TOWARD A GENERAL MODEL OF COMMUNICATION

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This comprehensive paper is an attempt to present a unified approach to the study of communication in the form of a general model. George Gerbner is assistant professor in the Institute of Communications Research, University of Illinois.

THE FIELD of communication study is having communication troubles. It has no clear idea of its subject matter. It has no framework for the discussion of its technical concerns. And it has no value orientation for making much sense of its findings in terms of urgently needed judgments.

Vigorous search for a technique *and* value-oriented theoretical structure appears to be the major need in the progress toward a science of communication. In its short history, *AV Communication Review* has done much to serve that need; it has stimulated thinking and discussion about basic problems in theory and research, published accounts of specialized models relating to certain aspects of communication study, and thus promoted the search for a general theory of communication.

Our purpose is to make a contribution to that search by presenting a *general model* of communication. The model incorporates some features of previous models (see bibliography) and adds some new features of its own. It structures communication into 10 related aspects and areas of study. These aspects are discussed and illustrated through the construction of a verbal and a graphic version. Construction of the model is followed by the demonstration of some technical applications, the discussion of theoretical and research implications, and the development of some normative social concepts and directions in communication theory.

CONSTRUCTION OF THE GENERAL MODEL

Students of communication theory and research have much in common with the physicists Weisskopf and Rosenbaum who, dis-

cussing "A Model of the Nucleus" in the December 1955 *Scientific American,* complained:

> Modern physics is frequently accused of deserting the real world for abstract mathematics. Instead of attempting to explain nature in terms of what we can see and feel, the impeachment runs, theoretical physicists offer only an arid set of equations whose physical meaning they will not even think about, let alone interpret to the vulgar.

The physicists thought the reproach undeserved. Model building is a major concern in nuclear physics, they noted; nearly every theory began with some model representing events and relationships understandable in terms of a real world. "Every model we build," they wrote, "is an effort to make sense of some particular class of experimental results. . . . Hence our different models are not mutually exclusive. . . . They can often be combined to give more complete understanding."

Model building and combining is thus an attempt to view complex, and often disjointed, processes and studies in a unifying framework which suggests an approach to further investigation. It permits the structuring of an event, and a field of study, and the discussion of relationships, processes, and their implications, in understandable and graphic terms.

The Verbal Model

A good verbal model is a concise explanation which describes an event and at the same time identifies its chief parts or aspects. It is based upon a conscious theoretical approach to the event it describes; and it includes a word-by-word or phrase-by-phrase identification of those aspects of the event that have actually been the focal points of concern and investigation.

What might be a description of a communication event, of one link in the chain of a communication process, that could serve as such a model? We can start with a communicating agent (source or destination) designated as *someone.* This communicating agent must perceive or have *perceived an event* of some kind in order to initiate or receive communication, and must *react* to the perception in some way. The nature of this reaction is influenced by the *situation* in which it takes place. The communicative reaction must be made through some mediating agents (channels, media), in other words *through some means.* It is transmitted in order *to make available* some communication *materials.* Materials must be *in some form* or pattern in order to carry a message. As

the reaction to materials takes place in a situation, so every message is perceived *in a context.* All these aspects enter into the formation of *content.* And, finally, we can assume that *some consequences* always follow perceived content, whether or not it achieved a desired reaction.

If we accept this general description, we can then proceed to construct the verbal model by putting together its salient characteristics, represented by the italicized words and phrases. Such a verbal model follows below on the left. It is broken down, line by line, into the 10 basic aspects of communication. These aspects are numbered for later reference. In each line, on the right, appear a few words briefly identifying in a preliminary fashion some types of study and research associated with each aspect.

Verbal model	*Areas of study*
1. Someone	Communicator and audience research
2. perceives an event	Perception research and theory
3. and reacts	Effectiveness measurement
4. in a situation	Study of physical, social setting
5. through some means	Investigation of channels, media, controls over facilities
6. to make available materials	Administration; distribution; freedom of acces to materials
7. in some form	Structure, organization, style, pattern
8. and context	Study of communicative setting, sequence
9. conveying content	Content analysis; study of meaning
10. of some consequence.	Study of over-all changes

A more detailed discussion of these aspects of communication will follow the construction and demonstration of the graphic model. It might be emphasized here, however, that while the 10 aspects can serve to structure the field of communication study, they represent shifts of emphasis rather than tight compartments. In fact, nearly every aspect can be viewed in terms of any of the others.

The Graphic Model

The advantage of a schematic model is that it can represent positions, directions, and relationships graphically. Once the model is understood, it can be used to explain visually complex events and concepts. But a graphic model can be cluttered up in the attempt to schematize concepts more clearly explained in words. So we shall use the two models jointly, and consider them two representations of the same basic model, each expressing certain things not easily described by the other.

The graphic model can be best understood by following its construction along the steps of the verbal model. Let us assume that a man notices a house burning across the street and shouts "Fire!" We begin to schematize the aspects of this communication event by our man, *someone,* represented as Step 1 on Figure 1, a human head labeled *M* for man or machine.

Next comes the *event and its perception.* The event, here a burning house, is shown as circle *E*. Its perception is indicated as Step 2, a line leading horizontally from circle *E*, the event, to a circle inside *M;* the inside circle is labeled *E'* — event *E* as perceived by *M*.

In Step 3 of our model, *M reacts* to having perceived the event. Reaction as such cannot be represented on a generalized communication model. (If this reaction involves some use of some means to initiate a message, it will be represented under Step 5.)

Step 4 takes note of the fact that all perceptions and reactions occur in a *situation.* On Figure 1, *M* is shown observing *E* from behind a window, indicating one feature of the situation. It is usually impractical to schematize a situation on a generalized model.

Step 5 marks the communicative nature of the reaction. It designates the *means,* the mediating agent capable of transmitting a signal (here "voice"), as a line leading downward from the communicating agent, *M,* to the communication product, *SE*.

The means serve *to make available materials* to *X* destinations. Availability for perception is shown in Figure 1 as Step 6, a line leading horizontally from the communication product to another person, M_x.

