AN ENERGY OSCILLATION MODEL

OF HUMAN PERCEPTION

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Find here, as anywhere, what you will; your search itself is what is real, and therefore cherished.

This is my current summary of inexpressible gifts of love granted me here. Whyever you read this page, and the product to which it pertains, read these pages as artifacts of experience. To the extent that such pages impinge on you, they re-enter the realm of experience.

Only tangentially, perhaps, can anyone know the love and beauty (therefore truth) my cohorts in searching have given me here. Not even tangentially can I thank them on a page. If acknowledgement can be made, it comes in form of my life--time and love.

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CHAPTER I

OVERVIEW OF THE STUDY

Introduction

Recent years have brought an upsurge in the use of formal methods in social science research. Such methods are in a period of particularly rapid development with inclusion of a wide variety of devices and techniques. Formal methods generally have as their subject matter a formal system of relationships abstracted from empirical content (Diesing, 1971, p. 8).

One such formal method is that of model-building: delineation of concepts and relationships in logical and/or graphic form. Model construction can be undertaken as an activity in itself, but is usually most fruitful when engaged in concomitantly with theory-building (Willer, 1967, pp. 9-21).

Development of theory is often touted as an essential stage in research, but in practice is often relegated to a separate and unequal sphere of influence. Such an arbitrary truncation of an essentially continuous process seems unnecessary and quite detrimental to understanding of social phenomena (Diesing, 1971, p. 12).

This study presents a general orientation and develops a specific model of one aspect of an individual's model-building process: the complexity of wholes modeled. Degree of complexity is equivalent to the number of relationships perceived. The mechanism for the model is

oscillation of perceptual energy flow between apparent opposites: simple to complex wholes. This perceptual oscillation is modeled here along a circular quasi-continum, on which the opposites of simplicity and complexity co-exist in varying proportions, and merge at each extreme, as ultimately simple and ultimately complex wholes approach the same limit--a state of existence where all opposites merge and therefore cease to be defined.

Significance of the Study

The process of the present study might have general value because of its emphasis on theory construction as a stage in research, its exploration of model-building as an aspect of theory construction, and its attempt to link theory construction with other stages of research.

Content of this work might also have some general applications. It provides a general theoretical orientation and a specific model for viewing the interaction of an individual with his world. The model provides a tentative explanation for some of the apparent variations among organizational goals and processes globally.

With modifications, the model may be applicable to communities and to other social organizations--formal and informal. It could provide a rationale for more extensive release of human potential within organizations.

The importance of a project can also be assessed personally. This study, and its resultant model, constitute one stage in this writer's quest for meaningful modes of structuring, thereby allowing increased understanding of, interactions between an individual and his world.

Purpose of the Study

The three purposes of this study are:

1. to develop a theoretical base for viewing an individual's assessments of one's own life-processing;

2. to provide an alternative model of an individual's model-building processes without proposing that other models of human conceptualizing be discarded, but rather that additional models can be useful;

3. to indicate the importance of asking individuals to build their own models.

Limitations of the Study

This study is not a comprehensive overview of human conceptualizing, but an alternative view, supported by a selected review of the literature. Sources reviewed were chosen to affirm, to add substance, and to modify the writer's model.

Maslow (1971, p. xx) indicates that the beginning stages of knowledge should not be judged by the criteria derived from final knowledge. The model developed will be tentative rather than definitive. It is not appropriate to test a theoretical model for its empirical validity, though the predictions generated from the model should be testable. This research study focuses on model-construction rather than on collection of data for comparison with predictions. The latter process would constitute a later stage of research. The model itself can be assessed in terms of its structure (internal consistency and simplicity) and its content (fruitfulness in generating predictions).

Definitions

Model

A tentative ideational structure used as a testing device (Morris, 1969, p. 843); an abstract structure, logical and/or graphic, which delineates basic concepts and relationships among those concepts, thereby describing essential structure and/or behavior of a set of phenomena; representation of a Gestalt.

Theory

A system devised to analyze, predict or otherwise explain the nature or behavior of a set of phenomena (Morris, 1970, p. 1335); a systematic explanation of the structure and/or behavior of a set of phenomena, utilizable to analyze and predict those phenomena; conceptualization of a Gestalt. Note: Model-theory relationships are discussed in Chapter II.

Process

A change or a changing in an object or organism in which a consistent quality or direction can be discerned. A process is always in some sense active; something is happening (English and English, 1958, p. 410).

Process Model

Theory or aspect of theory which attempts to develop understanding of relationships among units by focusing on interaction (Dubin, 1969, p. 25; Willer, 1967, pp. 9-21).

Desirable characteristics for process models might include: motion, meta-programming, holism, consciousness, and energy. The characteristics of MOTION portends the inclusion of flow in looking at the elements of the model. In META-PROGRAMMING the implication is for change within the model itself over time. An example is the human's ability to change his program in contrast to a computer's relative inability to transfer learning. Three aspects of HOLISM which seem particularly desirable for models are: (1) tendency to be more continuous than discrete, (2) emphasis on relationships, interactions, rather than elements, and (3) resolution of opposites into coherent wholes. Holism often enters the language as a metaphor; this is consistent with the concept. CONSCIOUSNESS is viewed here as a critical aspect of reality. It can be conceptualized as a level of energy; a state of awareness. Hypothetically, the above characteristics are aspects of energy. ENERGY is the basic unit of experience. It is energy which flows through the perceptual system.

The PERCEPTUAL SYSTEM comprises that filter through which one's experience of the world is refracted. Information (conceptual verities) about it (the world) is created in the organism through its interaction with the world (Illich, 1973, p. 93). The possible range of perceptual alternation between "wholes" and "parts" is referred to herein as a HOLISTIC-PARTICULATE QUASI-CONTINUUM. This quasi-continuum is one sector of a perceptual system.

Perception

Flow of energy; process of impacting and being impacted by environment. All existence is energy, is responsive to other energy flows;

in the sense of being responsive, all that exists perceives.

Consciousness

(Not used here in the usual sense) is perception; all that exists is conscious in the sense of being responsive to, active toward, other impinging energy; includes all states of existing (including those often called sub-, un-, pre-conscious).

Awareness

Intense energy flow; a particularly high range of levels of perception (consciousness).

Organizational Participants

The organizational participants referred to in this study, primarily in Chapters I and IV, include: (1) lower participants, such as employees, customers, members, clients, inmates; (2) organizational representatives, such as those in power positions (Etzioni, 1961, pp. 5; 17).

Basic Assumptions

1. Theoretical research, perhaps even more than other modes of information-seeking, is essentially an exercise in self-affirmation.

2. A theoretical study can consist of a review of supporting sources, exposition of a model, and indications for researching the model.

3. Model-building is one mode of human meaning-making. In the attempt to describe human search for meaning, the writer developed

a theoretical model of human model-building.

4. It is appropriate that the structure of the present study reflect its own process. Assumptions of the model are contained within the model itself on pages 34-35.

Organization of the Study

Procedures of the study correspond to three chapters with a stated purpose for each: (1) an examination of formal model-building; (2) construction of a model fulfilling the criteria selected in this examination; and (3) statement of the implication of model-building by individuals.

Review of the literature is found in each of the chapters of the study. In Chapter II references on formal model-building are stressed. In Chapter III the theoretical model constructed during the study is presented; sources are cited which augment that model. Chapter IV includes references supporting implications for the future.

The emphasis throughout the study was on perceptual processes of the individual more than on processes of his environment, though both are inherent in the model. Exploration of most environmental inputs will be deferred for later study. Such inputs which seem at this point most crucial entry-points to individual processing are indicated in the exposition of the model itself, as described in Chapter III. Utilization of such inputs for release of human potential within organizations, and other organizational implications of the model, will appear as suggestions in Chapter IV.

Since this study focuses on model-building as a process, literature on formal model-building seems pertinent; Chapter II explores that literature.

CHAPTER II

FORMAL MODEL-BUILDING

Introduction

Theorizing is an abstracting, organizing process. It is a facet of any realm of human knowledge, any arena of human endeavor; it is accorded various labels such as: theorizing, abstracting, dealing with basics, generalizing, getting back to absolutes. To some extent each person engages in such organizing processes. Often, however, certain individuals are designated as theorists--charged with being specialists in generalizing. This chapter purports to view some salient aspects of such theorists' work. The view presented here is selective rather than comprehensive, and hypothetical rather than conclusive.

