Communication research in family planning
An analytical framework

Population communication: Technical documentation

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Communication research in family planning

An analytical framework

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COMMUNICATION RESEARCH IN FAMILY PLANNING: 
AN ANALYTICAL FRAMEWORK*

INTRODUCTION

This paper reviews the significant elements of communication research and evaluates the implications of these for further research and communication strategies in family planning, with particular reference to less developed countries (LDCs). The paper does not aim to summarize major communication research nor does it attempt to present an annotated bibliography; these types of exhaustive compilations are available elsewhere (Schramm, 1960, 1961, 1963; Cohen, 1964; Hovland, et.al., 1953, 1959; Bogue, 1967; DeFleur, 1970; and Rogers, 1973). One of the major purposes of this paper is to extract from a diverse field of literature the significant generalizations and implications which could serve as a frame of reference for decisions for further research and communication interventions for family planning. It is assumed that the readership of this paper will be heterogeneous and will include many who may not have had formal and intensive exposure to the behavioral science and communication research literature used for this paper. Consequently, the paper presents some of the key concepts, conclusions, and implications in a simplified form. This has been consciously planned to maximize communication with those who are not familiar with the field of behavioral sciences at the risk of presenting some material which may at times appear fundamental to those who are expert in this field. Furthermore, the focus of this paper is on applied communication research and the applications of this research for communication intervention in the field of family planning. Finally, many issues presented in this paper are not conclusive but are suggestive and at best are reasonable hypotheses. These are presented to generate interest in these areas so that further research will be undertaken to find conclusive answers to some of these questions. In sum, the paper attempts to strike a balance between presenting sound generalizations and those issues which are not conclusive and yet are of great significance for communication research intervention in family planning.

For the purpose of this paper, communication is defined as all those planned or unplanned processes through which one person influences the behavior of other persons. From this standpoint, communication is the science of interactions between individuals which have behavioral consequences and not one of communication gadgets or hardware. The planned communication therefore includes all those deliberate interventions which are aimed towards achieving predetermined changes in the covert and overt behavior of the communicatee. In order to be effective, such an intervention should begin with a sound understanding of the determinants of the particular behavior. From this perspective, the process of planning and implementing an intervention is analogous to the steps involved in the process of clinical treatment in which a physician begins with a diagnosis of the illness before he administers effective treatment. Similarly, a process aimed at changing behavior through planned intervention must begin with: (a) a sound understanding of the

* Prepared for Unesco, Paris; in order to acknowledge equal contributions of the two co-authors, their names appear by the alphabetical order of the last names.
causal factors or determinants of the behavior, (b) a determination of which of these causal factors are amenable to change through communication intervention, and (c) a careful evaluation of which of the various alternative forms of intervention are more effective and efficient.

This paper thus begins with a conceptual framework for the analysis of a behavior (Section I), followed by a conceptual framework for determination of appropriate intervention (Section II), then a review of significant variables and generalizations of communication research relevant to family planning communications (Section III), and finally implications of these analyses for communication research and interventions in family planning (Section IV).
I. A CONCEPTUAL FRAMEWORK FOR ANALYSIS OF DETERMINANTS OF A BEHAVIOR

This section presents a theoretical model formulated by the author (Fig. 1) for the analysis of the determinants of a behavior and could be used for a diagnosis of the determinants of a family planning behavior. Most conceptual models in the behavioral sciences are simplified conceptualizations of reality and are often not free from the subjective bias of the theoretician; the model presented in this section is no exception. In the final analysis, each researcher must selectively organize and evolve a conceptual frame of reference in which he has the highest level of confidence, and he must believe that he has the competency to implement this model. At times a critical evaluation of the strengths and weaknesses of the models proposed by other investigators serves a very valuable purpose in evolving one's own conceptual framework; the purpose behind presenting the author's own conceptual model in this section is to provide the reader an opportunity to carry out such a critical evaluation. In addition, a secondary (but not peripheral) motive behind presenting this model is that the feedback received from the readers of this paper would help strengthen the model and would thereby increase its validity.

A fundamental assumption underlying this model is the multiple causality of human behavior. The literature abounds with examples in which students of human behavior have attempted to explain human behavior in terms of one fundamental cause or motive. For example, Plato and his followers emphasized the "rational" nature of man; Descartes emphasized "passion" as the major causal factor of human behavior; Bentham, Mills, and Spencer saw "hedonism" as the major causal factor; Hobbs, Nietzsche, the desire for "power"; Freud, "Libido"; Pavlov and Skinner, "conditioning"; and MacDougall insisted that "instinct" is the major causal factor of human behavior. One could list several other such theoretical postures which have one thing in common, that is, they all explain behavior in terms of one major causal factor which Allport (1959 p.9) terms a "simple and sovereign" theory. Although there is a general consensus among the behavioral scientists today that human behavior cannot be explained through such simple and sovereign theories, it is not unusual to encounter very subtle forms of simple and sovereign theories. Kaplan (1964), based upon his intensive observation of the behavioral scientists at work, formulated what he calls "the law of the instrument", which is described as follows:

"Give a small boy a hammer, and he will find that everything he encounters needs pounding. It comes as no particular surprise to discover that a scientist formulates problems in a way which requires for their solution just those techniques in which he himself is specially skilled (p. 28)."

This law of the instrument, which Kaplan formulated to describe the bias of the investigator in favor of using his own skill (regardless of whether such a skill is needed), is also widespread in terms of selection of a conceptual framework for the study of human behavior by the behavioral scientists. Fawcett (1970), based upon a careful review of the literature, presents several models for the analysis of fertility behavior proposed by various behavioral scientists. A quick
review of these conceptual models reveals some very interesting findings which support the applicability of Kaplan's law of the instrument in the area of selection and utilization of various conceptual models. All of these models seem to be based upon the assumption that the following categories of factors have significant influence on fertility: (1) socio-economic and demographic factors, (2) environmental factors, (3) certain psychological factors, and (4) culture and historical setting. However, the degree to which each of these categories is emphasized varies significantly depending upon the disciplinary bias of the persons who proposed these models. For example, Freedman's model (1967), which incorporates sets of intermediate variables proposed by Davis and Blake (1956), rightly emphasizes the roles of social and economic structures, environment, mortality rates, and norms regarding family size and the specific intermediate variables of fertility behavior. In this model such concepts as values, motivation, attitudes, and interpersonal influence are absent; these are assumed to be subsumed under other components of the model. This is characteristic of sociologists whose primary focus is on interactions between social structural, economic, and demographic variables as causal factors of fertility. The model by Hill, Styos, and Back (1959) places significantly greater emphasis on the roles of general value systems, informational and attitudinal attributes, and the role of reference groups. A third model by Mishler and Westoff (1955) makes specific mention of the psychological availability of contraception, family group variables, long-term fertility ideals, and influence by kin, friends, and peers. In the fourth model by Smith (1969), a great deal of emphasis is placed on personality processes and predispositions (motivations, values, attitudes, ego-defense, and cognitive traits); what is also interesting is that in this model, social environmental determinants are relevant to the extent that they influence the personality processes and predispositions.