Use of some means becomes a signal containing a message only if it is not random; that is, if it is *in some form.* Step 7 indicates the formal characteristics of the use of the means. It is

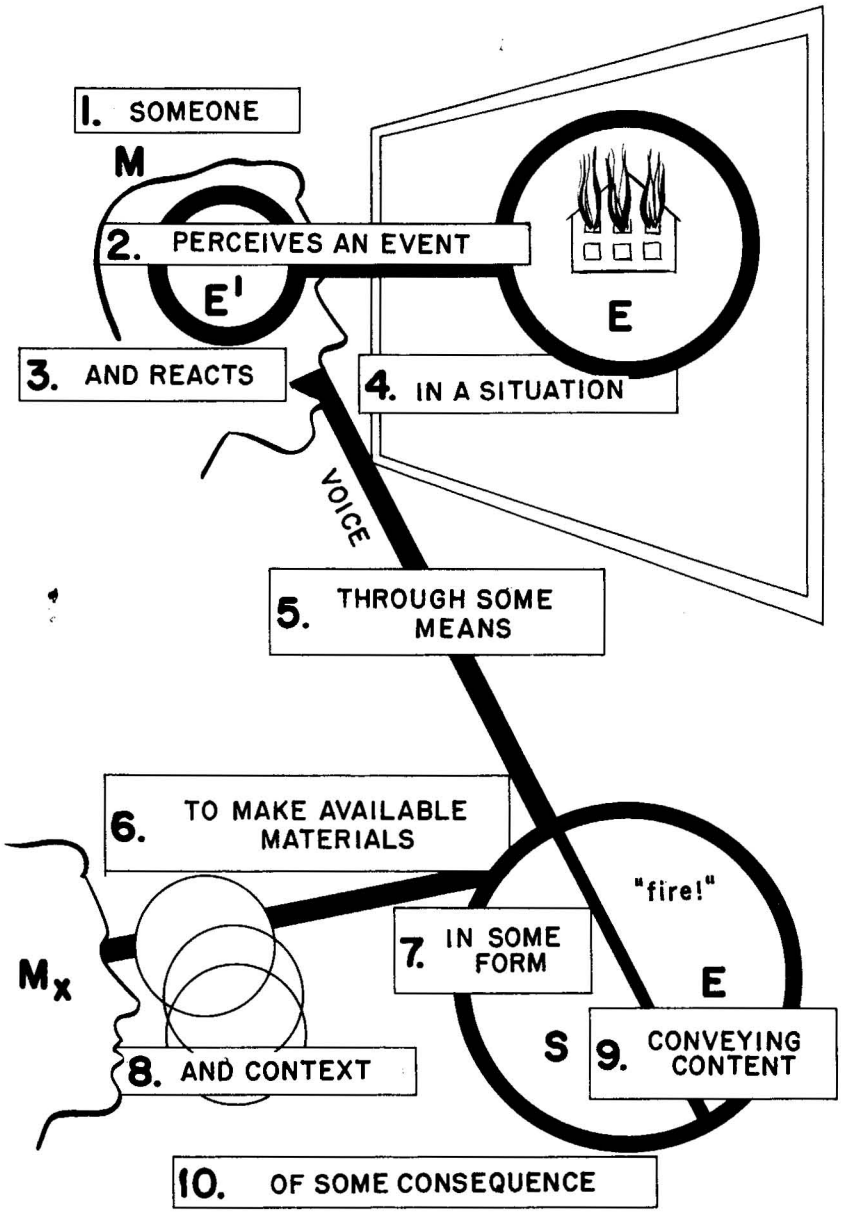

Figure 1

Steps in the construction of the graphic model

represented as a half-circle attached to means, labeled *S* for signal or statement. (Here *form* might be denoted as a certain language sequence.)

Every signal exists in a *context* of other signals and statements. The three circles of Step 8 along the horizontal, perceptual, dimension denote context. Again, it is often impractical to schematize context on a generalized model, except by considering it an ever-present feature of the perceputal aspect.

The *content* qualities inherent in *M*'s use of the means in *S* form are those aspects or attributes of the communication product capable of conveying a message. Step 9 represents content as a half-circle complementary to *S*, the signal. Content is marked *E* to denote those qualities of *SE*, the communication product, which reflect, represent, symbolize, or refer to the event. Thus the total communication product, *SE*, means signal or statement *S* about event *E*, in this case: "Fire!"

The *consequences* of this communication event can be appraised only in terms of all other aspects plus time; Step 10, therefore, cannot be adequately represented schematically.

Now we are ready to crystallize the generalized graphic model. We shall restrict it to those aspects and relationships best illustrated graphically, and let the verbal version express the rest.

Generalized Model of a Communication Event

The basic generalized graphic model appears as Figure 2. We match it against the verbal model to illustrate those aspects of communication that lend themselves to schematic representation, to point out those aspects that cannot be easily diagramed, and to demonstrate some unique features of the graphic model.

1. *"Someone . . ."* The first variable of our model, shown as a human head on Figure 1, appears on the generalized graphic model (Figure 2) as a circle marked *M* for man or machine. *M* might be the destination of a message, or its originator, or both. *M*'s relationship to the other elements in the diagram indicates its role (as on Figure 6). In a communication sequence involving both human and mechanical transmission, mechanical *M*'s can be represented by squares (as, for example, on Figure 4).

2. "Someone *perceives an event . . .*" The perceptual aspect of communication forms the link between events and their reflection, or sensory, creative, cognitive reconstruction in and by the com-

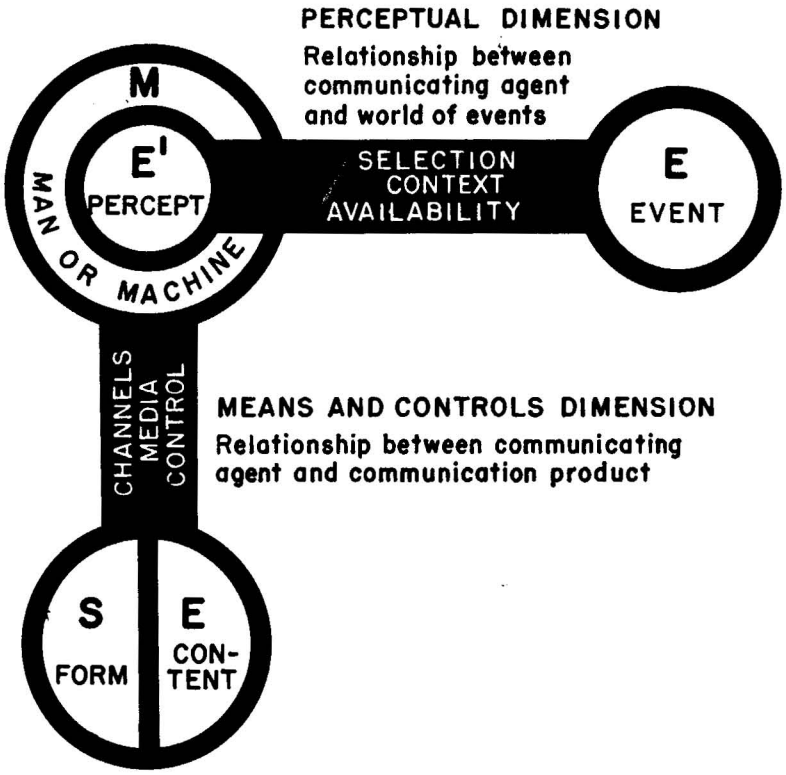

Figure 2
The basic generalized graphic model

municating agent, *M*. The event perceived can be a nonmediated, "natural" event, such as the burning house on Figure 1. In that case it is represented on the graphic model as an undivided circle marked *E* for event, as on Figure 2. Or it can be a mediated event, "surrogate," or communication product, as, for example, a description, picture, or television image of the burning house. In that case it is represented as a divided circle marked *SE* for "statement about event." (An example of that is shown on Figure 3 where a communication product, *SE*, is perceived by M_2 and M_3.)