Theorizing is seen here as a process which transcends boundaries of discipline and content. It is a way of organizing experience which is recognizable regardless of the phenomena upon which it is focused. Qualitative differences do exist among theories across fields. This chapter stresses the commonalities which co-exist with any such real and probably important differences.

Model and theory are related concepts. Perusal of the literature on both topics indicates that most writers utilize slightly differing definitions for these two terms; there is also a wide range of described relationships between model and theory. Dubin (1969, p. 9) equates model with theory; Willer (1967, pp. 14-15) and Braithwaite

(1962, p. 224) decry such usage, describing model and theory as distinct entities with functional links aiding in the development of the other. Edman (1971, pp. 9-14) catalogs a number of writers whose varying definitions of theory and model allow them to indicate equally varying distinctions and relationships between the two. It might well be more terminal than germinal for the present study to enter or referee such disputes.

Diesing (1971, pp. 29; 31) indicates the existence of reversible definitions for model/theory, points out that general description of a process need not depend upon label of said process, and suggests that the reader, after reading the description, choose a label. Berger, et al. (1962, pp. 5-6) suggest that relationships between model and theory vary with types of models and stages of theory development. Model and theory are treated here as neither mutually exclusive nor identical; they are in a sense symbols of each other--analogies which are not totally isomorphic. The present study is not concerned with resolving differences among authors' definitions of model and theory as products; focus here is on model-building as process.

Model-building and theory construction are similar processes; they both abstract, organize, and thereby create information. It is assumed here that individuals designated as theorists and those noted as model-builders are either identical or closely associated in their work. The contention here is that the most basic facets of theory development are sufficiently analogous to crucial aspects of model-building for the two processes to be considered intertwined. Literature on both topics shall be drawn upon in the following discussion.

Model-Building Process

Model-building literature abounds with typologies based on model structure and function; selected sources of this ilk appear in the final section of this chapter. Much less has been specifically written regarding the process of model development itself. Literature other than the typologies referred to above usually approaches model-construction from a philosophy of science perspective, rather than regarding it as a behavioral process. Apparently, human model-building, even that done by formalists, has not yet been systematically modeled. Works on creative science and on design have some utility in describing modeling as a process.

Ackoff and Emery (1972, pp. 77-78) suggest that each participant in model-building enters the process with a model consisting of views of the modeling situation as it might affect him. They remind readers that perception, consciousness, remembering and model construction go on simultaneously and interdependently. Some thinkers approach the modeling task aiming for "fundamental novelty" (Gordon, 1961, p. 3) while others prefer to be "applicationists," striving to develop better "gadgets" with particular, limited application (Butler, 1974, interview).

As the modeling task begins, and as it continues, language plays a key role. The language used to develop a theory provides it with a certain range of potentialities; formal method is characterized by use of formal languages such as symbolic logic, mathematics and computer languages (Diesing, 1971, p. 30). As thoughts are translated into verbal symbols, particularly into formal or graphic notation, which has a telegraphic quality, such thoughts become defined, constrained,

compacted into taut, high-energy-content symbols--action-packed, so to speak.

Another way in which the languaging of models is crucial to ideation is in creating novelty of representation (Toulmin, 1953, p. 165). Black (1962, p. 229) notes that models establish meaning for a theoretical structure by introducing a new language, thus talking in a certain way.

Thinking with models has been called "as if" thinking (Willer, 1967, p. 24); a model acts as a metaphoric expression for phenomena which are not directly apprehended. A model goes beyond metaphor into representation of a formal system when it specifies the usage of its expressions (Hutten, 1954, p. 293).

Successful models are constructed to represent isomorphically certain abstracted factors of a set of empirical phenomena. No attempt is made to simulate the surface appearance of the phenomena; models are built to represent basic structure or behavior (Willer, 1967, p. 23).

Some aspects of the modeling task have been stipulated above. In what ways does a successful model-builder grapple with such a task? What approaches, ways of experiencing, seem to be common in such theorizing? Various writers have given tentative response to such questions; several of these views are summarized in the following paragraphs.

A dynamic view of science, regarding it as an activity, has been described also as a heuristic view, emphasizing self-discovery; the heuristic aspect of science emphasizes theory and interconnected conceptual schema that are fruitful for further research; it highlights imaginative and not routine problem-solving (Kerlinger, 1966, pp. 9-11).

Asimov (1972, pp. 4-8; 13; 15) indicates that the human brain's capacity to receive, organize, and store data is far in excess of ordinary requirements of life. Thus the desire to know seems to lead into successive realms of greater etherealization and more efficient occupation of the mind--from knowledge of accomplishing the useful, to knowledge of accomplishing the aesthetic, to "pure" knowledge, just to keep the brain working. An aesthetically-satisfying answer is one with sufficient analogies to what is already known to be comprehensible and plausible. Thinkers collect observations, organize them, and derive a summarizing principle. Useful techniques include abstraction (stripping away nonessentials and considering only those properties necessary to the solution of a problem) and generalization (seeking general solutions for problems with common properties). Asimov cautions that such generalizations are only imperfect representations, and must be revised by exchanges among communities of thinkers. He suggests that the most basic advances in scientific knowledge often spring from the cross-fertilization of knowledge from different specialties.

Cozart (1967, p. 2) maintains that the human mind can create reality. He posits that a system is real when it is internally consistent. To fulfill this requirement it is important to remain grounded in the model-building process itself. Striving to be ever more abstract, more indifferent to the empirical world tends to guard the "sacredness" (intactness) of the model.

In contrast to the three foregoing views, Maslow (1971, pp. 59-71) suggests that production of novel and great works (ideas, art, creative science) results from alternating combinations of apparently opposite processes. He distinguishes between primary (inspirational, innovative)

and secondary (working out, developmental) creativity. Both must be engaged actively, either by an individual or by different members of a cooperating group. The ground rules for the two processes are very different. Secondary creativity, to which Maslow ascribes credit for most scientific accomplishment, stresses rationality, conventional order, hard-earned skills and experience. Primary creativeness, however, flourishes in the absence of such restraints. Maslow's paradigm for primary creativity posits moments of blissful revelation. As a process, primary creativity possesses multiple characteristics:

1. giving up the historical past and future--immersion in the present
2. perceptual innocence
3. narrowing of consciousness to the matter-in-hand
4. loss of ego, self-forgetfulness
5. disappearance of fears
6. lessening of defenses and inhibitions
7. strength and courage
8. uncritical acceptance
9. trust--rather than trying, controlling, striving
10. Taoistic receptivity (humility, deference, non-interference, joy in flow of events, ideas)
11. integration (systemic wholeness, acting as totally unified being)
12. permission to dip into primary process (poetic, mystic, primitive, childlike)
13. aesthetic perceiving (savoring richness of detail)
14. fullest spontaneity
15. fullest expressiveness of uniqueness
16. fusion of the person with his world

Creative models, products, problem solutions, and research into the creative process have been produced by invention/research groups working under the auspices of Synectics, Inc. of Cambridge, Massachusetts. Gordon (1961, pp. 34-54) notes that early concern with creative processes led to development of operational mechanisms for facilitating group model-building. The creative processes were identified as those of intuition, deferment, empathy, play, use of irrelevance, involvement and detachment. The basic Synectics process involves:

1. making the strange familiar (understanding the problem in rational, conventional terms)

2. making the familiar strange through four metaphorical mechanisms:

   a. Personal Analogy--personal identification with elements of a problem

   b. Direct Analogy--comparisons from other fields; biology has been the richest source for this with its non-mystifying terminology and its life-implying organic aspect

   c. Symbolic Analogy--use of objective and impersonal images

   d. Fantasy Analogy (wish-fulfillment)--this process is often used as a bridge between problem-stating and problem-solving stages

Summarizing findings relevant to the process of creative design, Harrisberger (1966, p. 41; 54) reports a recurring sequence:

Preparation--defining the situation

Search--seeking ideas, mulling the facts

Frustration and illumination--ideation, mental struggle

Evaluation and execution--choosing the way and communicating

During the preceding sequence, the creative thinker experiences plastic perception: being highly associative and non-conventional, logging tremendous variety of relationships, mixing stored knowledge freely. Harrisberger points out that the subconscious, computing phase of idea-getting is least understood. Intervention in the design process has occurred more systematically at the stage-setting phase, involving techniques similar to those cited on the previous page by Gordon.