A trace of "the law of the instrument" is obvious in these four models. It must also be noted that it is not only the personal bias of the investigator which causes such variations; but the specific purpose for which various models are designed may vary, which may also cause a significant variation between such models. In so far as the difference is based upon a real purpose and not on the subjective bias of the theoretician, there is reason to be concerned with it. But, on the other hand, when investigators and program administrators are preoccupied with personal biases which lead toward the adoption of a simple and sovereign theory for diagnosis or intervention, it is quite likely that the answers obtained through this approach will not be valid nor the interventions be effective.

A review of the emphasis placed upon various forms of interventions in family planning in different countries reveals the amazingly high frequency of simple and sovereign assumptions about the determinants of fertility behavior. Some of these causal assumptions and their likely expressions in family planning are presented in Table 1. On the basis of the teachings of the behavioral sciences and on the basis of pragmatic experience, one may easily understand why the multiple causality model will be more effective for diagnosing the determinants of human behavior. An examination of the various categories of interventions in Table 1 would lead to the conclusion that interventions primarily based upon different simplistic causal explanations of human behavior are likely to vary significantly and may be indifferent to the true cause of a behavior. Such efforts are more likely to be ineffective than an intervention based upon the assumption of a multiple causality of behavior.

The model presented in this section (Fig. 1) is based upon an assumption of multiple causality of a behavior and presents a systems approach for analyzing the determinants of this behavior (as against a simple or sovereign or linear approach). According to this model, the diagnosis of a behavior for the explicit purpose of planning for intervention through communication should use a systems approach including four subsystems. Each of these subsystems interact among themselves and influence to a varied degree different behavior in different situations; nevertheless, each subsystem has a significant role to play. An attempt to explain a behavior entirely by using one of the four subsystems while ignoring the other three
### TABLE 1*

**INTERVENTION STRATEGIES BY SIMPLE CAUSAL ASSUMPTIONS**

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<th>Simple and sovereign causal assumptions</th>
<th>Possible interventions</th>
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<td><strong>1. empirical-rational assumption:</strong> the basic assumption is that men are guided by reason and knowledge.</td>
<td><strong>1. intervention characterized by heavy emphasis on information dissemination, formal training, education and appeal to national and societal benefits from family planning.</strong></td>
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<td><strong>2. normative-re-educative assumption:</strong> the basic assumption is that man is essentially active and constantly striving for need satisfaction. However, his behavior is guided by socially structured norms, institutions and existing communications and social influence.</td>
<td><strong>2. intervention based upon this assumption would emphasize creating new sets of social norms, utilization of social systems, greater dependence on reference groups and an attempt towards internalization of norms and values. Such an intervention would aim towards greater utilization of social systems, institutions, leadership and population education.</strong></td>
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<td><strong>3. power-coercive assumption:</strong> the basic assumption is that the effective way of changing behavior is neither through a rational appeal nor through a process of creating sets of norms; rather through external sanctions and controls. Such control could include moral, economic, political or physical coercions or sanctions.</td>
<td><strong>3. intervention based upon this assumption would emphasize legislative measures, rewards for conformity and punishment for non-conformity, appealing to sense of guilt or morality or arousing a high level of anxiety and fear by exaggerating or even distorting ill-consequences of unplanned families and population growth.</strong></td>
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<tr>
<td><strong>4. hedonistic and materialistic assumption:</strong> the basic assumption is that man is primarily motivated by the pleasure principle, striving for comfort and obsession with material possessions.</td>
<td><strong>4. interventions based upon this assumption would emphasize luring people with monetary and material incentives, providing free contraceptive facilities, and on the convenience of obtaining these services.</strong></td>
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Note: the first three assumptions of column 1 of this table have been adapted from Chin and Benne (1969).

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is likely to lead to a faulty or at best distorted description of the causal factor similar to the description of an elephant by five blind men, each of whom had sampled only one limited area of the elephant and ignored the others. The model (Fig. 1) proposed for an analysis of determinants of human behavior consists of four subsystems: (1) cultural and political, (2) social-structural and economic, (3) social-psychological and intra-personal, and (4) environmental and situational. According to this model, the decision to accept or reject family planning (or any behavior) can be caused by either one or more or all of the four subsystems (categories of variables), and unless a study of the determinants of a behavior systematically explores causal factors in each of these areas, the conclusions are not likely to be sound and valid. The nature of interactions (of the factors within

* From the author's lecture and teaching materials in: "Foundations of Population Planning" and "Behavioral Science Foundation of Health Education".
each) of these subsystems would determine the initial decision to adopt or reject a contraceptive method. If the initial decision is to explore the desirability of a contraceptive, a trial action or trial adoption would follow. If the experience with the trial adoption is gratifying, it is likely to lead toward a stable or sustained use of contraception. On the other hand, if the experience with the trial adoption is unsatisfactory, this will reinforce the initial hesitations and would cause a discontinuation or non-adoption of contraception.

It is true, however, that not too many behavioral scientists can treat each of these subsystems with an equal degree of sophistication for their own studies. Depending upon their own theoretical frame of reference, they are more likely to adopt theoretical models which will treat these subsystems differently and at times may ignore one or more of these four subsystems. The significant thesis of this model is that a behavior is determined by multiple causes which can be categorized under four subsystems and, therefore, a research to determine the causes of behavior which does not include these four subsystems is inadequate. The principle to be used in such a design is to formulate sets of alternative hypotheses to test the influence of various causal factors belonging to these four subsystems rather than to test a single set of hypotheses which attribute the behavior to one category of causal factors (either cultural, or social structural, or psychological, or environmental).

It is obvious that this model excludes several categories of determinants (subsystems) which many students of human behavior would consider very pertinent. Some of these are: genetic and hereditary determinants, physiological and biological determinants, and unconscious or subconscious determinants, etc. The classificatory principle used to exclude these (and other) subsystems is that they are not amenable to change through communication interventions. The purpose of using the diagnostic model suggested in this section is to determine the causal factors of a behavior through a systems approach with a view to identify the causal factors which are amenable to change through communication and persuasion. Several categories of subsystems have been excluded from this model not because they do not influence behavior, but because they are not within the scope of diagnosis and intervention by behavioral scientists and communication specialists.

It would be highly pertinent to indicate the precautions that should be followed while using this model. First, behavioral scientists are usually trained in specialized disciplines and therefore are not adequately prepared to use a holistic approach. The emphasis on specialization has the inevitable consequence of narrowing down the area of competency, but it increases skill within a given area of specialization. As a result, very few behavioral scientists would be skilled enough to do justice to all four subsystems and treat them with equal competence. However, this limitation can be overcome by involving a multi-disciplinary team for designing a study which uses such a model.

The involvement of the multi-disciplinary team is primarily needed at the initial phase for conceptualizing and designing the operational strategy of the research project. Once the methodology and the design are developed, any competent behavioral scientist with good training in research methodology could implement the project. The critical point, however, is that the original conceptualization and operational design should involve those behavioral scientists who are fully competent to deal with the various subsystems indicated in the model. Their role would be to identify those particular variables believed to play causal influence within each of the subsystems, and formulate hypotheses and measurement devices to obtain necessary data to examine the relationship between various causal variables and the behavior being studied.

This initial team should also include those who are responsible for interventions so that they could help formulate questions in pragmatic and practical terms. The role of the intervention specialists (communications specialists) in such a
planning team is to test the relevance of a research design proposed by the behav-
ioral scientists from a utilitarian standpoint - by asking such questions as:
"Suppose this hypothesis is true; what does it mean for intervention? Do we have
dependable intervention means for altering or changing the causal factors which are
being investigated? Is it feasible and ethical (professionally or socially accept-
able) to intervene to change these causal factors?"