Availability of the event (*E* or *SE*) for perception by *M* is shown by a line leading horizontally from the *E* (or *SE*) circle to the *M* circle. Its perception is indicated by leading this horizontal

"selection-context-availability" line to a smaller circle inside *M*. This circle inside *M* is marked the same as the event plus a "prime" sign (′) for "event as perceived." Thus on Figure 2, event *E* is perceived by *M* as *E′*. On Figure 3 event *SE* is perceived as *SE′*.

3. "Someone perceives an event *and reacts . . .*" There is no need to indicate the general nature of a reaction on a model of communication. The purpose of this aspect on the verbal model is to call attention to the area of effects study and effectiveness measurement. On the graphic model the communicative nature of the reaction will be dealt with under Point 5.

4. "Someone perceives an event and reacts *in a situation . . .*" Every perception and reaction takes place in, and may be modified by, a situation which includes physiological, physical, and social dimensions. (The communicative setting of other statements, etc. will be referred to as context.) While this is an essential feature of the verbal model, it is impractical to schematize it on the graphic model. If necessary, salient features of the situation of perception and/or reaction may be noted anywhere on the field of the diagram, as was done on Step 4 of Figure 1.

5. "Someone perceives an event and reacts in a situation *through some means . . .*" The means signify the agents, arrangements, controls, through which response can become communication product, and can be made available for perception. Thus *means* stands for channels; media; physical engineering; and administrative and institutional facilities for distribution and control. Under this aspect, the emphasis is on production and control; results in terms of actual distribution and availability for perception are examined below under the next heading, availability.

On our generalized graphic model *means* and controls appear as a vertical line relating *M*, the communicating agent, to *SE*, the communication product. Thus while the horizontal dimension indicates the perceptual process, the vertical axis denotes certain characteristics of the production and control aspect of communication: the *means* through which the communicating agent or agency creates, and distributes its communication products.

6. "Someone perceives an event and reacts in a situation through some means *to make available materials . . .*" *Availability* is the result of the creation, control, and distribution of communication products as it actually works out in a certain time and place. In a practical sense, something is *available* if it can be perceived.

Availability is thus a feature of the horizontal, perceptual dimension relating the communicating agent to the world of events and statements *available* to him.

7. "Someone perceives an event and reacts in a situation through some means to make available materials *in some form . . .*" To carry a message, use of the means must be nonrandom. It must have some sequence, pattern, organization not found in single units or elements of its use; this is what we call its *form*. The formal characteristics of the communication product *SE* appear on the model as the half-circle *S*, for statement or signal, attached to the means axis and complemented by content *E*.

It might help at this point to introduce an example of a specific communication sequence diagramed along the lines of the general model. Such a sequence appears as Figure 3; it will be discussed along with continuing references to Figure 2, the basic generalized graphic model.

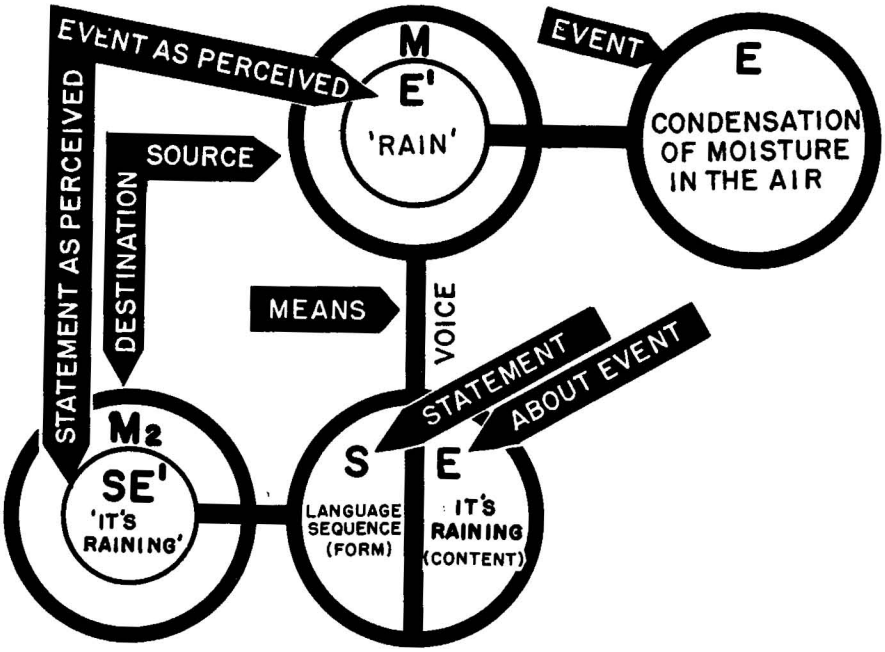

Figure 3

Aspects of a communication sequence illustrated on the graphic model

On Figure 3 a person, M_1, selects for perception event E, "condensation of moisture in the air." This is perceived as E' (recognized and mentally verbalized by M_1 as "rain"). M_1 reacts by using the sound channel to make his voice available for perception by M_2. His voice is modulated and patterned to form signal S, shown on Figure 3 as "language sequence."

8. "Someone perceives an event and reacts in a situation through some means to make available materials in some form *and context* . . ." The specific meaning in which *context* is used in our model is as the communicative setting of statements in space and time. Thus context, along with selection and availability, is a function of the perceptual, horizontal, dimension. (See Figure 2.) On Figure 3, context is not specifically marked. It would require other E or SE circles connected horizontally with E' to indicate that M_1's statement about the rain is perceived and interpreted by M_2 in the context of other statements and perceptions about the weather.

9. "Someone perceives an event and reacts in a situation through some means to make available materials in some form and context *conveying content* . . ." Any nonrandom, structured transmission is some kind of signal; any form, or signal, carries some representational, symbolic, referential, or correspondence qualities or attributes. That is to say that an inherent and inseparable part of any signal is some *content;* when perceived and recognized we call this *meaning*. Thus signal or statement S never stands by itself. It is complemented by half circle E. The communication product SE has, therefore, signal, or formal, qualities (the S part), and content qualities (the E part) marking the fact that every signal or statement is about, or is occasioned by, some event.

Figure 3 shows that the content attributes of the communication product SE are "about" (are occasioned by, and are in reference to) event E, that is, the change in weather. Statement SE, "It's raining," is in turn perceived by M_2 as SE'. Its "meaning" would be generally recognized by him as also calling attention to event E.

10. "Someone perceives an event and reacts in a situation through some means to make available materials in some form and context conveying content *with some consequences.*" Every perceived statement has some "effects." Our model divides "effects" into two types. The first is measured by the intent, or objectives, of the communication. This type is better named *effectiveness* in reach-

ing a desired objective; it is classified under Point 3 of the model, the *reaction.*

The second type of "effects" is independent of "success" on terms measurable by the intent or objective of the communication. These may not even be apparent in the awareness of either communicator or audience, or in the nature of the reaction at a certain time. These are classified as *consequences.* They include all changes, intended or unintended, desirable or undesirable, that might take place consequent to the communication. For example, pedantic overemphasis on certain trivial details in a classroom might be "effective" as measured by a test on those details. But its *consequences* might also include loss of interest, hostility, and other undesirable attitudes.