Due to the complexity of human phenomena, Blalock (1969, pp. 6; 8) sees for the theorist no alternative to the processes of abstraction, omission of details, analysis and synthesis. The actual process of theory-building is fluid and always involves an inductive effort. One formulates a theory, formalizes it in order to spell out its implications, checks the implications against new data and modifies the theory.

A similar sequence of procedural steps for formal methods is set out by Diesing (1971, pp. 8-9):

1. Set up baseline model (minimum set of postulates and definitions); use implicit logical structure OR divide a process into obvious parts and state relationships between those parts.

2. Deduce the inherent dynamics of the system (model).

3. Interpret the model.

4. Criticize and correct initial model.

Clearly, none of the preceding views indicate a model-building process in which closure is inherent. Halts in model construction usually occur rather arbitrarily in terms of the process itself, brought about by exogenous variables such as external deadlines and other life demands. Those stages ultimately occur at which the modeling process crystallizes into model structure.

Model Structure

Initially, a few statements regarding model structure in general can be cited here. Following these, attention will be given to model structure criteria suggested for various types of models which involves the above-promised glance at some sample typologies. Finally, the model structure chosen for this study will be summarized, and relevant criteria for assessment of such structure will be stated. Isomorphism will naturally appear between statements describing modeling process and those stipulating the structure which results from that process.

Dubin has analyzed theory-building, indicating crucial aspects of models by including: UNITS (the things out of which theories are built); LAWS OF INTERACTION (linkages among units of a model); BOUNDARIES (a theoretical model is said to be bounded when the limiting values on the units of the model are known); SYSTEM STATES (defined by three features: (1) all units of the system have characteristic values, (2) the characteristic values of all units are determinant and (3) this constellation of unit values persists through time); PROPOSITIONS (truth statements about a model which are fully specified in its units, laws of interaction, boundary and system states).

Dubin has further emphasized empirical indicators and hypotheses in relation to model-testing after initial theory construction has occurred. A model will stand for a closed system from which are generated predictions about the nature of man's world--predictions that, when made, must be open to some kind of empirical test (Dubin, 1969, pp. 1-12). Another useful theory model consists of a set of interrelated constructs (concepts), definitions and propositions that presents a systematic view of phenomena by specifying relations among

variables, with the purpose of explaining and predicting the phenomena (Kerlinger, 1966, pp. 9-11).

For Willer (1967, pp. 10; 13) a model (conceptualization of a group of phenomena) furnishes the terms and relations (propositions) for a formal system. The model must have internal consistency.

Hypotheses are generated as a formal system of propositions and as a system of operational definitions (Blalock, 1969, p. 10; Diesing, 1971, p. 29). An axiomatic model structure contains two types of propositions, according to the above two authors: AXIOMS, which are assumed true and must be mutually consistent, and THEOREMS, which are deduced from axioms.

Models consist of images and concepts usually easier to manipulate than is reality. Models are usually simpler than reality (Ackoff and Emery, 1972, p. 79).

Three types of social science models are designated by Berger, et al. (1962, pp. 102-108):

1. Explicational - purports to explicate a concept, usually one which is central to an existing theory applicable to a wide range of important social institutions; in such cases the explication is constrained to closely coordinate concepts with the substantive theory.

2. Representational - purports to represent, precisely describe, some rather specific social phenomenon; must meet criteria of simplicity (small number of underived quantities) and adequacy (degree of fit with observed data); not necessarily related to theory.

3. Theoretical-construct - purports to formalize an explanatory theory; must meet criteria of simplicity, adequacy, and an adequate representation of the substantive theory involved; permits the theorist to predict the observed process in a wide variety of experimental situations.

These model types depend upon the research goal and the state of knowledge about a given problem.

A second model typology is that of Willer (1967, pp. 28-29):

1. Analogue - allowing a simpler and better known set of properties to stand for those of the phenomena studies; must be isomorphic with important properties of phenomena; employs unambiguous and effective but rigid mechanisms; proper application of analogue model results in its transformation to one of the other two types.

2. Iconic - directly resembling properties of phenomena with transformation in scale or emphasis; applicability of mechanism varies inversely with level of abstraction.

3. Symbolic - allowing a set of connected concepts to symbolize a set of phenomena; since mechanism consists of relations among concepts, greater abstraction from phenomena does not weaken model.

Causal models are an interest of Ando et al. (1963, p. 7). These authors resolve the issue of causality in explanations by stating that the relationship between two variables in a model is sometimes asymmetrical; asymmetry can be due to time sequencing but is not limited to that; such relationships can be described as causal.

In dealing with analytical models in the study of social systems, Hagen (1962, pp. 506-509) lists some considerations regarding model structure:

1. An analytical model is defined by defining the elements and their interrelations.

2. The variables of a system must exist either in conceptually measurable amounts or in definable states.

3. A system which is interacting with its environment is an open system; analysis often requires that the impact of environment be held constant.

4. 5. It is often useful to construct a model which is in equilibrium, and in stable rather than unstable equilibrium; it is also fruitful to study a system not in equilibrium, if interested in change sequences.

6. When a system moves to a new position of equilibrium, not all variables necessarily change in value; this condition is termed homeostasis.

Forrester (1961, pp. 49; 53-56) attempts to categorize all possible models, using dichotomies: abstract-physical, dynamic-static, nonlinear-linear, unstable-stable, steady-transient. He suggests that realistic representation of social system behavior often requires models which are: abstract, dynamic, nonlinear, stable, and transient. Social systems, he postulates, are strongly characterized by their closed-loop (information-feedback) structure. Forrester proposes that a model should be judged by its ability to reproduce or to predict the behavior characteristics of a system--stability, oscillation, growth, average periods between peaks, general time relationships between changing variables, and tendency to amplify or attenuate externally imposed disturbances.

The model structure to be applied to human model-building process for this study consists of three main parts. These parts are:

1. Representation - metaphoric description of concepts; relationships among concepts

2. Interpretation - nominal definitions for concepts; definitions and propositions for relationships with some of the propositions being assumptions and others being deduced from the assumptions

3. Prediction - operational definitions for concepts, stipulation of relationships (system behavior) expected to occur

The three model structure components for the study are presented in the Metaphoric and Theoretical Model sections of Chapter III. General conditions for possible future formalization are stipulated in the "Further Formalization of the Model" portion of Chapter III. The final portion of Chapter III consists of a brief case study in the author's own model-building which contributed to generation of the theoretical model.

Appropriate criteria for current assessment of the model presented in Chapter III include: internal consistency, generation of testable predictions and relative simplicity. Application of most other criteria would occur at later stages of research with the model, when predictions could be compared with data to estimate isomorphism, to facilitate model modification, and to estimate fruitfulness, relevance, and generalizability of the model.

CHAPTER III

INDIVIDUAL MODEL-BUILDING

Metaphoric Model

In developing a model of human model-building, it seems appropriate to present a general orientation for viewing the perceptual interaction of an individual with his world. The general orientation is designed to allow simultaneous consideration of a person's unique and cosmic aspects, with provision for variation within individuals over time. One aspect of perceptual interaction, the holistic-particulate quasi-continuum, is the facet chosen here as crucial to human model-building. The model deals not with the pictures which appear in perceptual kaleidoscopes, but with the processes which arrange the elements of experience in such variegated displays.

Human processing fortunately does not lend itself easily to two-dimensional or even three-dimensional encapsulation, particularly in a static medium such as paper. Graphic representations herein therefore should be seen as points of emphasis; like other models, such drawings attempt to capture metaphorically basic rather than surface aspects of phenomena. Energy seems a very fruitful mechanism in condensing human processing to its elemental form; constant motion should therefore be borne in mind when viewing visual presentations herein.