A second precaution which must be taken in all studies aimed towards determi-
ing a causal relationship, is that the design should permit testing hypotheses by
comparing those situations in which the factors which are believed to cause a
particular behavior do vary so that it could be examined whether under varying
causal conditions, there is concurrent variation in the behavior being studied.
Finally, there should be a realistic assessment of the cost and resources that
would be necessary to undertake and complete such a study. These precautions
should be taken in any applied research which would be used for planning a commu-
nication strategy as an integral part of a planning process.

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Figure 1: A MODEL FOR ANALYSIS OF DETERMINANTS OF A HEALTH BEHAVIOR

Note: For applying this model for family planning, "Behavior" and "Health Status" should
be substituted by "Fertility Behavior" and "Fertility Status". Reproductive Potential of Population
Planning, and "Behavioral Science Foundation of Health Education".
This section presents a discussion of the key issues which should be resolved before an intervention strategy can be finalized. There are two basic questions relevant to intervention decisions which ideally should be fully answered before such a strategy is implemented. These are:

A. When is an intervention justified?

B. What forms of interventions are most effective?

The first basic question an intervention strategist needs to answer is under what conditions an intervention is both ethically and scientifically justified? It is possible that a highly effective means of intervention for changing a behavior is neither ethically acceptable nor morally right; on the contrary, an intervention decision could be made through very scrupulous ethical and professional standards and yet the means chosen for it may be ineffective. It is thus necessary that the justification for intervention be answered in two separate parts, the first dealing with the ethical justification and the second, a scientific justification.

A. ETHICAL (MORAL) JUSTIFICATION FOR AN INTERVENTION

It is extremely difficult to propose an objective guideline which can be used to determine when and under what circumstances an intervention for manipulation of a human behavior is ethically and professionally justified. Considerable difference of opinion exists among the behavioral scientists and the professionals about the nature and extent of control which is justifiable and the standard of values which should be used as a guideline for making such decisions. Kelman (1969) in his discussion on the ethical dilemma for the social scientist involved in the manipulation of human behavior, very aptly summarized the central problem as follows:

"The two horns of the dilemma then, are represented by the view that any manipulation of human behavior inherently violates a fundamental value, but that there exists no formula for so structuring an effective change situation that such manipulation is totally absent (p. 584)."

The complexity of this dilemma is very clearly articulated in a symposium by Rogers and Skinner (1956). In this very lively and pertinent debate, Rogers and Skinner present their differences on the standards which can be used to arrive at a decision as to the appropriateness of intervention for control of human behavior.

Skinner maintains that control of human behavior, however unpopular and unpleasant it may appear to be, nevertheless has always been a reality and that as long as human beings are organized in social institutions and norms, such control of human behavior will continue. Skinner accepts the inevitability of control of human behavior; he is not so concerned about whether or not the concept of control...
is ethical or unethical, but is more concerned with how this control can be made more effective. According to him, a control is justifiable as long as it does not serve a self-satisfying need of the controller and as long as the controller has the professional competency and the legitimate right to exercise such control. On the basis of this thesis an argument can be made that since some form of control is essential in any social system, and since there will be people who will be responsible for exercising such control, the most appropriate strategy would be to prepare such individuals more fully so that they can exercise their control with rigorous professional and ethical standards. This strategy would require more careful preparation of teachers, government officials, behavioral scientists, and legislators to perform their roles more effectively rather than to limit their power of control.

Rogers concedes that all civilized societies will have institutionalized mechanisms to influence and control their members' behaviors and that the science of behavior will generate more effective means for controlling behavior. However, he argues that several questions central to the ethical dilemma have not been clearly answered; in addition, there is a lack of clearly articulated and acceptable standards of values which could be used as a guideline for controlling human behavior. Consequently, it is undesirable to allow a small group of individuals who have the power to control other people's behavior to answer these questions at their own convenience. Rogers (1956) believes that the answers to the following questions are central to this issue:

"Who will be controlled? Who will exercise control? What type of control will be exercised? Most important of all, toward what end or what purpose, or in the pursuit of what value, will control be exercised (p. 1062)?"

Rogers makes a good case that in these central questions there is a wide range of difference in opinions, often the answers to these questions are ambiguous, and that it is not easy to have a consensus on these issues. As a result, it is possible that human behavior may be controlled at the cost of depriving people of their fundamental freedom of choice and their right to pursue their individual values.

The complexity of the ethical dilemma in the control of human behavior seems even more profound when one attempts to deal with a highly personal behavior such as fertility control, which is deeply rooted in sexual norms, personal goals, and basic values. Callahan (1972) carries on this debate within the context of family planning and raises ethical issues specifically relevant to planned intervention for the purposes of population limitation. In most Western societies (Western European and North American countries), the three values which have played dominant roles are: (1) freedom, (2) justice, and (3) security-survival. Callahan discusses how these three values can be operationalized for decisions for interventions for fertility control. While individuals unquestionably have the right to make their own reproductive decisions, they also have the obligation to respect and protect the freedom of the other members of the society and they do not have the freedom to violate others' welfare by their own behavior. He further argues that when some individuals behave in such a way which threatens the other individuals' rights to these freedoms, then the legitimate representatives of the society, such as a government, has the obligation to intervene to protect those whose rights are being violated. Hardin (1968) describes a very vivid phenomenon in his discussion of "the tragedy of the commons". According to this thesis, if individual members of a society are allowed with complete freedom to benefit limitlessly at the cost of the commons, it will eventually bring ruin to the entire society. Under such conditions, society should introduce controls, and demand that individual members bear the costs and consequences of their own decisions and behaviors.

Both Callahan and Hardin advocate the need for some form of control of fertility behavior, but the solutions proposed by them to deal with the ethical dilemma...
may be debatable to the various readers of this paper. Hardin proposes a democra-
tized control or a control based upon mutual consensus. To some readers, this
solution may sound too simplistic for a highly complex problem. It may appear too
idealistic in the sense that in many societies all members do not have equal access
to the decision-making process and, therefore, a true democratic control may be a
highly unrealistic expectation. Furthermore, even if it is possible to achieve a
consensus about the goals and desirability of population limitation, there could
be a very sharp difference of opinion and conflict in terms of the selection of
specific means for achieving such a goal. Callahan proposes that when the rights
of some individuals are violated by others, the legitimate representatives of the
people (government) have the obligation to intervene to protect the rights of the
victims. According to him, government should not only introduce voluntary family
planning measures, but if such measures fail, it would be necessary to go beyond
family planning. He further suggests that in the planning and implementation of
these interventions, efforts should be made to be less coercive and to ensure that
the three fundamental values are respected.