Some Examples: Mixed Sequence, and Feedback

Figure 4 presents a mixed human and mechanical communication sequence. The communication event portrayed might be a telephone call, transmitting a single statement from one person to

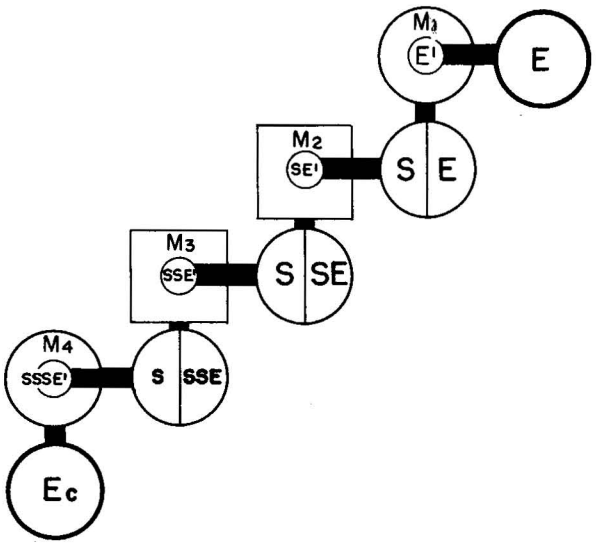

Figure 4

Communication sequence with human and mechanical communicating agents

another. It is initiated by M_1, the source who perceives event E.

Let us assume that E is characterized as "disordered energy" or "rapid movement of air particles." M_1 sitting in his apartment, perceives this event as E'—physical discomfort associated with heat. He reacts by picking up the telephone receiver-transmitter, which is represented by the square M_2, and making statement SE by means of sound.

The original statement about the event, SE, is, "It's very hot here." This is "perceived" by M_2 as mechanical energy SE', and is recoded by electronic means into an electrical energy signal pattern. This signal has been occasioned by the first statement about the event, and is, therefore, SSE, meaning signal about statement about event. SSE, the second communication product, is what is transmitted over the telephone wires.

SSE, which is in the form of electrical energy patterns, is "perceived" by another telephone receiver-transmitter instrument M_3, as SEE' at the receiving end. M_3 recodes SEE' by electronic means into a mechanical energy signal pattern which is also a product of all previous statements, and is, therefore, communication product $SSSE$. This is the original statement about event E, namely SE, "It's very hot here," plus some accumulated residues of intervening signals, the spurious SS, usually called "noise." It is perceived by M_4 as $SSSE'$.

M_4, say a maintenance man in the building, reaches for the temperature control knob, and, without wasting another word, turns down the furnace, thereby bringing about E_c, an event characterized by a more orderly, cooler, arrangement of energy in M_1's apartment.

Figure 4 represents an "open sequence" of communication in the sense that the initiating event did not automatically activate the signal that eventually changed its state from E to E_c. Figure 5 represents a "closed sequence" accomplished by "feedback," as in an automatic control system.

M_1 on Figure 5 is a furnace. It reacts upon an undivided circle E, a nonmediated event, in this case again air temperature. In other words, the energy output of the furnace is coupled with the air surrounding it. Changes in this energy output are "perceived"

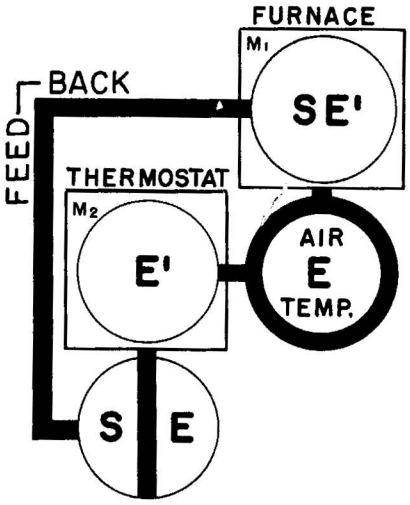

Figure 5
Automatic control: closed communication chain with feedback

by M_2, a thermostat. The perception is E', probably on mechanical terms such as movement in a thermocouple due to changes in temperature. A small portion of the total energy output has thus been introduced into the thermostat, activating it. It reacts by recoding mechanical energy into an electrical signal, possibly coded in terms of changes in the flow of current, representing certain changes in the initial event E such as "too hot" or "too cold." This is signal SE. This signal, in the form of an electrical pattern, is "fed back" to the furnace, M_1, which "perceives" it as SE'. The furnace is so constructed that the "perception" of electrical patterns coded in a certain way by the thermostat activate it to shift into an "on" or "off" position, thus modifying its total output. Automatic control has been accomplished through feedback in a closed chain. Some of the energy output of the furnace was introduced into the thermostat, transformed into a signal, and "fed back" into the furnace as information regulating its total energy output.

The schematic representation of more complex communication situations becomes an interesting and often quite involved undertaking. It is possible to build group, or even mass communication models, including instances of feedback, misperception, communication failures, etc. If used with some consistency, and within their limitations, the models call attention to the focal aspects of communication, and permit tracing and discussion of these aspects and of their relationships.

SOME IMPLICATIONS FOR RESEARCH AND THEORY

The study of communication is a potentially seminal, organizing discipline. That is why it cannot be defined and organized along its "own street" alone, in a narrow, technical manner. For its "own street" is a busy crossroads of many disciplines in science, art, education, engineering, and of a great deal of social and

philosophical concept-building. Organizing the traffic in this crossroads involves, in some sense, all who pass through. Along with the technical matters of setting up road signs and traffic lights, it involves some basic directions and orientations.

Any systematic approach to the study of communication is likely, therefore, not only to structure research and practice into manageable categories, but also to have far-reaching implications, often as broad and controversial as any set of basic scientific assumptions. These implications and assumptions should not be avoided in the discussion of any model, for they spell out the approach upon which the model is based, and the point of view from which it attempts to throw light on its subject matter.

The second part of this paper is devoted, therefore, to a discussion of our model following the sequence employed in the first part, but emphasizing the division of research and practice into the 10 aspects, and some of the basic theoretical implications involved.

1. *M Roles: Communicator and Audience Research*

The *someone* of the verbal model, the communicating agent, is the *M* element of the graphic model, represented by a circle (for man) or square (for machine), and always with a circle inside it standing for perception. Figure 6 portrays *M* in three of its roles. M_1 is a communication source; he perceives event *E* and makes statement *SE* about it. M_2 is a destination; he perceives statement *SE* but makes no communicative reaction. M_3 is both destination and source; he perceives statement *SE* and reacts by making statement *SSE*.