The basic metaphor, and mechanism, for this model is the premise that energy inherently flows, in varying directions with varying

velocities. Organization--ordering, channeling, boundarizing--of energy has the effect of creating a tool (a container of stored energy). This patterned package of energy, in order to maintain its constraints upon the energy within it, draws energy from surrounding areas of the infinite energy pool which constitutes existence. Such a process is posited by the law of entropy. Conversely, disruption of established energy patterns releases that stored energy. Such disruption is viewed here as involving several phases:

1. an energy input from the surroundings with velocity and direction sufficient (novel enough) to disturb established energy paths;

2. initial "discomfort" as the energy storage system tries to maintain itself in its accustomed, inertial channels;

3. release of the stored energy as previous constraints are re-shuffled by the new input;

4. new paths of energy flow through and around the area previously dominated by the old patterns;

5. depending on the relative strength of old pattern and new input, the system either falls back into previous paths or maintains itself in new ones;

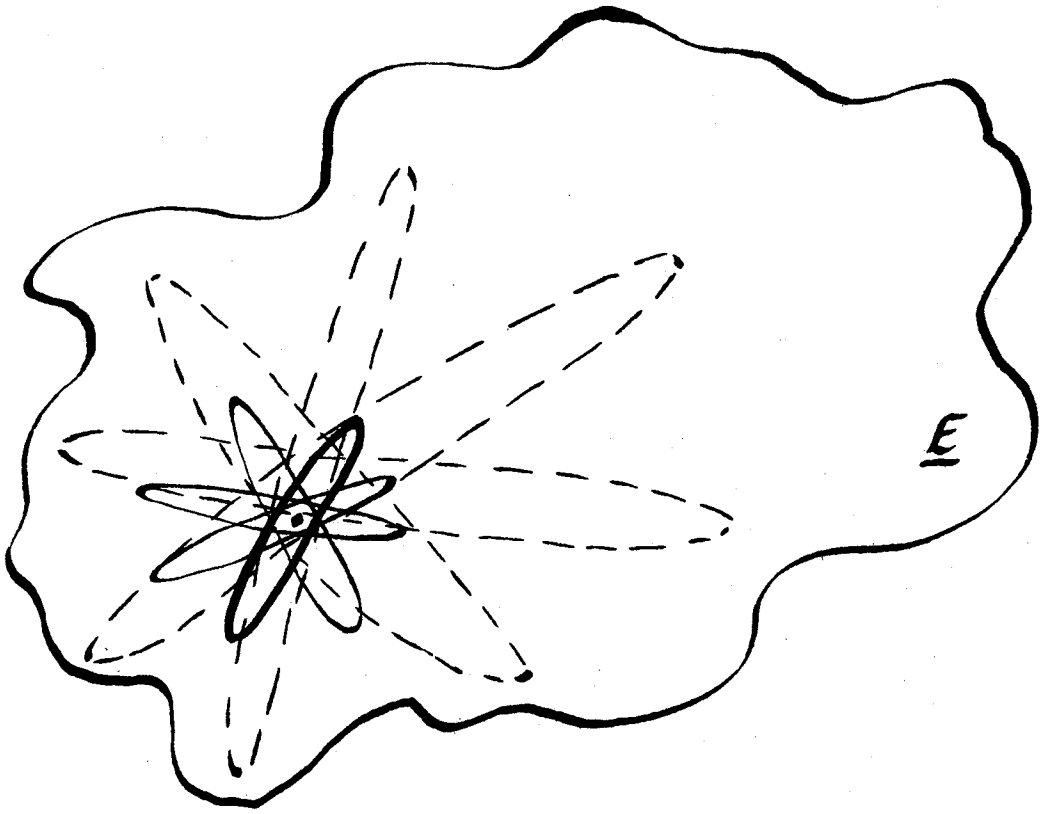
6. in either case, such patterning drains energy from its surroundings for its own maintenance.

To translate this apparently physicalistic energy model into terms of human perceptual functioning, one can equate habit with patterned energy and view consciousness as an energy flow. Habit then can be viewed as a storage of and constraint upon consciousness; habit is thus both useful and draining over time and within space. Novel energy inputs are presumed here to be required in order to disrupt habit, thereby at least temporarily releasing energy in the form of heightened consciousness and at least briefly allowing different modes of

perceptual functioning. If the habit through duration in time or intensity in space is well-established within the individual, phase two, the period of discomfort, is expected to increase in duration and/or intensity.

Figure 1 (see page 24) represents selected consciousness (energy flow) patterns within an infinite energy pool; the boundaries of E are for aesthetic enclosure, primarily because a truly unbounded universe is difficult to genuinely conceptualize and is by definition impossible to place upon a page. An individual here is visualized as a focal point of energy. P in the diagrams represents Perceiver, seen here as equivalent both to the Cartesian "I" ("think, therefore I am") and to the mystics' "One who watches" (Baba Ram Dass, 1974, lecture). Each human P is encapsulated in a flexible filter system, the PS (Perceptual System), which is partially shaped by P's unique intensity (velocity) and direction, and partially developed over time through energy flows from the environment. This PS refracts such inputs even as it is being shaped by them; it also filters the flow of energy bouncing off P back into the environment. E, the Environment, is an Energy Pool, consisting of an infinite universe of flowing energy points, including human Ps and all other forms and foci of energy. Tensions, constraints created by the clashing of diverging energy flows, may paradoxically be essential contributors to the development of constraint-minimizing, harmonious flows, as the breaks in old patterns release energy.

The preceding discourse hints at a sort of yin-yang principle of existence, in which apparent opposites contain and create each other perpetually. Such a principle is seen here as the dominant operative force within the PS, which is the arena for this study. The PS



• = (P) Perceiver

O = Holistic Particulate Plane

= (PS) Perceptual System

= U.S. Cultural Patterns (Habitual Perceptual Modes)

E = Environment – Energy Pool

Figure 1. Perceiver (P) Within Perceptual System (PS) Within United States Cultural Patterns

potentially exists as a multi-dimensional figure composed of an infinite number of intersecting planes, each of which operates according to a circular quasi-continuum (see Figure 2, page 26). Around each quasi-continuum apparent opposites are mixed in varying proportions; at their extremes they meet, with neither existing in pure form but always containing some infinitesimal essence of the other. A particular individual human, a given P, emits energy within one's own PS along paths which cross varying portions of varying planes at different times in that individual's existence. Simultaneously, of course, the P-PS is moving within the E, but this study focuses on movement within the PS. Recurring paths of energy-flow within planes of the PS can pattern energy movement through the parsimony of inertia, thereby shaping the PS which will channel future movements of energy until rearranged by inputs from E.

Of the infinite possible number of planes in a PS, the one to be considered here is the holistic-particulate quasi-continuum. It represents the possible range in complexity of perceptual wholes. A key assumption at this point is that human model-building necessitates perception of a modeled phenomenon as a whole. Conversely, when a person perceives something as a whole, a model of that thing is built by that individual. Model-building as whole-perception is characterized by emphasis on relationships. To model a phenomenon is to delineate (perceive) the relationships which the modeler perceives as basic to that phenomenon. The holistic-particulate quasi-continuum therefore embodies a range of human model-building activity from infinite and complex to infinitesimal and simple. Within this range PS (individuals) can be seen as emitting energy which travels in recurring perceptual

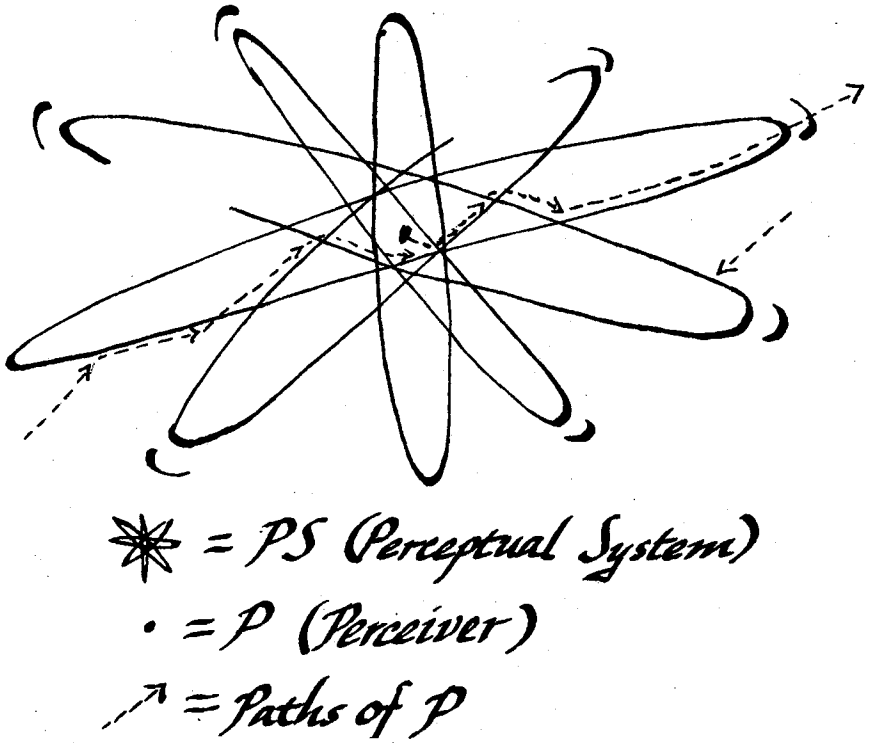


Figure 2. Detailed View P (Perceiver) Within PS (Perceptual System)

