problems.

In addition, the education of designers, health care practitioners, should be reformed to increase the skills available and the flexibility with which these may be applied to problems. The small number of primary care programs, most of which receive some amount of federal support, offer a suggestion of an alternative model of practitioner education. In these programs physicians, nurses, sometimes dentists, sometimes pharmacists, sometimes nurse-practitioners, and sometimes social workers train together. At present, concerns about maintaining separate professional identities tend to limit the amount of course work which is done collectively, the readiness of workers to collaborate with one another, and the democracy of decision-making about problems and designs for their solution. In addition, these programs tend to be inter-professional within a biomedical view of health problems, and the influence of practitioners with psychological or social expertise tends to be limited.

In order to implement the spirit of these primary care programs, in order to increase the availability of skills and the flexibility with which they are combined, the following reforms are essential. The education of health care workers should focus on clients and their experienced problems, rather than on either discrete disease entities or on distinct practitioner turfs. This change would require current health practitioners to reconsider their traditional division of expertise and to redefine their skills and responsibilities. While practitioners might retain different labels as indications of differences in expertise, more common classroom study and clinical training would permit greater intellectual and practical collaboration in working with clients. This education should include not only cognitive skills and knowledge, but also interpersonal and organizational skills, enabling practitioners to define and carry out collaborative roles with others as part of a problem-solving team. These skills should include the ability to assess which skills are appropriate for different problems and who should be included in the active team when different problems need to be solved (for example, Golden, 1975 and 1976; Parker, 1972; Rosoff, 1978).[27] These changes in the education of health care workers should be accompanied by a revision of state licensure laws in order to permit health workers to use any of their skills in situations where the skills are needed.[28]

Further, national, state, and local changes in the organization of health care services should be made to improve clients' access to this increased range of skills. Current proposals to organize health care services within local regions according to the "levels of care" which they provide (for example, Parker, 1977; Roemer, et al., 1975) provide useful models. In these models, workers who can respond to the range of most commonly presented problems would be most numerous and most widely dispersed. The geographic dispersion of these primary care facilities would also permit localization of variations in skills needed to respond to problems which are common only in certain areas. These settings should include not only medical, but also psychological and social services, or they should have clear working relationships with other practitioners providing any of these services. Workers with less frequently utilized and more specialized skills would be less numerous and more centralized. These are the pools of specialized competence from which skills and resources may be drawn by local service organizations on the relatively infrequent occasions when they need such resources.

Supporters of this model have sometimes used it to streamline the channeling of clients into more specialized services, but the model does provide a basis for developing a pluralistic system in which relatively few clients come into contact with "levels of care" beyond the simplest necessary.

Implementation of such a model would require strong public political and financial support for a variety of primary care settings. Implementation would require persuasion of facilities providing more complex skills and resources to accept referrals from primary care facilities only after workers and clients there have assessed the clients' problems and considered designs for solutions. Several alternative strategies implementing this model have been proposed. One strategy favors the creation of more competition among service workers and facilities, on the premise that clients can acquire the information to make intelligent choices among workers (for example, National Academy of Sciences, 1974). This strategy is sometimes discussed in connection with proposed antitrust action against organized medicine, in order to make competition possible (for example, Havighurst, 1974 and 1975). Coordination of the system of workers and facilities might still be necessary by an external agency. Another strategy favors the creation of a national health service which would be built on decentralized decision-making about education of practitioners and provision of services (for example, "The Health Service Act," 1979).

As with the elaboration of the service design model, it is important to emphasize here that, although these examples refer to the health field, they have reasonable counterparts in other service areas as well.

Any service policy must facilitate communication among service settings to permit the learning necessary to improve service design. Program monitoring and evaluation must be designed not simply to keep accounts and establish records of past efforts. Information must be collected in a form which enables service workers and clients to learn from past and current service design efforts. Service workers should be able to learn about innovative practices which have worked in other settings. Similarly, failures, regardless of any attendant misfortune or embarrassment, should be publicized in such a way that service workers and clients may learn to avoid actions which are not likely to solve problems. This kind of communication may require central organizational support to connect different service settings, but it should not have such central control over communication that useful information does not move. Deciding which information will help other service settings learn to design services will itself be a product of learning.

It is possible that these principles for the design of services may lead toward a rise in the cost of services, but that outcome is not a certainty. Improvement in quality control measures should make it easier to determine whether a particular expenditure is contributing to the solution of a client's problem. The actual cost of services will depend on the productivity of service workers and clients together. This collaboration, in turn, is likely to make possible levels of outcomes which the traditional organization of services would not have permitted, regardless of the costs invested. These seem to be the basic challenges for developing policy for a society where an increasing proportion of the population are involved in the production of services. After all this is said, what is done will depend on the commitment of citizens to learning to improve the quality of services produced and the quality of their lives.