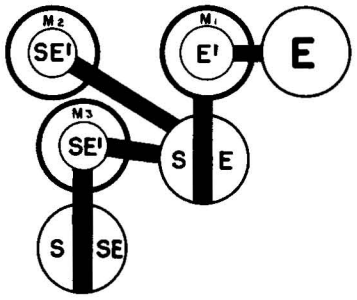

Figure 6
The communicating agent, M, in three of its roles

The study of *M* roles is the area of communicator and audience research. It involves primarily the investigation of individual, group, and institutional characteristics of communicators, and the social, historical, and geographical study of both communicating agents (or agencies) and audiences. Included among these charac-

teristics are distribution; density; age; sex; education; training; intelligence; occupation; income; buying habits; preferences; religion; family, peer, community relationships; and social, cultural, or ethnic status; etc. as communication variables.

2. *The Perceptual Aspects of Communication*

M "perceives an event"—but on what terms? This second aspect of our model involves the study of perception as an element of communication. The horizontal axis of the graphic model, linking *M* to the world of events, represents the perceptual process. The model also indicates that although perceptions are occasioned by events, and thus reflect events in some way, they also differ from events; that perceptions are functions of both *E*s and *M*s; and that statements about events stem from *M*'s way of perceiving events.

Different approaches to the study of perception range along the horizontal axis, according to relative emphasis given to the structuring or dominating effects of either *E* or *M* upon *E'*. For example, the transactional approach, familiar to readers of this journal (13), stresses the structuring effects of *M*'s assumptions, point of view, experiential background, and other related factors, upon the perception, *E'*. Here, *E*, the event, is only "something out there," almost "created" in the act of perceiving it. The transactionalists demonstrate that in some situations different *M*s perceive different phenomena occasioned by the same event, or even "distorted" phenomena until and unless *M*'s point of view and assumptions about the event can be checked and modified through action.

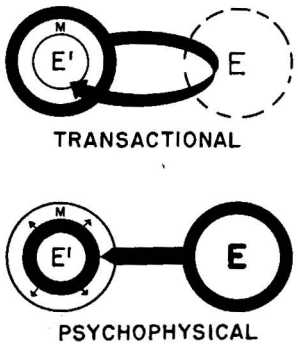

Figure 7
Two approaches to the study of perception

The upper portion of Figure 7 shows a modification of the horizontal dimension of our diagram illustrating the transactional approach. It shows a man "transacting" through his "assumptive form world" (*M*), and through "something out there" (*E*), thus "creating" his perceptions.

Equally familiar is the opposite, psychophysical, approach to perception. (6) Here E is a firmer, independent variable; the world of material events, sounds, shapes, and forms is "in control," and perceptions are remarkable in their fidelity and adequacy under favorable conditions. The perceptual organization of E' corresponds to order and organization inherent in the universe of perceivable events. Learning and sharing more reliable perceptions is primarily a problem of becoming more sensitive and discriminating to stimuli.

The lower portion of Figure 7 illustrates the psychophysical approach in which the independent event, E, controls the dependent perception E'. The perception in turn acts upon the stimulus field, the organism M, making it more sensitive or "perceptive" to stimulation by E.

Our basic model also postulates the prior existence of independent reality E, giving rise to all perceptions. But it does not use any arrows; it attempts to take into account the creative, interactional nature of the perceptual process, avoiding any implications of either solipsism or mechanism.

3. *Reaction to Communication: Research on Effectiveness*

Investigations of how Ms react to events or statements perceived are generally classified under study of "effects." Our model, as noted before, divides "effects" into two categories; the first is *effectiveness,* measured by the criteria of the objectives of presentation and classified under the present heading. The second is *consequences,* measured by criteria independent of the objectives of the presentation, and classified under point 10.

Effectiveness, then, is measured by specific objectives. If the objective is learning, did learning take place? Was it short- or long-range? If it is persuasion, did opinion change take place? If it is making a sale, did it result in sales? And so on. Such are the questions investigated under the *reaction-effectiveness* category.

When the emphasis shifts to the communicative nature of a reaction, then it comes under the heading of study of means, form, or content, and is classified under those aspects.

4. *Situational Aspects: Conditions and Methods of Presentation*

Perceptions of, and reactions to, presentations are also affected by the *situation* in which they take place, including the method of presentation. *Situational* variables in communication may be physical, social, or procedural.

Physical variables include the setting, room size, arrangement, light, sound, noise, heat level, etc. Social variables include group size, structure, composition, cohesiveness, and the like. Procedural variables refer to the manner of presentation and utilization. Investigations of such variables are classified under the *situational* aspect of communication study.

5. *The Means: Channels and Media, Distribution and Control*

All communicative reactions are controlled by some *means*, facilitating the production and distribution of communication products. This aspect of communication is represented on the graphic model by the vertical dimension, relating the communicating agent or agency, *M*, through the *means* axis, to the communication product, *SE*.

Study of the *means* includes investigation of (a) material agents (channels and media) that facilitate the transmission of signals; (b) choices and combinations in the use of means; and (c) engineering, administrative, and institutional facilities controlling signals and their distribution.

The control and distributive phase of the study of means is closely related to the next aspect, availability of materials. The difference is that under *means*, research is centered on specified means and facilities producing communication, and controlling distribution, while under *availablity* the problem is to determine what is actually available for perception at specified times and places.

This distinction becomes crucial especially in a discussion of the place of control, and of the relationship between control and freedom in social communication. It was inherent in the foregoing discussion that means of transmission must be controlled to produce nonrandom forms (that is, signals, statements), and to enhance economy, efficiency, and effectiveness in communication. It will be suggested under the next heading that facilities producing communication products may be controlled for the purpose of assuring equitable distribution, hence public availability, of statements reflecting all pertinent views about events of public concern.

6. *Availability: Study of Freedom and Control in Communication*

It has been noted that the aspect of *availability* has two related facets. One has to do with control of *means* and transmission facilities for the production of signals and for their *adequate* distri-

bution. The other facet has to do with control of facilities for the purpose of *equitable* distribution, and with techniques for measuring the extent and nature of actual distribution of communication products *available for perception.*

The problem of equitable distribution of all statements pertinent to decision-making on public issues goes to the heart of the issue of freedom in industrial society, where equitable distribution hinges upon control of the means of mass distribution, that is, of the mass media.

The case for freedom in communication rests upon the theory of self-government. The theory of self-government assumes that the majority of people are capable of making, and observing, correct rules and responsible controls in the public interest, if they can freely select and discuss diverse views and reasons in a representative context of the availability of all pertinent evidence. Self-government thus places the individual in two simultaneous roles. In his role as the governed, he is subject in his private actions to necessary rules and controls. But in his role as the governor, free citizen, of the self-governing society in which he lives, he is responsible for improving the laws; therefore his freedom of thought and speech must be unabridged, subject to no law but guaranteed by law, to promote free criticism and improvement of the laws that govern him.

The structure of our model of communication illustrates the relationship between control and freedom in a self-governing society. Controls are a feature of the vertical, and freedom of the horizontal dimension. The two are interrelated; there is no freedom of selection unless there is control over facilities to assure equitable distribution and availability.