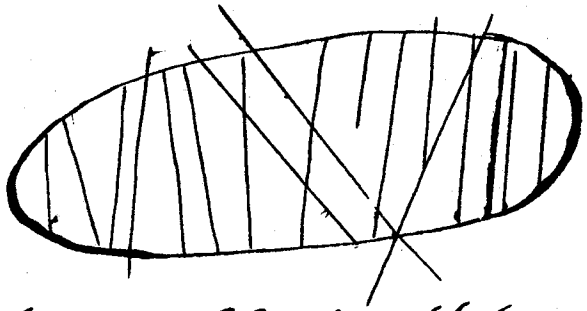
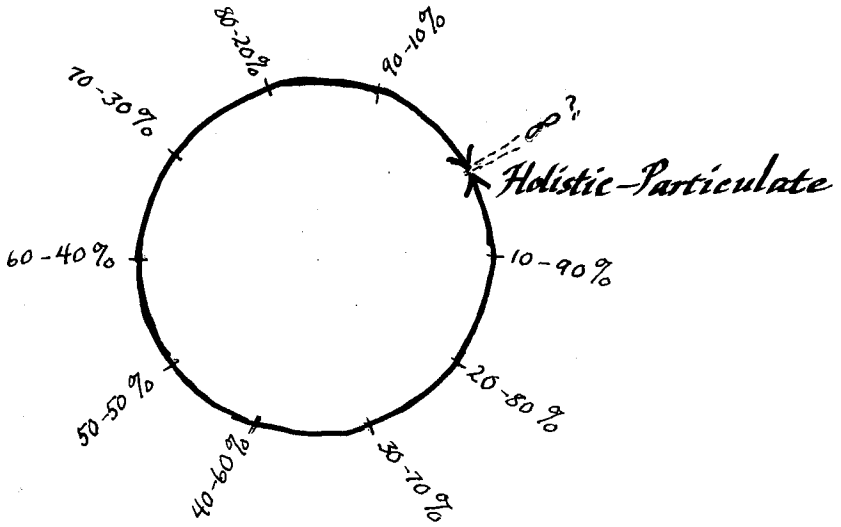


Figure 3. Representation of a Plane Within PS (Perceptual System)

paths within given time periods of their lives. Such paths are shaped over time by interaction between a P's unique intensity and direction and varying inputs of E.

Basically, all existence is an energy pool comprised of infinite Ps. All that exists, and all that flows, are Ps which constantly form and reform patterns as they move among other Ps and refract each other. Ps within a PS can be viewed as Ps of such intensity that they refract Ps from surroundings sufficiently to channel those P_E's into habitual patterns, constituting the PS.

This model groups model-building patterns according to: (1) the areas of the quasi-continuum in which they occur and (2) the distance, the range, they traverse. Area and range are important because within the quasi-continuum of all possibilities, the area and range of a P's habitual patterns locate and delineate a plane within that P's perceptual system at a given time. Four areas are labeled according to relative proportions of holistic-particulate perceiving: Holistic, Particulate and Holistic-Particulate (the two relatively-mixed areas). Clearly, no distinct boundaries can be drawn, but differences of degree can be pointed out. It is postulated here that Ps who habitually perceived phenomena only in the H area (global, complex), only the P area (atomistic, simple) or only in a narrow range of the H/Pa area (medium-sized, medium-complexity) would require a stronger E input to move into another area than would Ps whose characteristic range covered more of the continuum (H to Pa, H/Pa to H, H/Pa to Pa). This differential can be attributed to the smaller distance left out as a P's patterns range over more area. It is also assumed that as one moves toward the extremes of the quasi-continuum the intensity of energy flow



Note: Percentages refer to largest possible degree of complexity (holistic) and simplicity (particulate); degree of complexity is quantified as number of relationships perceived, so that quasi-continuum ranges from one to the largest conceivable number of perceived relationships.

Figure 4. Example of Circular Quasi-Continuum: Holistic-Particulate Plane of PS (Perceptual System)

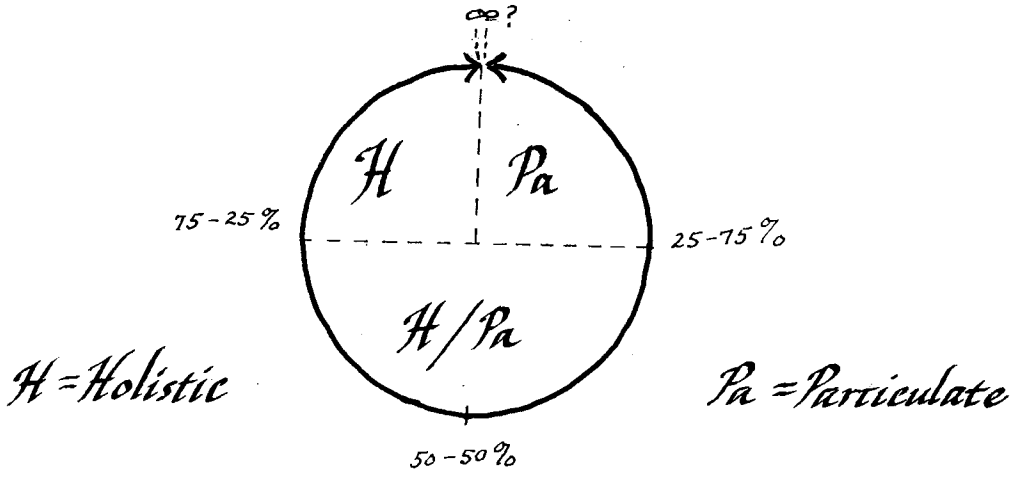


Figure 5. Areas of Holistic-Particulate Continuum (see Figure 4)

in model-building is greater, and that, other factors being equal, less intensity of E input is required to rearrange the perceptual functioning of a P in H or Pa areas than a P who usually operates only in H/Pa, less intense areas. A third factor influencing P's movement in response to an E input would be the duration of P's use of a perceptual path. A final factor, not explored in detail here, would be the effects of intersection in time of other planes in P's PS, as shown in Figure 5. These planes are not defined in this study; delineation of such planes and their interaction with the H-Pa plane would constitute a model of an entire PS, which is beyond the scope of the present study. Relative weighting of the previously stated four factors (area, range, duration, intersection of other paths) could be constant, vary slightly or vary considerably across Ps; it is held constant here for the sake of simplicity in initial development of the model. Similarly, the weighting could be equal for all four factors, with each having an equally strong influence, or all other possible combinations of weightings could occur. Again, for simplicity's sake the four factors are presented here as equal in impact on P's response to E inputs.

Whatever the range and location of a P's model-building paths, it is assumed here that each P does oscillate to some extent, however slightly, over time, and that the oscillation patterns themselves change over longer time periods. This statement is based on the previously assumed tendency of energy to move, to flow along a range, however narrow, between apparent opposites.

As each plane of the PS is partially shaped by inputs from E, patterns within surrounding areas of the energy pool have particularly evident effects upon patterns within PS. Currently, such surrounding

areas can be seen to include family, various socio-economic and academic subcultures, a dominant culture, species, and planetary cultures.