NOTES

1. This transformation can be observed in the recent history of the American economy. Two possible distinctions may be drawn between goods-producing workers and services-producing workers. The first, a sectoral definition, would distringuish workers by the products of their employers, regardless of what the individual workers themselves may do. Such a definition indicates that, whereas in 1900 68 per cent of workers were employed in goods production and 32 per cent in service production, by 1947 the proportions were approximately even, and in 1979 the proportions were reversed: 68 per cent were employed in service production and 32 per cent in goods production. An occupational definition would distinguish workers by their individual products, regardless of what their employers may ultimately produce. Such a definition indicates that, whereas in 1900 36 per cent of workers were occupied in producing goods (manual workers), 38 per cent of workers were occupied in farm work, and 27 per cent were occupied in producing services (white-collar and other service workers), by 1960 service producers made up more than half the labor force, and in 1979 the proportions were distinctly reversed: 64 per cent of workers were occupied in producing services, 33 per cent were occupied in producing goods, and 3 per cent were occupied in farm work (Bell, 1972, p. 168; Monthly Labor Review, 1980, pp. 65, 69, 70; Reich, 1972, p. 178). Although the two definitions do not count exactly the same workers, the trends they record are similar and pronounced. For more extensive discussion of these trends see Bell (1973), Fuchs (1966 and 1968), and Kleinberg (1973).
2. This is the conventional view of goods. One might actually argue quite differently that the article which is placed on the shelf is not the completed good, that the completion of the good requires some person to take the article and incorporate it in some way into his or her life. The ultimate nature of the good, then, would be the way in which it is used in someone's life. Further, the good could never be considered fully completed or its nature finally defined, insofar as its use and meaning for the user would vary from time to time. The employment of interior decorators and similar consultants indicates people's endorsement of this latter view.
3. Indeed, the problem-solving element of the service may continue even after direct personal contact has ceased, insofar as the client(s) may have internalized parts of the service worker(s) in the relationship. This frequently occurs in consulting, counseling, and healing.
4. However, the conditions under which workers follow technical rules are shaped by social norms set formally by labor-management negotiations or by management decree or informally by members of a work group.
5. In an ideal form this is a fully democratic or egalitarian relationship. However, this does not mean that all participants may not recognize that the service worker has special expertise and skills which should be taken into account in producing the service. Moreover, in certain service relationships, such as surgery, it is quite appropriate for the service worker at specific times to take an active role while the client assumes a passive role. What is crucial is that the service relationship represent a contractual arrangement freely entered into by both service worker and client.

6. Further, ideally, the client should initiate the service relationship. This condition implies that the service relationship is established to seek a solution for a problem perceived and experienced by the client, not the service worker. This requirement would minimize the instances in which a service worker initiates a relationship to deal with "problems" of deviance not experienced by clients. Exceptions to this condition may be reasonable if someone is demonstrably not competent to assess his or her interests or if someone represents a clear threat to the well-being of others.
7. In the literature on the evaluation of service programs, a distinction is customarily drawn between a process evaluation and an outcome evaluation (for example, Attkisson, Hargreaves, Horowitz, and Sorensen, 1978). There are two reasons for this dual focus. First, in the production of both goods and services, there is an instrumental relationship between acts in the process of production and subsequent products, and in both cases a monitoring of these instrumental acts can provide information about the likely quality of latter products. However, in the case of services, the relationship between acts in the process of production and end products is more conditional and varied than in the case of goods, and a closer monitoring of the production process is necessary for anticipating the quality of end products. Second, in the case of services, unlike that of goods, the actions in the process of production are part of the product. In this sense, a distinction between process and outcome is an artificial distinction carried over from the process of producing goods, and the distinction retains meaning primarily of a chronological kind. Conventions in the service program evaluation literature tend to mimic the goods production process by defining "process" measures in terms of specified actions of service workers and defining "outcome" measures in terms of specified conditions of clients. For reasons given in the preceding analysis, this approach to evaluating services misrepresents the process and the purpose of producing services.
8. More accurately, they involve primarily initial learning about how to produce the product. Although producers of goods are prepared to solve problems which crop up in production, they do not anticipate learning that the design itself should be different. The design was settled on in the design process, prior to production.
9. Clearly, the temporal lag between an image of a problem solution and action to create that solution is shorter for "soft" services than for "hard" services, because the former are in some way "contained" in the service worker and client, whereas the latter must normally be acquired from a third party.
10. Sometimes the service worker and client may terminate their relationship after concluding that they cannot solve the problem together.
11. The body of clinical literature carries this message. Two examples at different levels of analysis are illustrative. Laing (1970) has provided an intricate analysis of the complexities of interpersonal relationships and the ways in which nonrational material complicates ostensibly straightforward problems in these relationships. Argyris and Schon (1978) have described and analyzed the ways in which unspoken motives and assumptions hinder problem-solving in large-scale formal organizations.
12. Some examples make this clear. Many traditional services, such as transport, commerce, and finance, may be designed and produced with minimal attention to

interpersonal dynamics, although the merchant or financier who does pay attention may be likely to reap greater gains. Nevertheless, the requirements of the personal transactions involved are simple and easily satisfied. Personal and professional services offer a contrasting example. Counseling may depend crucially on exploring interpersonal material, even if this exploration process takes considerable time. Professional or business consulting may depend on a sensitivity to interpersonal dynamics insofar as they affect the possibility of solving the client's problem qua professional or business problem, but this consulting may be undermined by a focus on depth material called for in psychotherapy. Indeed, Caplan (1964) carefully draws this distinction for professionals considering engaging in mental health consulting. Qua mental health consultants, they are concerned with the client's professional problems, but not in any direct way with the client's personal problems. Medical and other healing relationships may require some attention to nonrational interpersonal dynamics, because altering these may contribute to the healing process. Frank (1963) describes at length the importance of the physician's interpersonal persuasion as a basic component in the healing of the patient. Legal, architectural, and engineering consulting relationships may require attention to interpersonal dynamics to the extent that the service worker and client can trust and understand each other sufficiently to work on a problem which refers principally to matters outside their relationship.