Controls along the vertical (*means*) axis are thus essential both for the adequate transmission of signals, and for their equitable distribution. In a social sense, *means* is the sphere of private actions: access to and use of facilities to further individual views must be subject to rules and controls of law.

Freedom along the vertical axis representing *selection, context, and availability* for *perception,* is both an outcome of controls over the *means* of distribution, and a prerequisite for continuous improvement of means and controls. This is the sphere of public availability and perception, the communication requirements of free thought, speech, and decision-making, whose abridgement in

any way is proscribed by the First Amendment. The reason for the Constitutional guarantee of free press is thus to safeguard the *thinking process* of the community by making it responsible for assuring the equitable distribution (which means mass distribution) of all views and evidence pertinent to public issues. The attainment of freedom along the horizontal axis depends upon the positive exercise of that public responsibility for regulating private use of the facilities of communication along the vertical axis, in order to safeguard *equitable* availability.

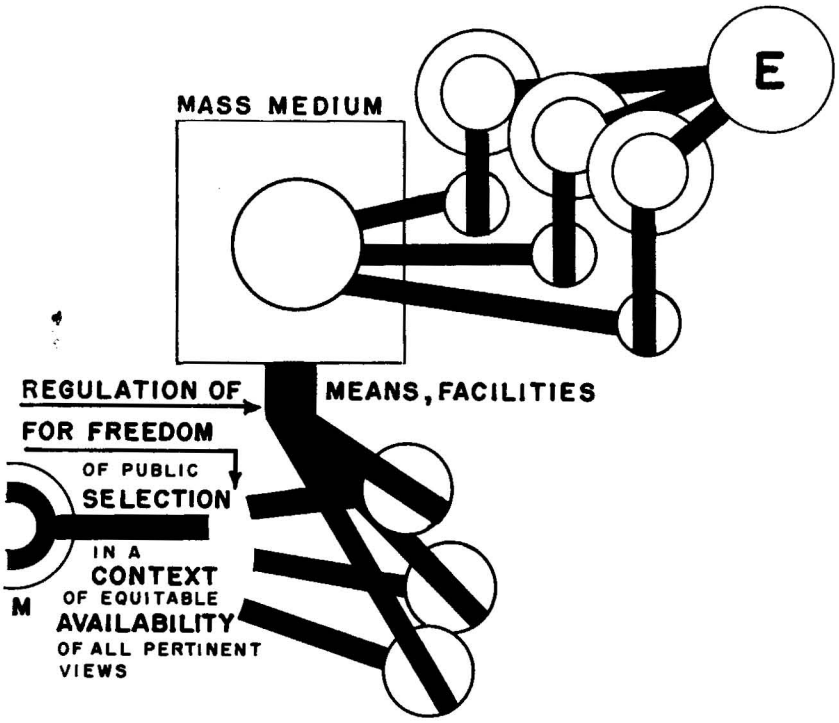

Figure 8

The interdependence of regulation and freedom in mass communication

Figure 8 illustrates this reasoning. An event of public concern, *E*, is discussed or represented by three sources whose views can be made available to the public only by a mass medium, say a broadcasting network. The Federal Communications Commission exercises some control over the means of transmission to promote use of these facilities in the public interest, and to safeguard equitable availability of diverse views as in a political campaign. Regulation

of the facilities is designed to assure that the public is free to select and discuss all pertinent views in a representative context.

Lacking an understanding of the place of controls and freedom in communication the distinctions become confused. If freedom can be claimed to pertain to the vertical axis of private use of facilities, it can mean the freedom to distribute, suppress, or monopolize at will. Such "freedom" is a mutilation of the requirements of self-government through freedom of access, along the horizontal axis, to all communication products pertinent to public decision-making.

It is only in this way that the issue of censorship can be dealt with without throwing out the baby along with the bathwater. Regulation over *private actions* and access to *facilities* is essential in order to assure *public availability* of *diverse views* and thus to prevent censorship through unregulated monopoly power, private or public.

The aspect of availability is thus a fruitful area of research into the institutional, social, and legislative theory and practice of communication. Included here are investigations attempting to measure distribution and availability of communication products, and freedom of selection (choice) by the communicating agent.

7. *The Form of Signals; from Style to Statistics*

The transmitting agent must be formally structured in some way to carry a signal with representational, symbolic, or affective qualities, in other words, to convey a message. Formal qualities of statements are diverse, and have been studied in many ways. Some of these qualities are grammatical, rhetorical, graphic, or phonic structure, style, organization, color, dimensionality, design, complexity, and so on. They have been studied in terms of esthetic, functional, sales, and other criteria concerned with formal methodology.

Research into the formal aspects of large numbers of signals also includes mathematical and statistical approaches involving studies of probability of occurrence, frequency, redundancy, internal context, sequence, etc. Recent advances in the theory and mathematical treatment of information, developed mostly for purposes of electronic communication and automatic control by feedback, come under this heading. Shannon (17) constructed a model of a general communication system applicable to the mathematical theory and treatment of information. Figure 9 compares Shan-

non's diagram with the same communication system as portrayed on our general graphic model.

The problem of information theory has two aspects: selection and transmission. Information is defined at the source as the measure of one's freedom of choice in selecting a message. As freedom of choice increases, the probability of picking a certain message, something one already knows, decreases. The unknown, uncertain, improbable carries greater information value than the probable, commonplace, or easily predictable. Information at the receiving end, on the other hand, is something that reduces uncertainty. Random noises in transmission, however, add the kind of uncertainty that is undesirable because they did not come about through the sender's freedom of choice, and, instead of increasing information value, increase uncertainty about the messages at the receiving end.

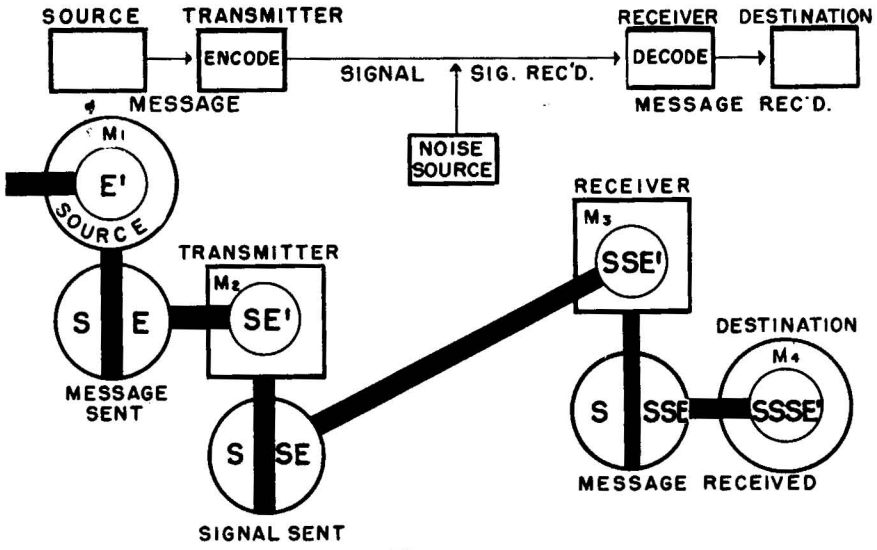

Figure 9

Shannon's diagram of a general communication system (top) compared with the progress of a signal in the same system as illustrated on the graphic model

Suppose now that the message, *SE* sent by the source has a certain formal information value in terms of freedom of choice at the source. (See Figure 9.) But in the course of coding and transmission the signal deteriorates; it picks up spurious, random signals—"noise"—and comes out *SSSE*. The task of information theory is to subtract this undesirable element from received signals,

and to obtain maximum dependability and economy (through reduction of noise, error, redundancy) in coding and in the use of channels.