It is posited here that the dominant United States' culture currently presents far more patterns supportive of the Pa or H/Pa ranges of model-building by the individual than it does for H thought. Jenks and Riesman (1968, page 493) indicate there are very few generalists in the United States; Bell (1966, page 28) traces problems with inter-disciplinary courses to a paucity of teachers who conceptually transcend narrow discipline boundaries. Admonishing social psychologists to encourage students to think in terms of much greater complexity, McGuire (1972, page 452) warns that such thought will be difficult for teachers and students alike. Holistic inputs therefore would constitute relatively novel inputs for most individuals in the United States, though the extent to which this is true probably varies with subcultural patterns. If there are cultures which could be characterized as more H than Pa, novel inputs for individuals within that culture would be of the Pa variety.

When H patterns are not habitual perceptual modes for an individual P, E inputs are needed to initiate H. Once H occurs, however, it releases energy into other planes of that P's PS. Often this energy initiates release of ordinary patterning in other planes of human functioning. When this occurs, the other planes may for a time provide reciprocal energy flow to support the continuance of H processing. Eventually, often within a relatively brief span of time, such surges of energy subside into paths similar or identical to customary modes of functioning. Recurring or particularly intense E inputs may stimulate re-patterning of perceptual energy flow into H paths which themselves

become either predominant or recurring modes for a given P.

Model-building of complex systems by definition requires H processing. Communication of models to other individuals within United States culture requires H/Pa and Pa processing. Model-building of complex life systems, therefore, requires a wide range of perceptual processing (H-H/Pa-Pa). According to Jenks and Riesman, Bell and McGuire as cited on page 30, this wide range is not currently pervasive of the dominant United States culture. For most individuals in the United States to achieve such range, therefore, H inputs, divergent from customary H/Pa-Pa functioning, are needed from E. When such inputs are provided, and subsequently stimulate energy release and new levels of functioning, individual Ps then in turn can provide novel inputs back into E. Each P has a unique vantage point in time, space and energy focus. Each PS is unique, shaped by the idiosyncratic P's interaction with particular convergences of inputs from E. Each P's modeling of one's own PS, therefore, would be novel inputs for self and other Ps. Such modeling thus could stimulate reshuffling of habitual perceptual patterns, thereby releasing energy and allowing different ranges of functioning.

Theoretical Model

The foregoing section provided a verbal and graphic representation of concepts and relationships in the energy-oscillation model of human model-building. Interpretation of these concepts and relationships can be formalized into assumptions and definitions which compose the first part of this section. Following these are selected predictions which have been generated from the model.

Assumptions of the Model

1. Existence is an energy system.

2. Energy flows.

3. On any given plane, energy flow oscillates between opposites.

4. Any two opposites co-exist on a circular quasi-continuum of all possible proportions except 1.0 and 0.0 (each opposite always contains the other); when each opposite exists in its most extreme form, the two converge.

5. Near the convergence of two extremes energy flow is more intense than in other areas of a continuum.

6. The Law of Entropy applies: Order (pattern) in one part of a system creates disorder elsewhere in the system, by drawing energy from surrounding areas; conversely, disruption of pattern releases energy.

7. The Law of Inertia applies: Energy moving in a given direction tends to continue until deflected by some other energy input.

8. Habits are patterns of energy flow.

9. Cultures are a subset of habits.

10. Perception is energy flow.

11. Model-building is perception of wholes varying on a circular quasi-continuum of complexity; the degree of complexity of a perceived whole is defined as number of relationships perceived as belonging together.

12. Model-building by most individuals in the United States oscillates among wholes of slight to medium complexity.*

13. Perceptual systems are complex wholes.

The following propositions can be deduced:

A. From 1, 10: Existence is energy flow is perception.

B. From 3, 4, 11: Model-building is that specific type of perception (energy flow, existence)--which delineates systems of relationships.

C. From 8, 9, 10, 11: Model-building is patterned by culture.

D. From 1, 6, 10, 11, B: Such patterning limits perception and drains energy from some other areas of existence.

E. From 7, 10, 11, A, B: Model-building patterns are disrupted by novel perceptual inputs.

F. From 3, 4, 5, 8-12, C: In the United States model-building of complex wholes would be a novel perceptual input.*

G. From 1, 3, 4, 5, 6, 7, 10, 11, 12, 13, A, B, C, D, E, F: To ask a person to model one's own perceptual system would introduce novel inputs and thereby would change model-building by most individuals in the United States to include wholes of greater complexity; it would also allow release of perceptual energy.*

Predictions from the Model

When an individual whose culture is that of the United States is asked, "Please build a model of (describe as a whole) your life processing right now," the following response sequence will probably occur:

I. From 13, G: Descriptions of surprise, novelty

*Although Assumption 12 and Propositions F and G are not a part of the basic model, they are given here as statements of conditions for application of the model; 12 is stated as an assumption to meet the criteria of structural simplicity.

TABLE I

DEFINITION OF TERMS

Concepts	Nominal Definitions	Operational Definitions
1. Energy	Basic unit of all experience	Movement within the environment: a. observed b. self-reported
2. Energy Flow	Energy drain	Constrained, narrowing movements
	Energy release	Expanding, freeing movements (bodily, facial, verbal)
3. Perceptual System	Unique filter system with which each person organizes experience	Expressions of one's own organizing processes: a. sensory b. cognitive - "I think," "I do this first, then that." c. emotive - "I feel, I try, I wish."
4. Habit	Patterns of energy movement which recur	Descriptions of own recurring processes
5. Novel Input	Patterns of energy	Expressions of novelty, surprise, e.g., "I never thought about it; I haven't done that before; that seems strange; what does that mean?"
6. Model-Building	Organizing experience into wholes	Descriptions: a. of phenomena as continuous b. emphasizing relationships, connections, associations c. resolving contradictions, opposites into one whole

II. From 7, G: Expressions of discomfort (latency, facial and verbal grimaces, body constriction, energy drain)

III. From 7, G: Demonstrations of the person's habitual perceptual patterns, ways of organizing experience

IV. From 5, 6, G: Expressions of interest, excitement, curiosity; involvement with the task (energy release)

V. From 5, 6, G: Statements about self as whole, complex

VI. From 5, 6, G: Statements regarding one's own processing

Conditions for testing these predictions are suggested in Chapter IV in the section dealing with future research.

Further Formalization of the Model

Figure 6 represents an attempt to interpret the energy oscillation model into computer program language for the purpose of simulation. This step is useful in clarifying the current status of the model's development. The model presently focuses on the holistic-particulate plane of the perceptual system. Such focus allows emphasis on a small number of variables; such a small number, in fact, that when the three variables in the H/Pa plane are defined, simulation of their interaction is simple enough to be self-fulfilling prophecy. To justify computer simulation rather than drawings, a model-builder would need to specify a larger and more confounded system of relationships and variables. Such complexity would be found in modeling behavior of an entire perceptual system with consideration of interactions among its various intersecting planes.

It is clearly within the author's life goals, but not within the scope of this study, to model a perceptual system as a whole. To