The examination of ethical problems within the context of fertility control
and the various solutions suggested underscore the extent of ambiguity, complexity,
and the seriousness that surrounds the issues which are central to intervention
decisions; and the person or persons making such decisions have the obligation to
provide sound ethical justifications for a proposed intervention strategy. Such
a justification should not only be acceptable to the professionals but, in the final
analysis, should be acceptable to those whose behavior is being influenced by such
an intervention. It is therefore necessary to legitimize an intervention through
voluntary approval of the consumers, and to ensure that the representatives of the
consumers do play a key role in the formulation and the approval of the interven-
tion strategy. Consumer participation and informed consent of those whose behavior
is to be changed through a planned intervention constitute the two key criteria to
answer some of the ethical questions raised in this section and thereby provide an
ethical justification for intervention. The actual implementation of these criteria
is obviously much more complex and the author does not wish to understate the com-
plexity of this problem. The purpose of this discussion on the ethical issues
relative to intervention is to emphasize that intervention decisions do involve
ethical issues, that these issues cannot be ignored and that the person(s) who
design and implement an intervention strategy has the obligation to provide ethical
justification for such an intervention.

B. SCIENTIFIC JUSTIFICATION FOR AN INTERVENTION

While ethical justification attempts to answer when an intervention is justifi-
able from ethical and moral standpoints, scientific justification attempts to
answer what types of intervention are more effective for a predetermined purpose.
Thus, the first justification provides answers to the question: "What type of inter-
vention is right?", and the second: "What type of intervention would be most
effective?"

In order to provide a scientific justification for an intervention, one must
begin with a sound understanding of the causes of the particular behavior. Section I
of this paper dealt with the various issues relevant to analysis of determinants of
a behavior. Such an analysis by utilizing a systems approach would enable an inter-
vention strategist to develop an understanding of the various categories of causal
factors and the roles played by them in determining a particular fertility behavior
which he attempts to change through communication intervention. In order to begin
to make intervention decisions, a communications strategist would have to ask the
following questions:

1. "Is the behavior (to be changed) primarily caused by intrapersonal
   factors (social-psychological factors) or is it primarily due to
   extrapersonal factors (factors and variables external to persons
   whose behavior is to be changed)?", and
2. "What level of intrapersonal change is necessary to initiate a change in the person's behavior?"

If the primary causal factor of a particular fertility behavior rests with the physical and social environment, or with the social institutions, it would be more appropriate to direct interventions to initiate changes in these causal categories rather than to direct it to the intrapersonal aspects of the clients. For example, if the lack of acceptance of family planning is primarily due to the unavailability of modern contraceptives, it would be an absurd proposition to direct intervention to increase the level of motivation of the people. Under such circumstances, the attempt should be to improve the availability of contraceptives and on initiating those changes in the environment which will remove the barriers to achieve acceptance of modern contraceptives. On the other hand, if non-acceptance of modern contraception is not due to a lack of availability of services, but primarily due to cognitive, attitudinal, and motivational factors, it would be most appropriate to plan for an intervention which will deal with the intrapersonal factors responsible for non-acceptance. In most instances, however, an intervention may have to combine strategies for both intrapersonal and extrapersonal changes. The basic issue is not whether one alternative is better than the other, but rather whether the emphasis should be on intrapersonal changes or on extrapersonal changes. If the initial diagnosis of the determinants of behavior and the careful analysis of the findings lead to the conclusion that it is necessary to develop an intervention strategy to deal with the intrapersonal causal factors, it would then be justifiable to plan for an intervention through communication and persuasive inputs.

In order to plan an effective communication intervention, the next issue one should deal with is "what level of intrapersonal and psychological change is necessary to produce the desired behavior change?" The levels of intrapersonal and psychological changes at which communication intervention can be directed may be conceptualized as a continuum ranging from the primary psychological characteristics at one end, to the tertiary psychological characteristics at the other end. Figure 2 presents a conceptual diagram of this continuum with three concentric circles in which the various intrapersonal determinants may be categorized. These three circles are not closed systems, nor are the boundaries which separate these well defined. This diagram is presented primarily as a conceptual schema rather than an operational design for categorization of various psychological variables with precision. The innermost circle consists of the primary intrapersonal variables such as basic personality traits, unconscious and subconscious psychological determinants, basic and stable motivational structure, fundamental belief systems and core values of the individual. It is assumed that not only is it most difficult to change these primary determinants (variables within this innermost circle), a change in any of these primary determinants is likely to produce a larger magnitude of change including other primary determinants as well as the determinants in the outer two circles. The cost for initiating such change and the consequences of such changes on other aspects of psychological characteristics and behavior is considerably greater. An intervention which aims at changing the primary variables must be very carefully evaluated in terms of ethics, cost, consequences, and obligations of the persons who initiate such changes. The middle circle consists of intermediate intrapersonal determinants such as reasonably stable and learned motivational attitudes, preferences, secondary beliefs, and institutionalized norms which govern an individual's behavior. Changing these intermediate intrapersonal determinants will be relatively easier than changing the primary determinants belonging to the innermost circle. As compared to these two categories of determinants, changes of those intrapersonal variables which belong to the outermost circle (tertiary intrapersonal variables) will be least difficult and less expensive. The tertiary intrapersonal determinants include those cognitive and affective variables which are transitory in nature and yet exert influence on a behavior (such as information level, knowledge, opinion, and tentative beliefs and attitudes related to issues which are not deeply rooted in the primary psychological attributes).
FIGURE 2

LEVELS OF INTRAPERSONAL DETERMINANTS *

Note: A: Primary intrapersonal determinants
B: Intermediate intrapersonal determinants
C: Tertiary intrapersonal determinants

*From the author's lecture and teaching materials in: "Foundations of Population Planning" and "Behavioral Science Foundation of Health Education".

Two other critical issues must be considered while a decision is being made about the levels of intervention on the intrapersonal continuum. These are: (a) the degree of distortion of communication and (b) the degree of resistance to proposed behavior change. Each of these is determined by the level of intrapersonal variables which a planned communication attempts to change. Studies in perception, attitude, and communication (Allport, et al., 1947; Bartlett, 1958; Bruner, 1958; Cohen, 1964; Hovland, et al., 1953; Krech, et al., 1962; Levine, et al., 1958; Schramm, 1961) suggest that exposure to a communication, interpretation of the contents, retention of the communication and the attitudinal and behavioral consequences to a communication are significantly determined by the psychological predisposition of the perceiver. If a communication is in harmony with the frame of reference, motivations, attitudes and values of the perceiver, he responds to it favorably. On the other hand, if the communication generates dissonance or conflicts with existing cognitions, attitudes, and values, various forms of psychological defenses will operate against the communication, and this may result in rejection of the communication, distortion of the facts and conclusions, and even aggressive response towards the communicator and the communication. If a communication attempts to change deeply held values or basic motives, and if such communication seems to threaten these characteristics, the resistance to the communication is extremely high. On the other hand, if the communication attempts to change peripheral or inconsequential cognitive aspects, the distortion or resistance would be...
significantly less or absent. The implications of these generalizations for planned intervention are that, the deeper the level of intervention (Fig. 2), the more difficult it will be to initiate a change; it will also be expensive, and more psychological resistance will operate against the intervention. In order to plan a valid and effective communication strategy, one must therefore ask: "Is it necessary to change more basic intrapersonal psychological variables to change a particular behavior or is it possible to change this behavior by changing relatively less basic (intermediate or tertiary) intrapersonal variables?"

A careful analysis of various situations in which a behavior can be changed through various interventions seems to indicate that it is not always necessary to change primary intrapersonal characteristics; often behavior can be changed by initiating changes in the peripheral characteristics of the individuals. Table 2 presents a conceptual scheme for utilization of various intervention models depending upon the types of changes in the causal factors which are necessary for changing fertility behavior.

