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## COMMUNICATION PROCESS: AN OPERATIONAL APPROACH\*

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Communication process has been examined segmentally and sporadically from a variety of quite legitimate points of view, both intuitive and logical.

My purpose here is to consider some opportunities, ramifications, and limitations of studying communication process from a behavioral science point of view emphasizing the concept of operationalism.

Operationalism (defined operationally!) consists of observing the relationships between events, and employing these observable relationships to define the concept representing the combination of events.

P. W. Bridgman pointed out that a concept can be considered synonymous with its corresponding set of operations, which in turn must be unique and unambiguous in practical applications (Bridgman, 1928). Thus, operationalism as a method of science properly defines concepts in terms of observable operations, rather than in terms of more mystical, mentalistic properties.

As Bergmann and Spence suggest, this kind of "scientific empiricism" does not assert that mentalistic terms such as "consciousness," "sensation," etc. are necessarily meaningless, or that referents for such terms do not

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exist; it does maintain that such terms should be used in science only after being introduced by operationally defining them from a physicalistic meaning basis. Only then can they be tested with precision by the scientist's observations and measurements (Bergmann and Spence, 1944). It may also be true that some universals (concepts) transcend observable experience, and do not lend themselves to operational definitions (Popper, 1959).

However, it can be argued that too often we do not operationalize concepts and make their examination amenable to scientific methods; rather, we are content to leave said concepts in the mystical realm of the "black box," and speculate upon them rather than subject them to more rigorous analysis. Certainly both kinds of activity can be stimulating and profitable. Far from rejecting non-operational concepts per se, I think they have real value. After all, that concept which cannot be operationalized today, might very well be made operational tomorrow.

A potential danger of operationalism is the tendency of the researcher to acquire an acute case of mental myopia because of a rather rigid, curiously Aristotelian tendency on the part of some practitioners to dichotomize research problems into operational (worthy) or non-operational (unworthy) categories on an a priori basis, without sending enough effort exploring ways and means to make the unobservable and non-operational, observable and operational. Unfortunately, nit-picking research sometimes results.

This danger notwithstanding, however, operationalism provides a

research point of view entirely consistent with what I perceive to be the needs and opportunities of behavioral science research in the study of communication process. My plea here is for more application of scientific method in the analysis of communication process, and less reliance on mysticism as a basis for predicting communication behavior.

And now, what shall be meant by the terms "communication" and "communication process"?

Definitions of communication are legion, ranging from the very general to the very specific. Some writers conceive of communication as involving people only, while others are inclined to a much broader view. Many writers use the term "communication" as synonymous with "influence," as in the sense that any response to any stimulus involves "communication." Thus, communication in its most primitive form is said to occur whenever an organism responds (however automatically or unconsciously) to its environment. Advocates of this view make no distinction between the influential behavior of either animate or inanimate objects as parties in the process. The ability to engage in the communication process in this elemental manner is thus not limited to humans, since presumably lower forms of animal (and plant) life can respond to their environments in "meaningful" (as inferred by humans, at least!) ways.

The most serious and frequent charge levied against such a broad definition is that it excludes nothing from itself, and thus fails really to define anything. Such all-inclusiveness tends to rob the term of any unique qualities inherent in it, and invites ambiguity

unnecessarily.

Like the lower animals, man also exhibits simple stimulus-response behavior; however, perhaps man's most unique attribute is his manifest ability to generate, store, and subsequently employ a high order of sign/symbol behavior.<sup>1</sup> By means of his symbol-generating activity, man represents his world and interacts with it by means of a consciously employed, conventional set of symbols combined according to specified rules. This generation of symbol systems is by definition purposeful and intentful, although the generator's intentions and/or message content may be misinterpreted by his receivers, albeit "meaningfully." Even fortuitously received symbols, although not intended for the "accidental" receiver, are purposeful from the generator's viewpoint.

Without denying or ignoring man's more elemental stimulus-response abilities, we will be concerned here with man's sign/symbol behavior. Thus, by "communication process" shall be meant any occurrence involving a minimum of five sequential ingredients: (1) a generator of a (2) sign/symbol stimulus which is (3) projected to (4) at least one perceiver who (5) responds discriminatively. (Notice that the ability to

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<sup>1</sup> Although various writers have attempted to distinguish between a "sign" and a "symbol," the position taken here is that operationally, they are both observable as substitute, or surrogate representations of some other event. To say that "signs" are involuntarily and automatically exhibited, while "symbols" are learned artifacts which are "signs of signs" may be accurate, but irrelevant for this discussion.

participate in this basic communication event is not necessarily restricted to man alone.)

Although it is very possible that additional ingredients may be present in a given communicative situation which embellish the process in some way be affecting its quality, efficiency, etc. (e.g., feedback, channel noise, filters), such ingredients are not inherently necessary as part of the process, even though they may be highly desirable or even probable in a given situation.

Thus, the basic unit in communication process can be represented by the model,  $G \xrightarrow{S} P^R$ , where: G represents a generator, S represents a sign/symbol stimulus, P represents a perceiver, R represents a differential response,  $\xrightarrow{\quad}$  represents projection in time.

Why this insistence that the G-Stimulus consist of sign/symbol behavior? Why not merely assert that whenever G provides any stimulus, a discriminative response from P will constitute the completion of a unit of communication process?

The limiting condition of sign/symbol behavior as necessary to communication process is stipulated in order to avoid defining any and every S-R relation between two organisms as constituting communication; to do less would be to sink the term "communication" in a sea of ambiguity.

The absence of a systematic discriminative response by P to the sign/symbol stimulus of G reduces the total sequence to an instance of simple stimulus-response relationship; obversely, the projection by G of a non-sign/symbol stimulus to which the P responds, randomly or otherwise, would not qualify as a communication event.

"Communication" thus occurs with reference to G and P whenever the response of P to the sign/symbol stimulus projected by G is consistent with the response intended by G; that is, when the referent responses of G and P to the sign/symbol stimulus are systematically correlated. The greater the correlation between the response intended by G and the response provided by P, the more "effective" is the communication.

In terms of this operational model, "meaning" is thus defined as the discriminative response of each communication event participant to the sign/symbol stimulus. Communication thus occurs when the "meanings" (discriminative responses) of G and P are shared (overlap). Thus, communication process can occur without communication occurring, although the reverse would not hold. Notice that any stimulus is capable of evoking meaning; but the unique requirement that the stimulus be a sign/symbol is necessary to warrant a given event as involving communication process.

In summary:

1. Operationalism refers to a technique for defining combinations of events (concepts) in terms of the observable relationships (operations) between those events.
2. "Communication process" can be described operationally in terms of the  $G^S \text{---} P^R$  model, which is a special case of the S-R model where the stimulus generated by G is a sign/symbol.
3. "Communication" occurs when P responds discriminatively to the sign/symbol stimulus generated by G to the extent that a correlation occurs between the response intended by G and the response provided by P.

Clearly this correlation in turn depends on the degree of correlation between the conditioning histories of the parties involved.

4. Meaning is response defined. Meaning, defined as any discriminative response, can occur in any given S-R situation without involving communication process, if the stimulus is not sign/symbol. However, communication cannot occur without meaning.

Bergmann, G. and Spence, K. W. "The Logic of Psychophysical Measurement." Psychological Review, 51, 1944.

Bridgman, P. W. The Logic of Modern Physics, New York: Macmillan Company, 1928.

Popper, K. R. The Logic of Scientific Discovery, New York: Basic Books, Inc., 1959.