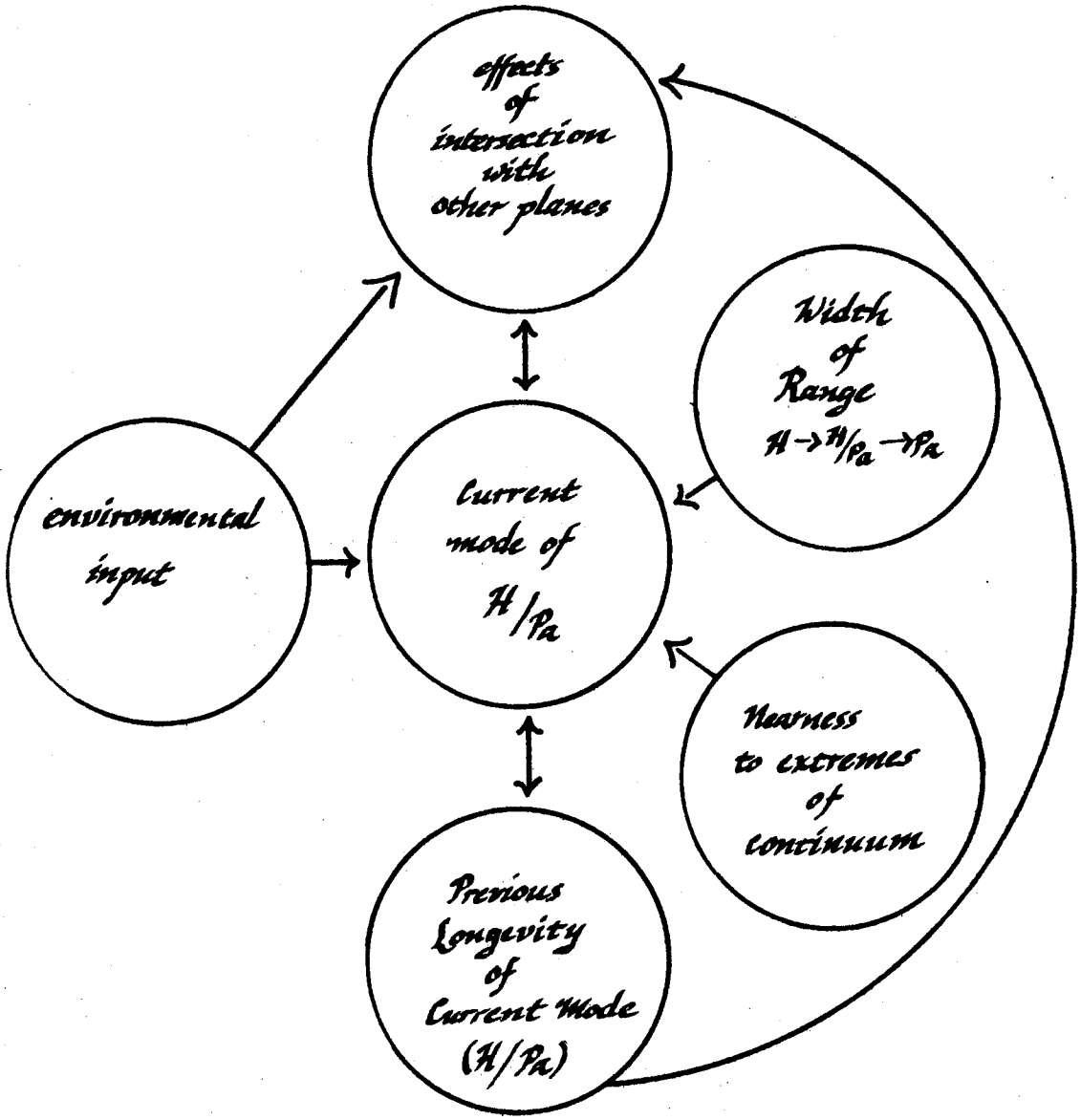


Figure 6. Sample Flow Chart of Holistic-Particulate Plane Behavior

develop a theoretical base for description of the interrelationships of the planes will require further study in biochemistry, neuro-physiology, physics, bio-energetics, bio-feedback and other organismic approaches to human consciousness. Collection of empirical data on individual model-building and perceptual energy oscillation, as suggested in Chapter IV, also seems a desideratum, if not a prerequisite, for revision and extension of the present model.

The model in its current state might appropriately be described as a combination of conceptual scheme and set of predictions. Such conceptual schemes provide frameworks for analysis and research, although they themselves are not subject to empirical testing. It should be stressed that such schemes are neither correct nor incorrect, only more or less useful in guiding scientific investigations. The predictions, however, are subject to empirical testing (Carver and Sergiovanni, 1969, p. 9).

Personal Model Growth

In modeling model-building, this writer drew upon personal process for content of the model, so notes on participant-observer reactions seem particularly germane to this study. Statements here summarizing process, can be seen as data utilized in developing the model. Assigning self to a modeling task and choosing phenomena on which to focus study proved to be concurrent and recurring processes. In attempting abstraction and formalization as processes, hope emerged of initiating or synthesizing at least a personal physics of experience. Human consciousness, particularly as it relates to varying energy levels, remained a pervasive concern. Constantly interwoven with such

grandiose theoretical goals was the equally siren call of self-knowledge. One of the most energizing aspects of discovery in the course of the study was the growing realization that final synthesis (knowledge, truth) was not to be a goal. Occasional juxtaposition of meaning occurred, followed by another problem to be struggled with, then laid aside until a further apposite stimulus appeared to renew the whole process. Ongoing involvement and intrigue with the process itself became the reward.

Two recurring patterns emerged which were intrinsically exciting. Alternating phases of almost casual (though constant) idea and source collection with consuming, intense, relatively brief phases of fitting things together, resulted in an alternation in energy levels. Jotted notes over a year reflected reciprocity between these two states, as each fed into the other. The other most vivid process which permeated notes and memories was a rippling effect of synthesis. When an idea would tentatively bring thought together in one area of endeavor such as the model, that same time span was filled with ideas for an upcoming discussion, scheduling dilemma, or life plans. Songs, poems, and short stories also occasionally cropped up during such times.

Effects of other thinkers' ideas and attitudes became crucial at certain times; alternation between support and challenge was substantially related to difference in conversations with those more and less familiar with the ongoing process. Both types of encounters were essential to continuation of work.

During the study the author developed a criterion for the fruitfulness of ongoing work; the extent to which discussion of the work with others involved generation of the others' own divergent ideas. With

models particularly, this seems important.

The ultimate state of energy flow within the task of meaning-making seemed that in which noticing one's own processes actually heightened those processes into an ecstatic flow in which abstraction and experience merged. Concomitantly, however, there was no state more painfully bereft than a thinker in exhaustion being presented with a chance for such synthesis.

It should be emphasized here that such processing is its own reward and cost; it need not be justified in terms of product. Similarly, while abstraction should utilize and be utilized by as many other processes in experience as possible, it need not be subservient to such processes to be worthwhile. This realization came with the decision that even though computer simulation was not yet appropriate for this model, that did not consign the model to the rubbish heap of thought. There is a crucial place in human searching for those who value each variety of such searching.

CHAPTER IV

IMPLICATIONS OF THE STUDY

Implications for Future Thought; Model-Building

Certain extensions of the model have already been described. Energy oscillation holds considerable ideational potential for understanding of human perceptual processes. These implications are indicated below.

1. Time and space could each be postulated as levels of energy. Such condensation of dimensions could provide an exciting vantage point for regarding our own conceptual capabilities (Frasier, 1971, pp. 211-214). If expenditure of energy is treated as operating along to a quasi-continuum of perceptual time, then great expenditure of energy could be associated with perceptual time either virtually disappearing or stretching toward infinity. Time might be said to virtually disappear in cases where one expends great energy in crisis; an example of such phenomena might be a mother lifting an automobile to save a child. Time extension might occur in connection with experiences with altered states of consciousness, including life-flashing-before-one reports of those narrowly escaping death; such sequences might be seen as a person reaching out perceptually with sufficient energy to retrieve one's own experiences. Some persons might be particularly susceptible to extension of learning through the perceptual telescoping of time

while in certain states of consciousness such as meditation; early biofeedback research encountered by this author indicates that persons reporting an hour's perceptual time during the passage of twenty minutes of clock time actually seem to accomplish an hour of their normal learning. It is awkward to refer to such possibilities in light of our current views of time; even the language of this paragraph reflects the problem, as it relates time-transcendent phenomena in time-tied terms such as "while," "during."

Space can be viewed as distribution of energy, with certain energy levels allowing individuals to transcend apparent space through the re-distribution of energy. The implications of stipulating both time and space as levels of energy would require further exploration conceptually, particularly with regard to describing interaction between the two types of energy levels.

2. Death, enlightenment, joy experiences associated with various kinds of creativity, mystical experiences and other altered states of consciousness could be conceptualized as diminution, re-arrangement, or shedding of the perceptual system. The description of "white light" experiences by mystics and drug users offers an intriguing parallel to an Asimov (1971, p. 86) suggestion of a luxon wall in which particles travel at exactly speed of light. It seems possible that intense energy flow might tend to unify perception as it inundates, at least temporarily, perceptual separators, boundaries. Feelings of oneness with the universe or wholeness of self could be associated with certain energy flows. A corollary phenomenon might be found in the related drop of weight in fairly constant amounts at the instant of death, which at least opens the possibility that energy in some form is thus released (Gaskin, 1972, p. 28).

3. If a thinker chooses to work with this energy oscillation model of a perceptual system composed of planes operating within quasi-continua of opposites, further development of the model might involve:

a. Describing other planes; it is posited here that such planes, as conceptual devices, are infinite in number and that any labeling and listing of them would be unique to each theorist, useful primarily as a personal meaning-making tool.

b. Developing a theoretical base and a mechanism for describing the boundary interactions among planes within a given perceptual system; since the planes which intersect are seen here as composing each other, describing their mutual interaction seems a rather formidable task.