**TABLE 2**

*INTERVENTION MODELS BY CAUSAL CONDITIONS*

<table>
<thead>
<tr>
<th>INTERVENTIONS</th>
<th>CAUSAL FACTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Motivation</td>
</tr>
<tr>
<td>INFORMATIONAL MODEL</td>
<td>+</td>
</tr>
<tr>
<td>INSTRUCTIONAL MODEL</td>
<td>+</td>
</tr>
<tr>
<td>CONSONANCE MODEL</td>
<td>+</td>
</tr>
<tr>
<td>EV. SITUATIONAL MODEL</td>
<td>+</td>
</tr>
<tr>
<td>MOTIVATIONAL MODEL</td>
<td>+</td>
</tr>
</tbody>
</table>

The first column of Table 2 presents five types of interventions. Columns two, three and four present categories of causal factors which determine the particular behavior which is to be changed by a particular intervention model. Column two is entitled "Motivation", which includes all those inner psychological factors which create a desire for a change in order to achieve a particular goal. The title of the third column, "Cognitive-motor skills", is used to include the knowledge and specific skills which are necessary to adopt means for achieving a particular goal. Column four is entitled "Accessibility of means" and includes all those situational environmental factors which determine the accessibility of the means necessary to achieve the particular goal. The plus, minus or neutral sign within each cell indicates the positive, negative, or neutral influence of these causal categories.

Each of the models for intervention, presented in column one, is valid under the circumstances and a combination of causal categories is presented in Table 2.

* From the author's lecture and teaching materials in: "Foundations of Population Planning" and "Behavioral Science Foundation of Health Education".

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INFORMATION MODEL. This intervention is appropriate when there is a positive motive to achieve the goal proposed by family planning communicators and when there is an accessibility of the means necessary for achieving the goal, but the persons cannot act because they lack either necessary information or skills. A simple example of such a situation would be one in which a person in a railway station wants to go to a particular address in a city; he has the resources necessary to hire transportation but he does not know where to find the transportation (means) which will enable him to reach his goal. In this case, a simple information about where to get a taxi, limousine, bus or whatever means of transportation is available would trigger the behavior. In such cases, it is a waste of communication effort to try to create a motivation since it already exists. It would be an equally wasted effort to try to improve the general transportation system. What is needed is simply a relevant piece of information which will enable the person to reach the goal. In the context of family planning, such a situation might be characterized as follows: People are highly motivated to limit their family size, and environmental and situational support determine a reasonably good accessibility of services, but the people may not know where the services are available or how to use particular methods effectively. Under such circumstances, the people simply need carefully planned information regarding where to obtain the contraceptive services and how to use them. It would be a waste of resources to motivate them or to try to increase the contraceptive delivery system when what is needed is adequate information.

INSTRUCTIONAL MODEL. The conditions under which the instructional model is valid are in some ways similar to those of the informational model, except that in the instructional model the intervention would be much more intensive and prolonged. Under these conditions, the person is highly motivated to develop a set of complex skills and competencies, he has the necessary resources and environmental and situational support to undertake intensive effort to develop the skills, but he does not actually possess these skills. An example of such a condition would be a professional and formal educational program in which a person wants to be a physician with highly developed competency and skills in diagnosis and treatment of mental illnesses. He has the motivation and he has the financial and other resources he needs to pursue his career goal. Under this situation, the kind of intervention which will help him achieve his goals is admission into a medical school where intervention is highly systematic, intensive, and prolonged. The instruction model is appropriate when the goal of intervention is to develop professional competencies among individuals such as physicians, para-medical personnel, community leaders, etc. for their involvement in family planning programs.

CONSONANCE MODEL. The consonance model is appropriate when the person's inability to behave in a certain way is caused by conflicting motives or conflicting cognitive factors. For example, under this condition, a woman may be motivated to have a small family but simultaneously may have a high level of unfounded anxiety about the ill consequences of various contraceptives. Such a situation is characterized by the presence of a strong positive motive which is neutralized by an equally strong negative motive; this leads to a situation where non-acceptance is caused by conflicting motives rather than due to simple absence of a positive motive. Under such circumstances, an appropriate intervention strategy is to remove the negative motive or to reduce the anxieties, worries, and unfounded concerns which prohibit the acceptance of family planning. It would be a wasteful effort in this case to repeat the virtues of a small family since the particular woman already is in favor of a small family. The central theme of this model is to reduce a dissonance or conflict by removal of anxieties, fears and worries and lead the client towards a state of consonance. Such strategy does not call for creating new motives or altering the patterns of motivation, it simply calls for building upon the existing motivational system (strengthening existing positive motives and eliminating fears and anxieties which serve as self-preservation and defensive motivations).

ENVIRONMENTAL AND SITUATIONAL MODEL. Under this condition, non-acceptance is due to inaccessibility of services or absence of environmental support, not to a lack
of motivation nor a lack of knowledge and skills. Under such conditions it is un-
necessary and wasteful to invest resources and efforts for changing motivational
structure or providing information and skills which the person already possesses.
An appropriate intervention under such conditions would be to increase the access-
sibility of services and to remove the environmental barriers which inhibit the
adoption of family planning. High cost of contraceptives, inconvenience in obtain-
ing necessary services and lack of adequate and dependable contraceptive measures
are some of the factors which warrant an intervention through environmental and
situational manipulation.

MOTIVATIONAL MODEL. Under this condition, non-acceptance of family planning is
primarily due to an absence of desire for fertility control or a strong negative
motive. The non-acceptance under this condition is not due to a lack of environ-
mental support or the absence of adequate knowledge or skills. Under such circum-
cstances, intervention warrants intensive input to create a desire for a small
family and to overcome the strong negative motive. In other words, this warrants
an effort for restructuring the motivational system of the individuals.

On the basis of various studies in family planning (KAP studies) and field
experiments, this author is convinced that non-acceptance of family planning is
not frequently due to a lack of motivation for fertility control nor is it due to
a strong motivational or ethical opposition against controlling a person's fertil-
ity. High incidence of abortions in many countries, primarily in the countries of
Central and South America, clearly demonstrates the strong motivation for control-
ing family size. Experiences with family planning programs in many developing
countries also indicate that people are, in general, not opposed to the concept of
limiting their family size. In most instances, therefore, the author believes that
it is not necessary to change the basic motivational structure or to utilize the
motivational model for initiating a change in the fertility behavior. In some
instances acceptance can be promoted by the informational model, in some by the
environmental and situational model, but in most instances, an intensive communica-
tion effort would be necessary to reduce conflicting psychological factors. The
author believes that the most challenging role of the communications strategist is
to deal with the most frequent problem of non-adoption which is characterized by a
dissonance or conflict between positive and negative motives, knowledge and atti-
tudes. Such conditions call for a consonance model which attempts to eliminate
or reduce the negative motivational forces rather than to restructure basic
motivations.