13. This formulation does not include termination, or, to be consistent, unforming. Any service relationship, clearly, must come to an end. For other formulations of atages of group development, see Bernstein (1965).
14. Perlman (1957), who pioneered a problem-solving model for social casework, has made this observation about worker-client learning in the casework relationship:

    > Problem-solving implies that both the caseworker and his client are simultaneously and consciously, though differently, engaged in problem-solving from the first. In problem-solving activity there is no implication that treatment [designing the design] waits on study [exploring facts] and diagnosis [designing the problem]. Rather, the client's adaptive mechanisms are involved from the beginning in working upon the difficulty he has brought. Fact-finding jointly with the client may in itself be an operation which clears and orders his perceptions. The client's sharing and working-over of his feelings, and the impetus of help given him to know and think about his attitudes, behavior, needs, and goals, are in themselves an experience and exercise of adaptation (pp. 61-62).

15. For example, Schmuck and Schmuck (1975) have described in considerable detail the ways in which nonrational interpersonal processes penetrate and influence the "rational" process of teaching in a classroom.
16. Social workers, for example, may be more likely to identify or espouse this model than many other service workers. Accountants, planners, and engineers, on the other hand, may be the firmest believers in the validity of the engineering model.
17. Freidson (1970) indicates that with physicians, for example, this process of selecting a clientele with whom the practitioner can expect to be consistently "successful" is more or less conscious. He argues that the conditions of

professional practice, where the service worker is expected to produce a solution for a problem, lead most workers to select clientele and working conditions where they stand the best change of providing services which are acceptable to clients.

18. The relationship between the engineering model and the service model may be conceptualized in terms of Argyris and Schon's (1974) distinction between "espoused theory" and "theory-in-use." The former consists of public descriptions of practice, whereas the latter involves principles which are implicit in actual practice. Although espoused theories may accurately describe theories-in-use, the two frequently conflict. Actors have a tendency to describe their practice in terms which may be more rational, ethical, or consistent than the reality. The best description of the theory or model which governs social activities, Argyris and Schon contend, is one constructed inductively from self-conscious analysis of action by participants in social relationships. In these terms, the engineering model may be characterized as a commonly espoused theory, whereas the theory-in-use in service relationships is strongly influenced by the service model.
19. Michael (1973) has provided general discussion and specific examples of both individual and organizational requirements for learning in problem-solving.
20. This description emphasizes tendencies in physicians' training and practice but, clearly, does not describe all physicians. This characterization draws in part on Freidson (1970).
21. This relationship is characteristic of "soft" services, whereas it may differ somewhat for certain "hard" services. For instance, in the case of food provision the workers who produce the food which solves the client's problem are not the same as the persons who have gone through the problem-solving process of identifying the food as a solution for the client's problem.
22. Noteworthy exceptions are revenue-sharing and block grant programs, although even these programs have had guidelines which have restricted the uses to which federal funds could be put locally.
23. The term is Schon's (1973). He discusses at length the issues raised here.
24. Freidson (1975) has examined physicians' practices to see how social policies are translated into actual service delivery. He has found that the customary behavior of physicians, conditioned by their formal training, has led to the provision of services which differ significantly from those intended in policy statements.
25. There are exceptions to this tendency. For example, some of the research programs of the Alcohol, Drug Abuse, and Mental Health Administration look at sociomedical and social health issues, as well as organizational issues. Some of the research programs of the Health Resources Administration examine organizational issues. Health Systems Agencies are expected to focus on disease entities in assessing the health status of their populations but are also permitted to examine sociomedical and organizational issues. However, HSA's are restricted, as Kennedy and Burlage (1980) show, by the requirement that they concentrate efforts on regulating medical facilities, which correspond more to biomedical disease entities than sociomedical health issues.
26. Feldstein (1977) has incisively described the sociology and politics of this separation of types of health care practitioners.

27. Golden's (1976) analysis of the levels and types of skills required for providing primary care indicates that many tasks traditionally considered within the domain of a single occupational group involve skills accessible to many practitioners.
28. Although licensure laws in certain areas are essential to protect clients from harm by unskilled practitioners, current licensure laws have frequently been drafted to protect practitioners from competition from other practitioners. For example, physicians' opposition to civilian medical practice by former military medics who performed capably on battlefields indicates that considerations of turf may be as important to many service workers as considerations of the skills necessary to provide services to cleints. This issue is discussed by Feldstein (1977).

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