4. Possible utility of the energy model is its emphasis on an individual perceiver as one who is simultaneously unique and participant in all existence. Such a position would seem to transcend labeling of unnecessary boundaries, thus allowing maximum utilization of diverging points of view toward human and other existence.

5. An implication of this model which seems particularly crucial to this author is unity of physical and mental energy. Mind-body distinctions seem ingrained in Western culture. These boundaries have lent focus for many searchers in the past; it now seems eminently appropriate for thinkers to build models which stress commonalities of existence, as current multitudes of distinctions threaten occasionally to overwhelm meaning-makers. It is the premise of this author that there is very vital comfort and meaning in perceiving existence as unitary, with all of its aspects simply vantage points for viewing and describing the same essence.

Implications for Future Research:

Model-Based Exploration

Several pertinent considerations regarding methodology can be noted here:

1. Asking persons to build a model of (describe) their own processing will currently yield substantially more data in conditions of support, particularly during the early discomfort stage of response to such a task. Such support might consist of responses such as "That's a natural reaction," "It's fine to feel that way when you hear such a question," "You're not alone in feeling that way." Acceptance and encouragement of all responses would seem to be useful modes for eliciting performance of such a holistic task; if unconditional acceptance is near one extreme of an acceptance quasi-continuum, it would be an intense flow of energy. Its effect would be heightened by being, for many individuals, a novel input (Rogers, C., 1961, p. 100).

2. For some individuals, rephrasing the question to ask for a model (description) of past living might yield responses which could then be modified and applied to present functioning.

3. For a task to be truly holistic for an individual, it should be stated in fairly general form without giving guidelines for performance which would limit the range of responses. Initially, it seems crucial to do exploratory, descriptive studies utilizing video or audio-tapes to conserve descriptive data not predicted here.

4. Until such open-ended work has been done, classification or prediction studies would be inappropriate as they would narrow the focus for research prematurely. The reader is therefore advised to treat suggestions for predictive research as truly tentative. Early studies

should be guided by the general question: What phenomena are observable when an individual is asked to describe or assess processes of one's own existence?

5. After such general question-general response studies had been done, responses could be classified along a circular quasi-continuum of most holistic to most particulate. This author suggests that it would be important logically to extend the circular range as far beyond each end of the range of received responses as imagination will allow. Such extension would be consistent with the hypothesis that holistic-particulate thought by most individuals in the United States does not oscillate over the farthest limits of holistic (and therefore particulate) perceptual potential. Such a hypothesis has implications for thinkers who are attempting ideationally to extend the range of responses:

a. Most individuals within the United States could contribute new possible responses as novel inputs for each other, each purposely stretching beyond their habitual ranges.

b. Individuals whose habitual range is hypothesized to extend beyond that of most thinkers in the United States can be called in.

c. Individuals from cultures hypothesized to be more H (or more Pa) than the United States could also be called upon to extend the hypothetical response range.

Content of future research can be suggested here in the form of several topic areas for study (utilizing the above methodological considerations):

1. Comparison of H-Pa patterns in responses obtained from individuals within different types of organizations, e.g.: goods vs. service industries; goals, climate characteristics, size.

2. Association of H-Pa patterns with demographic variables, e.g.:

language styles and skills

age

religious preference

geographic area

academic discipline

organizational role

family constellation

3. Other demographic variables might appear post hoc as differences in patterns emerge. It is the author's gentle suggestion that sex and race differences not be predicted a'priori, but rather that after individual patterns have been viewed together, groups be separated only if trends seem to exist. This might lessen an understandable but limiting tendency to set up differences through experimenter bias or through systematic perceptual magnification of differences. The same possible problems exist for the variables listed above, but those variables are often viewed as more environmental influences and are therefore less likely to be ascribed to innate tendencies. This suggestion is strongly influenced by the author's wish to stress species (human) patterns rather than those of sex and race. This view is offered merely as an alternative bias for exploration.

4. Relative probabilities of occurrence for the six predicted response stages (if initial descriptive studies yield patterns suggesting that some response stages occur more often than others).

5. Correlations between indicators of energy flow (drain and release) and other response phenomena.

Implications for Organizations; Model Application

Initial warnings to the reader of this section seem important. A model itself cannot be directly applied to an organization. It can instead provide a rationale for action, particularly if research tends to support predictions made from the model. Any suggestions made here are obviously speculative; speculation about human organizations, like other human endeavors, is influenced by the thought-gambler's views on the nature of human existence. This writer views human existence as infinite in potential, and postulates that constraints on that potential are both comforts and challenges. Organizational theorists cited, therefore, tend to be those who deal not only with what apparently is, but also with what might be--divergences from, rather than extensions of the generally described present. Neither this study's model nor any other is likely to elicit the same information as that gained by having participants winkle out their own modeling processes. Time and supportive conditions needed to allow personal model-building are resources which may be jealously guarded for various reasons by organizational representatives.

Five general organizational implications and accompanying rationales are listed below:

1. Just as each individual participates in cultural patterns of existence from a unique vantage point, so does each individual, as an organizational participant, partake of organizational processes

(patterns) from an unduplicated stance. It follows logically from the preceding statement that each organizational participant is at least a potential source of exclusive information about an organization. Organizational participants' conceptualizing is shaped somewhat by impinging organizational patterns. These patterns are jolted by presenting the participant with a novel task. Perceptual energy constrained by previous patterns may be released, heightening perception and allowing the individual to contribute unique views of the organization.

2. Some theorists hypothesize that organizational participants would demonstrate, under facilitative conditions, a wider variety of competencies than is now attributed to them, and that such functioning by individuals would enhance organizational functioning, as it would provide both participants and organizations with useful information for decision-making--long-range planning and current coordination (Carver and Sergiovanni, 1969, pp. 12-21; Allen, 1973, p. 5). It is suggested here that more holistic perception of one's own participation in an organization is a competency that would have utility, as described by these theorists.

3. Asking participants to take an over-all view of their role may involve fundamental individualization and could increase or create pressure for shared decision-making of organizational structure and process. It is suggested here that asking each participant within an organization to assess his own processing might well lead to reshuffling of identity limits for that individual and for other participants as well. Other alternatives could be equally plausible dependent upon one's view of human tendencies.

4. Increase in all individuals' competencies could lead to less dependence upon specialists (Illich, 1970, pp. 162; 171); some designated theorists might be less needed to be sole builders of models, and more pressed to listen to models developed by other organizational participants. Since this could eliminate some work specialization for some organizational representatives, while it frees them for other tasks, it might lead to the question: Beyond specialization, what? From the writer's observation, models of rational bureaucracy tend to stress specialization. Similarly, criteria for professionalism usually stress exclusivity--of knowledge, of training and certification, and of services rendered. Participants within a bureaucratic organization, or members of a profession or an academic discipline, often thus define their occupational identify as that which they do that others do not. Can current professionalism, usually bulwarked by some hoarding of specialities, move beyond this adolescent stage of identity-definition to more fluidly coordinated, oft-changing provision of services for humankind? (Adolescence is essential, but perhaps need not be terminal.)

Experiments in "industrial democracy" have in this author's view yielded mixed results; perhaps sufficient and appropriate expansion of self-perception has not yet been facilitated for industrial workers. Much of present technology has advanced past that which necessitated mass production; tools could be utilized for decentralization and individualization of activity as well as for centralization and standardization. Such decentralized work situations, if designed on the basis of an individual's assessments of personal process needs, could involve greater work satisfaction and commitment, and perhaps also

higher quality products. Such products may be the only ones a polluted and resource-strained world can afford. The more each participant could approach tasks holistically, the more integrated and whole the products of such tasks might be.

5. The perceptual energy oscillation model implies a mutual-growth model for organizational representatives. If novel inputs are needed to disrupt habits which drain energy from other functioning, and to release perceptual energy, then counselors, teachers, administrators and other organizational representatives, in order not be be drained by sole reliance on their own patterns, must expect to be at least occasionally counseled, taught, coordinated and led by other organizational participants. Energy flow must be multi-directional.

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