Figure 3 presents a conceptual model for planning for decisions for interven-
tion to change fertility behavior in a given community. This conceptual model for
intervention decision consists of two major components: (a) a conceptual model for
the analysis of determinants (identical to Figure 1 in Section I) and (b) the
interaction of the determinants with the intervention variables (programmatic inputs
including delivery of services, formal sanctions and legislative measures, education,
persuasion, etc.). The central theme of this model is that all forms of interven-
tion generate pressures and forces which act upon the individual and thereby inter-
act with the determinants of a fertility behavior. In the absence of a planned
intervention, the fertility behavior would be primarily determined by the four sub-
systems as discussed in detail in Figure 1 (lower half of the Figure 3). But
once specific interventions are in effect, these intervention variables interact
with the determinants and a new dynamics of forces emerges.

In our first model for the analysis of the determinants of behavior, we sug-
gested that the various subsystems interacting among themselves may produce one of
two likely outcomes: (a) psychological readiness or a decision for action and (b)
indecision or rejection or resistance to the proposed change. The primary focus of
intervention is to change those who are undecided, or who resist fertility control
measures (although an intervention also attempts to reinforce those who are psycho-
logically ready or are willing to try family planning so that they become
satisfied or sustained users of contraceptives). When a person is psychologically
Figure 3: A Model for Intervention Decisions

- Determinants
  - Fig. 1
  - Interventions
    - Variables
    - Legislations - compliance
      - Communication and Education
        - Family Planning Services
          - Cultural-Political
            - Social-structural and Economic
              - Social-psychological and Intrapersonal
                - Environmental and Situational
      - Indecision or Rejection
        - Effective Change
          - Decision for Action
            - Trial
              - Dissatisfaction
                - Satisfaction
                  - Change in Fertility
                    - Adoption

* From class lectures and course materials prepared by the author in: "Foundations of Population Planning", and "Behavioral Science Foundation of Health Education".
ready, and when appropriate intervention through improved contraceptive services are available, according to this model, trial adoption would occur. If the initial experience of the trial adoption is satisfactory, it will increase the chances of sustained use and adoption of contraception. On the other hand, if the initial experience of the trial adoption is unsatisfactory, it will influence and reinforce the initial resistance, hesitation or indecision and the person would then discontinue the use of contraception. So far the interactions between the various components of the model presented are identical to those presented in the model for analysis of the determinants of a behavior (Fig. 1) with the exception that we have now added a strong intervention variable in terms of availability of services. The new dimension added here emphasizes that the adoption would depend upon the nature of interaction between psychological readiness (which in turn is determined by the four subsystems) and the accessibility of modern contraception services (an intervention variable).

According to this model for intervention (Fig. 3), it is possible to change those who are initially resistant to adopt contraception through three distinct types of interventions (or a combination of these): first, easily accessible contraceptive services; second, various controls and incentives or disincentives for acceptance or non-acceptance or contraception; and third, education and persuasion to change the initial state of resistance and indifference to a state of psychological readiness. One of the major decisions an intervention strategist must make is which of these three alternatives or what combinations of degrees of these alternatives should be used for changing the fertility decision in a given population. There is a significant group of intervention strategists who believe that changing the intra-personal determinants is too costly, and not always very effective. This group of people strongly argue that the intervention should attempt to change the fertility behavior of the resistant and hesitant population primarily through external environmental manipulations (improving the delivery of contraceptives and various measures of control, incentives and disincentives). The central thesis of this school has been clearly articulated by Etzioni (1972) in his discussion entitled "Human beings are not very easy to change after all". In this article, Etzioni argues that it is infinitely more expensive, for example, to save one human life from an automobile accident through driver education than to enforce laws regarding the use of seat belts. He continues the same argument and illustrates the high cost involved and the low degree of success achieved through an attempt made to change smoking behavior and drug addiction behavior. He provides some data according to which it cost $88,000 per life saved through an educational approach as against a mere $87 to save a life through enforcement of seat belt use. He extends his argument against the use of education and communication a step farther to claim that such an approach is not only too expensive, but also is unethical and morally dubious. He believes this is unethical because it attempts to change certain psychological attitudes, preferences and motivations. This is unquestionably a very provocative position and one must seriously examine the various facets of this argument before it is accepted for intervention for family planning.

First, let us agree with Etzioni that it is more expensive to change a behavior through education than through enforcement of legal controls. One must recognize that it is not always possible to implement equally efficient surveillance measures on all different forms of behavior; it is relatively easy to stop a motorist and to examine whether he is using his seat belt, but it would not be equally feasible to examine whether a couple uses contraceptives. One might argue that it is not necessary to have a surveillance on contraceptive behavior, but coercive measures can be taken if people reproduce more than what is permissible. Once again, this is a very simplistic approach for a very complex problem. The widespread literature on family planning and the delivery system of health and medical care has an overriding conclusion that it is the socially and economically poor and deprived who produce more children than they can afford and at the same time the accessibility of services, educational and informational opportunities are significantly lower among the under-privileged and poor people. A coercive measure is simply a punitive measure against
those who are helpless. Besides, in many less developed countries it would be highly impractical to suggest such a control both for feasibility as well as on ethical grounds. In India, for example, there is a law in existence for the last few decades according to which individuals who refuse primary vaccinations can be penalized (monetary fine and imprisonment). It is one thing to have such a law and it is quite different to implement it effectively as indicated by the fact that such legal measure did not stop the annual outbreak of smallpox in India. What is even more paradoxical in Etzioni's strategy is that he objects to educational intervention on ethical grounds since it attempts to change people's psychological characteristics; and yet he advocates social controls with complete indifference to the ethical issues involved in implementing such social controls. We have dealt with the ethical issues more intensively earlier. It is evident from that discussion that control of human behavior raises very serious and complex ethical problems and it cannot be resolved simply by underestimating the problem and by a simple cost-benefit analysis of various alternatives of interventions.

This author firmly believes that unquestionably environmental manipulation and external control produce significant behavioral changes and there are some instances where a society may collectively choose such measures for those who are deviants and who pose a threat to the society at large. On the other hand, if a control measure is not ethically acceptable and is highly questionable, one must look for alternatives for initiating a behavior change. Finally, a coercion or legislative surveillance implies that the people are not voluntarily behaving in a particular way and if the surveillance is weak or absent, the behavior will not be sustained.

Kelman (1969) discusses three processes through which a behavior change can be accomplished. These are: (1) compliance, (2) identification, and (3) internalization. According to the coercive change, a person modifies his behavior due to fear of punishment or a threat involved if one does not conform to a certain norm. The limitation of the coercion approach has been discussed earlier. A change in behavior through the process of identification, on the other hand, takes place voluntarily but due to an intensive desire to win approval from other people and not from the fear of a reprimand. In such instances, individuals emulate the characteristics of other persons such as charismatic leaders, popular heroes and so on. Such a change, although voluntary, need not be stable since it is not based on the intrinsic merit of the measure being emulated. An internalized change, on the other hand, occurs through a process in which individuals carefully evaluate the pros and cons of an issue, internalize a value and act in order to actualize the internalized value. Under such circumstances, behavior is not only voluntary, but also stable, since the behavior change is based upon a stable and internalized value. Furthermore, such values are likely to be transferred from one generation to another through the socialization process.