So while information theory as such is not concerned with perceptual, cognitive, representational, or semantic aspects of signals (with content in the usual sense), it *is* concerned with the formal characteristics of signal systems as related to problems of transmission and selection. Information theory may be pertinent, therefore, to problems of *availability* (selection) and *context,* as well as of *form* in communication.

8. *Context: Composition of the Communication Field*

Context in our scheme refers primarily to the nature and composition of the communication field, in space and time, in which a certain event is selected for perception. (The internal composition of a signal or message has been classified under *form;* the physical and social setting of perception and/or reaction comes under the heading of *situation.*) Context, in this sense, is therefore an aspect of the perceptual dimension of the graphic model.

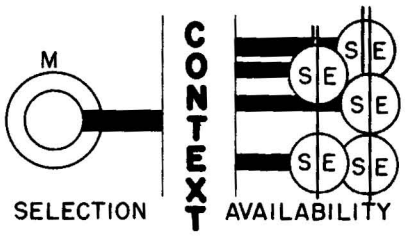

Figure 10
Context: the communication field in which the selection process operates

Figure 10 illustrates how studies of context can have a double-barreled significance. On one hand they shed light on distribution, on the pattern of availability of communication products in a specific instance and in regards to a specific message. On the other hand, they can help explain the nature of the selection process, or, at least, demonstrate the role of the composition of the communication field in bringing about certain ways of selecting, perceiving, and understanding statements.

9. *Content: Study of All Relationships as Reflected in the Statement*

Any nonrandom communicative transmission is a signal. This means that it must be occasioned by some systematic use of some means. Therefore it reflects, represents, symbolizes, refers to, or corresponds to some pattern in some source. Thus every signal has *content,* even if one cannot tell its meaning at a certain instant. So on our graphic model, *S* never stands by itself, unless it signifies

noise; it is always coupled with *E*, the representational, content qualities of the signal, to make up the communication product *SE*.

Content analysis is actually the investigation of a relational pattern, of the sum total of the attributes of all other aspects reflected as that quality of a statement which is not identical with its form. Strictly speaking, therefore, content analysis focuses not on how statements are perceived by certain individuals or groups, but on "built-in" qualities of communication products as they reflect aspects of the communication sequence of which they are a part.

So content can be studied from the point of view of any or all aspects and elements in our model. This is illustrated on our

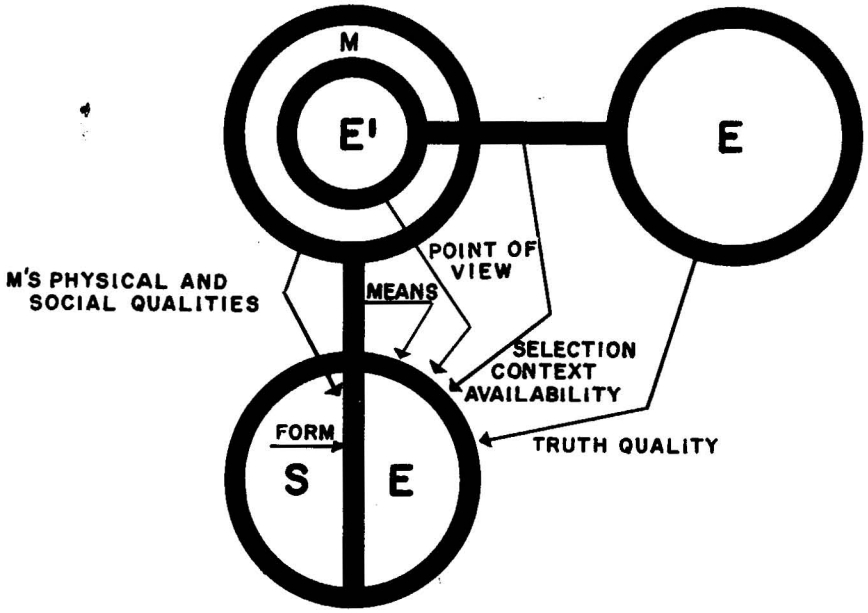

Figure 11
Any aspects of the communication process may be studied from the point of view of any other aspect. Content (E part of SE) might reflect all other aspects as "built-in" qualities inviting study

graphic diagram on Figure 11. We may find in our study of the *E* properties of statement *SE* that there are "built into" them some

overt or implicit points of view, assumptions, etc., that were part of *M*'s way of perceiving events. These may even reflect *M*'s selection process, and the context of availability in which it operates. The situation in which *M* reacted, and the means he used to produce the signal, not only fashion its form but also affect its content qualities.

On the other side of the diagram, the content properties of statements may be related to the events that occasioned them. We may investigate content from the point of view of representational or symbolic adequacy, or correspondence; in other words, appraise its truth qualities.

Simple frequency counts, although they involve identification of content usually from the standpoint of form, would usually fall under the heading of availability or context study. On the other hand, semantic analysis, for example, focuses on content, especially on *M* versus *E* orientation of statements. The former is said to have intensional meaning, rooted in assumptions, inferences, etc. The latter is extensional orientation rooted in the world of events (or sense data). Philosophical, social, scientific criticism usually involves content analysis of some kind.

10. *Consequences: Study of Over-All Changes*

When *M*'s communicative reaction to event *E* produces *SE*, or when the perception of a statement produces another statement, a new event has come into being. This new event, the communication product, makes some irreversible contribution to some chain of events as it becomes part of that chain. If this contribution is measured by the yardstick of intent or objective inherent in the presentation which evoked it, it is classified as "effectiveness in reaching a desired objective," and comes under the heading of the *reaction*. If, however, we study the over-all contribution, the tendency of communication to change a state of affairs or the state of some system independently of any preconceived objective, then we are dealing with *consequences* in terms of our model.

Robert K. Merton provided an example of this type of analysis in his study of *Mass Persuasion* when he contrasted the effectiveness of the Kate Smith war bond "talkathon" with some of its possible over-all *consequences* in his last chapter on "The Moral Dimension."

Consequences may be studied through physical, social, or psychological analysis; they may be viewed in reference to changes in any or all aspects of communication over a period of time. They must be appraised, however, in the light of some normative concepts.