A critical evaluation of the model proposed by Etzioni and the various means for change proposed by Kelman is pertinent for intervention decisions for family planning. Under circumstances when control and punitive measures are either unethical or impractical or both, when a change in human behavior should be achieved through voluntary and willing participation of the people, and when in order to be effective such a change must be stable, it is difficult to accept any form of intervention which excludes the role of systematic education, persuasion and communication. However expensive or ineffective they may be in the short run, a stable behavior based upon willing participation of the population must have a firm foundation on the inner cognitive, attitudinal, and motivational predispositions of the people. The question, therefore, is not whether some form of communication and educational intervention is appropriate, but when such a form of intervention is appropriate and how one can use communication intervention more effectively. Several issues pertinent to these questions have been discussed in this section and will again be raised in the section which deals with implications of communication research for intervention.
III. REVIEW OF THE SIGNIFICANT VARIABLES AND GENERALIZATIONS OF COMMUNICATION RESEARCH RELEVANT TO FAMILY PLANNING COMMUNICATION

An intervention through communication input is a particularly appropriate means for affecting behavior change when the causal factors are primarily intrapersonal in nature. To maximize the potential for intrapersonal change, one must consider the various components of the communication process and the critical variables that relate to each component while planning the intervention strategy. The components of the communication process include: A. the source, B. the channel for communication, C. the message, and D. the receiver.

CRITICAL VARIABLES OF EACH COMMUNICATION COMPONENT

In discussions of the Communication process, the concepts of source and channel for communication are treated as separate components. Conceptually, they are different, but in reality, it is often difficult for the receiver to differentiate between the source of the message and the channel used for the communication. This distinction between the source and channel is clear when the source (change agent) employs mass media channels; the difficulty arises when interpersonal channels are used since the communicatee (change agent) is both the source and the channel for communication. For this reason, in this discussion the critical variables that affect these two components of the communication process (the source and the channel) will be discussed in the same section.

A & B SOURCE AND CHANNEL

A. THE SOURCE OF THE COMMUNICATION

The source of a communication is the originator of the message. In family planning the source of a communication may be the governmental organization, family planning personnel, community leaders, acceptors, educators, medical practitioners, or friends or relatives. There are at least four general factors that should be taken into consideration when choosing or evaluating a source for a family planning communication. These include: (1) the credibility of the source, (2) the persistence of opinion change over time as it relates to the credibility of the source, (3) the social class distance between the source and the receiver, and (4) the type of source used (formal or informal).

1. Credibility of the source

Cohen's (1964) review of the early research in the area of source credibility provides us with some interesting insights into this variable. Hovland and Weiss (1951) and Kelman and Hovland (1953) in their experiments with high and low credibility sources found that subjects acquired the same amount of information regardless of the degree of credibility of the source. However, subjects judged identical presentations differently depending upon the perceived credibility of the source. If the communication is attributed to a low credibility source, the subjects judged the presentation less fair and the conclusions less justifiable. Attitude change in the direction advocated by the communicator when measured immediately after the presentation is relatively less when the communications originated from a low
credibility source as compared to highly credible sources which influence the effectiveness of a communication. These studies indicate that perceived fairness or trustworthiness is an important aspect of source credibility.

The perceived intent of the source is another factor related to the credibility of the source and is of crucial importance to communication in family planning. The charge of genocide leveled at U.S. Government subsidized family planning clinics established to serve low income Black communities is a good example of this issue. Walster and Festinger's study (1962) provides some indirect data on this issue. In their study, communications on highly salient issues produced greater attitude change when they were "accidently overheard" by subjects as compared to the condition where subjects were aware that the communications were deliberately planned to influence attitude and opinions. Cohen (1964, p. 26) in his interpretation of this study feels that in an "accidently overheard" communication, the communicatee is likely to erect fewer defenses against the communicator and the communication and thus is likely to be more influenced by such a communication. The converse could also be true; if the source of a communication is perceived as one who is deliberately attempting to influence and who may have a selfish motive to serve, then it is less likely that the receiver will support the advocated position. Although some of the literature (Wiess and Fine, 1956) supports the notion that the perceived intent of the source is a less important aspect of credibility than fairness of a presentation, one should not minimize the importance of the perceived intent of the source in family planning communication since contraceptive use is often not only a political but a personal, value laden issue.

Aronson and Golden (1962) provide an additional insight into the issue of credibility. Their study indicates that the positive and negative aspects of a communicator that bear no objective relevance to the topic of communication are also of importance. These incidental aspects include non-verbal cues, the communicator's appearance, various stereotypes associated with the communicator, and the like. People in forming an opinion on an issue have the tendency to use all of the information and cues available to them regarding a particular event. It therefore seems likely that these incidental cues could play a significant role in determining an individual's attitude and response to the communicator.

Perceived expertness of the source is also thought to affect credibility; however, the importance of this factor has not been established. Powell (1965) studied the conditions under which high source credibility is an important factor in producing attitude change. His findings suggest that under conditions of non-compliance, significantly greater positive attitude change was achieved by using a highly credible, than low credible, sources. Under conditions of voluntary compliance, low credibility sources are more effective or at least equally as effective as high credibility sources in inducing positive attitude change. However, neither the high nor low credibility source was more effective in inducing positive attitude change in an involuntary compliance situation.

2. Persistence of Attitude Change as it Relates to Source Credibility

Based on the earlier studies of Hovland, Lumsdale, and Sheffield (1949), Hovland and Weiss (1951) conducted an experiment to test what had come to be known as the sleeper effect. The three earlier researchers found that opinion changes in the direction advocated by the communicator are greater after a period of time lapse than they are immediately after the communication.

Hovland and Weiss in this study tested this phenomenon (sleeper effect) by using both high and low credibility sources. Their results indicated that there was no significant difference in the amount of factual information acquired by the communicatee immediately after the presentation, regardless of whether the material was attributed to a high or low credibility source. On the other hand, the communicatee changed their opinion in the advocated direction with a significantly greater frequency when the material was attributed to a highly credible source than when the source had low credibility. In terms of the retention of factual information
over time, there was again no significant difference between the subjects exposed to high or low credibility sources.

However, after a period of four weeks, there was a decrease in the extent of agreement with the high credibility source and an increase in the extent of agreement with the low credibility source. The results of opinion change over time was quite revealing and helped to validate the earlier researchers' hypothesis regarding the sleeper effect. The two experimenters advanced the following explanation for the phenomenon of sleeper effect. Opinion change is influenced by both learning and acceptance. It is believed that individuals may initially suspect the motives of the communicator and discount the communication when a communicator is not believed to be highly credible. Thus, in such cases there would be little or no immediate change of opinion on the part of the individual. However, after a lapse of time, the individual tends to forget the source but may remember and accept what was communicated. Immediately after a presentation, the effect of the low credibility source will interfere with acceptance of the material. This interference decreases over time and at a more rapid rate than the factual information. In the case of those exposed to the high credibility source, the forgetting of the content would constitute the main factor in the decrease in the extent of opinion change. For those exposed to the low credibility source, the removal of the interference which prompted the non-acceptance more than offsets the reduction in opinion change due to forgetting. The critical condition for the sleeper effect is the forgetting of the source. These authors hypothesize that there may be certain conditions that could remove the sleeper effect; one such instance would be when the source is reinstated after a lapse of time. Another condition may be when the source and the position he advocates are so intimately related that recall of one evokes the other.