11. *Value Orientation: Some Normative Concepts Illustrated on the Model*

The theory of communication can either find a scientific value orientation or remain the elaboration of manipulative techniques. A value-conscious approach is based on some normative standards and criteria. One possibility for a theory of communication is to formulate such value standards and criteria in terms of changes in knowledge. The following series of basic propositions about communication lead us to a value-oriented concept of knowledge.

Leading a fully human life is the principal goal of man. Making a human living is his principal activity. Both are possible only in a society; both require the production of goods and rendering of services by and through which we live and make a living.

A full human being is thus a member of the species Homo Sapiens living in a society. Society is the pattern of productive and service relationships which create the conditions of human life and welfare. Social production involves the cooperative handling of materials on the basis of information; services involve the handling of information itself. Society is, therefore, cooperative living and labor through communication. It exists for the purpose of maximum human development.

Public knowledge is acquired through social communication, and describes the state of a social communicative system. The ultimate value of human welfare yields measures of value in social communication and of validity in public knowledge. Ideal social communication in terms of human welfare yields the greatest increase in valid public knowledge.

Knowledge is a communicative quality of man's social relationships with his world of events—of the horizontal dimension of our model—and a consequence of his communicative actions and products—represented on the vertical axis. The task is now to specify some normative characteristics of knowledge in terms of ideal communication.

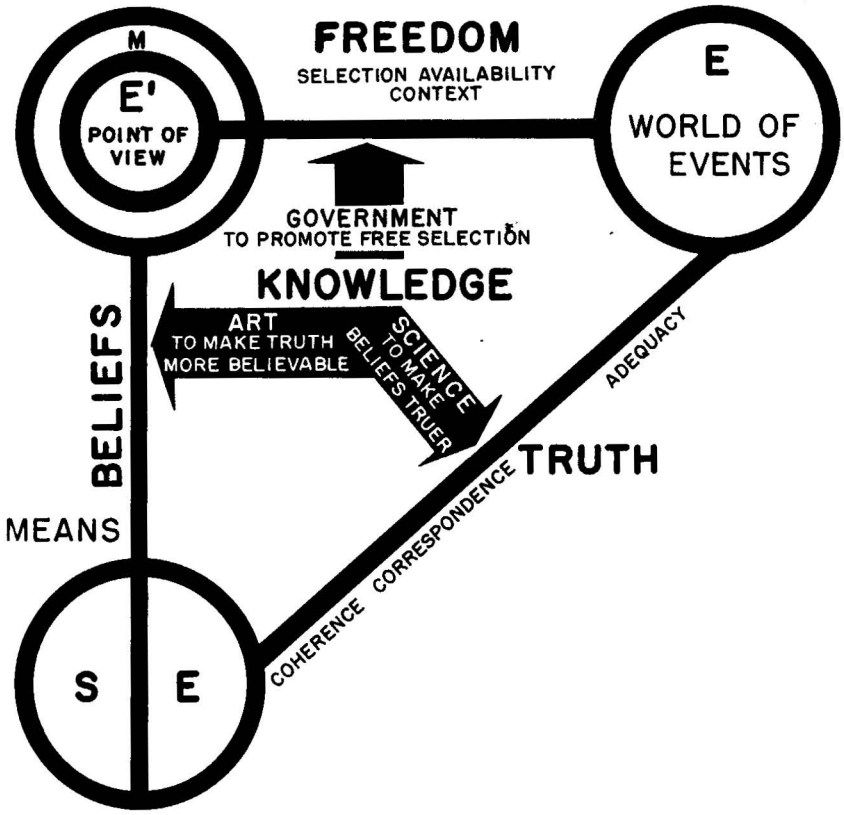

Figure 12
A conceptual application of the model to illustrate a definition of knowledge as the result of ideal social communication

Our model, as shown on Figure 12, suggests some normative aspects of knowledge, and forms a triangle defining a value-oriented concept of knowledge in communication terms. Along the horizontal side we find the perceptual dimension relating the individual, with his points of view and assumptions, to the world of events (and statements). The ideal along this dimension may be expressed as *valid perceptions freely selected from a representative context of all pertinent evidence.*

On the vertical axis we have added "beliefs" to "means" as a controlling aspect in communicative actions; the hypotenuse represents "truth" as the ideal quality relating statements to events. Reading along these two sides we find the ideal as *true beliefs reflecting valid points of view and presented through effective means and forms.*

Human welfare is, of course, the criterion of validity, and the ultimate value which makes freedom, truth, and controls necessary. Its specific place on the model is along the vertical dimension, as it is the controlling value, or belief, that regulates man's ideal social actions and communications. Thus it is with human welfare as the paramount goal and controlling value that, contracting the above propositions for a briefer statement, we formulate our normative concept of knowledge in communication as *true beliefs freely acquired and clearly presented.*

In a self-governing society all citizens benefit by, and are responsible for, the promotion of public knowledge on such terms. Each advance in standards and expectations of human development imposes upon the major communicative institutions of society increasing demands for the freer acquisition and more effective presentation of a truer set of beliefs. Such have been the historic ideals, and growing functions, of democratic government, science, and art.

Government in a democracy is responsible for safeguarding the freedom of selection and the equitable availability of diverse views and evidence in matters of public concern. Otherwise there is no self-government, only manipulation of citizens, or as more elegantly phrased, "engineering of consent."

Science is the systematic examination of the truth quality of statements and beliefs in the light of reason and freely acquired independent evidence. It arises in response to real human needs, and it attempts to serve them by forming truer statements and more valid ways of perceiving. Standards of validity evolve through historical and scientific processes; they are expressed in terms relating value to human welfare, and are embodied in the governing principles of democratic society.

Art also serves real human needs. It is the creative effort to express, by the most moving and powerful means, true and significant propositions perceived from a valid point of view. The "beauty," the "emotional quality" of art, (not wholly foreign to science!), rests in the excitement of *discovery* upon the perception of a convincing, true, significant, and valid statement. Art sensitizes us to the perception of human potentialities whose development society and science make possible.

Government, science, and art thus complement one another in communication as they function to make knowledge freer, beliefs truer, and truth more believable.

It might be argued that the discussion of such broad concepts is not the task of model-building in communication theory. But if that is so, the study of communication must abandon hope of any scientific value orientation as an organized discipline, and remain torn by particular rationales behind specific research techniques. For scientific value orientation does not rest in technological efficiency on behalf of unscrutinized objectives; it rests in the concern with over-all human needs and consequences behind all attempts to organize a field and map out an approach for further study.

This paper has not presumed to furnish a blueprint, but hopes to stimulate the search for one. It has attempted to present a unified approach to diverse aspects of the study of communication in terms of a model that might serve the triple functions of description, classification and discussion. Above all, it tried to provoke the kind of model-building in communication theory which can help us communicate about specialized technical matters and broad conceptual issues on related terms. If it succeeds in that, it has achieved its major purpose of helping to bridge that unnecessary gap between "arid equations" and the world of urgent questions.

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