3. Social class distance

Every person has a need to communicate with others, for he depends on them for his view of the world around him and for the establishment of his values, aspirations, and attitudes. Several studies in family planning have reaffirmed that individuals tend to communicate more frequently with and are more influenced by persons perceived to be like themselves (Palmore, 1968; Park, 1967; Dubey and Choldin, 1967; Palmore, 1967). This principle helps to explain why friends and relatives play such an important role in influencing an individual's acceptance or rejection of contraception. Several basic implications can be drawn from this generalization for choosing the appropriate source for a family planning communication. The communication is likely to be more effective when the communicatee has a high level of identification with the communicator, and share common values; similarities in sex, age, social class, etc. can enhance this identification. Similarity in dress patterns, religion, patterns of aspiration, and language could also contribute to the level of identification with the source. It would be impossible to select a source which is identical in all aspects with those individuals in the target population; however, an attempt should be made to reduce these differences as much as possible. It is necessary to keep in mind that a family planning source will be somewhat different than the communicatee by virtue of the fact that he is knowledgeable and holds positive attitudes regarding family planning. In addition, the formal sources like doctors, nurses, and family planning workers will be different from their potential clients both in terms of their social class as well as their basic attitudes and orientation towards family planning. The best one can do is to be aware of the possible differences and try to minimize them through careful recruitment and by effecting minor changes in the overt behavior of family planning sources. One such approach would be to carefully select those persons who can influence the target population and with whom the communicatee can identify relatively easily and use such persons for the family planning communication. Selection of the communicator based upon expertness alone may not be sufficient in promoting effective communication.
4. Types of sources

There are two general types of sources used in communications—formal and informal. A formal source is one who by virtue of his assigned rôle or official status is responsible for initiating family planning communications. In the field of family planning, a formal source might be a doctor, nurse, midwife, family planning worker, community organizer, commercial agent, teacher, or religious leader. On the other hand, an informal source is one who initiates communication or influences attitudes or opinions of others during natural day-to-day interaction between individuals and not because he is assigned to play such a rôle. Friends, relatives, neighbors, and opinion leaders would be classified as such. Both types of sources play significant rôles in influencing an individual's acceptance of contraception.

(a) Formal Source

The choice of formal sources for a family planning communication is under some control by family planning administrators. The ensuing discussion will attempt to highlight some of the advantages and disadvantages of using the traditional formal sources to influence an individual's decision regarding contraceptives. The reader may find Wenrich's (1972) work particularly relevant for a further detailed discussion of this topic.

Physicians. Physicians have tended to dominate programs in most countries and have been important sources of communication regarding family planning especially in the sense of influencing policy or contributing to the general knowledge of the field. In the case of communication between doctor and his clients, the doctor may not be as effective in influencing family planning decisions of the general population as some other sources. One reason might be that a doctor, although perceived as an expert, is usually less accessible for the purpose of interaction. In addition, the social class distance between the doctor and his clients is likely to reduce the empathy and identification which can interfere with his effectiveness as a formal source of communication for persuading the non-acceptors.

Nurses and Midwives. Nurses and para-medical personnel can be very effective sources of communication. Most of these personnel are female, which helps particularly in those cultures where due to cultural traditions male professionals are not usually effective communicators with women clients. In addition, as compared to the physicians, nurses and other para-medical personnel are more accessible to the clients. Since there is a great diversity of background and educational achievement within this category of communication source, it is difficult to make any generalizations regarding the rôle of social class distance as it relates to these sources. However, this group should be relatively less distant than the physicians from their clients. The disadvantages of using this group as formal sources are also worthy of note. When extensive traveling is necessary to insure improved communication, this group is at a disadvantage since in most of the less developed countries most of these workers are female, and women are not encouraged to travel extensively. In addition, female workers are not particularly effective sources with male clients.

Community Organizers. This category of formal sources includes such individuals as the community development worker, the agricultural extension worker and the organizers of special programs among youth and adults, etc. Most of the individuals in these positions are men and by the nature of their work, come in contact mostly with men. Since they work closely with many of the men in a community, it is likely that they could be used effectively with male clients. The disadvantage to using this group as a source is that they are not necessarily knowledgeable regarding family planning.

Commercial Agents. Family planning programs in many countries have begun to utilize the private sector as a source of communication regarding family planning and as distribution channels for supplies. Some of these are pharmacists, drug
store owners, and village grocery store owners. The advantages of using these sources are that they are readily available, they are keen to promote family planning due to the profit motive from sales and incentives, are often seen as trustworthy, and usually have less social class distance to overcome. Pharmacists in particular are usually viewed as knowledgeable. Bailey's (1972, p.273) study in Colombia showed that indeed most druggists are knowledgeable about family planning and they are approached for family planning advice. The limitation of using commercial agents is that in their enthusiasm to sell, they may overlook the discussion of the side effects and possible complications of the different methods. Furthermore, they are not professionally competent to deal with actual side effects nor are they interested in the follow-up of cases.

Teachers. To date, there have been no major documented attempts to use teachers as formal change agents. Their value, however, should not be overlooked. In those places where a high value is ascribed to education of children in the effort to improve economic and social conditions, the teacher is usually thought to be very trustworthy. Particularly in developing countries, teachers may be looked to for advice on all subjects. One disadvantage would be that teachers due to their primary allegiance to the school could only devote part of their time to family planning activities.

Religious Leaders. In some less developed countries, religious leaders are highly respected and are also being sought for their advice on many subjects. In Latin America, priests and missionaries have been known to support the efforts of family planning workers by simply not resisting such activities in their communities or by openly supporting them. Both priests and teachers have the advantage of being closely linked to the client system. This relationship gives them the ability to tap local opinion leaders. The roles played by (or could be played by) the religious leaders and teachers in family planning are not adequately explained and should be considered as a significant area for further research.

It should be noted that each of these categories of formal opinion leaders may play either a positive or a negative role in family planning. The communication strategist needs to answer the following questions before an attempt can be made to use the formal source. These are: (a) "Who are the influential formal sources?", (b) "Are they mostly favorable or opposed?", (c) "Who are in favor and who are opposed?", and (d) "How can they be used to promote the program?"

(b) Informal Sources

People more frequently interact with and are influenced by persons like themselves in making decisions which are personal in nature. Informal sources therefore can assume a great role in influencing attitude and behavior change. However, informal sources are subject to less control by family planning administrators. The following discussion examines the highlights of the roles of the informal sources in family planning.

Opinion leaders. An opinion leader is defined as a person who has significant influence on the opinions, attitudes, and behavior of other persons (mostly peers) within a community. Although some formal leaders also exert such influence, in this section, opinion leadership is restricted to those who influence others' opinions, etc., not because of their formal station, but in spite of it. Thus, these are mostly informal sources. It is pertinent to review the dominant characteristics of opinion leaders. Palmore (1967, p.280) argues that there are four essential traits of opinion leaders: (1) Opinion leaders are most sensitive to relevant sources of information, (2) They tend to be better informed especially in their specific area of leadership, (3) Opinion leaders are generally more available for information giving, and (4) They are generally highly credible sources of information. Saunders, Davis and Monsees (1973) concluded from their study that higher education and income, greater length of residency in a given area, stronger motivation, greater exposure to the mass media, and more information transactions are characteristic of opinion leaders.
Rogers (1969, p.230) proposes an additional characteristic of opinion leaders. He found some support for the notion that opinion leaders exhibit higher conformity to the norms of a social system and observed that when a social system legitimizes change, opinion leaders are usually more innovative and therefore conformist to the system's change-prone norms. But when a society is traditionally oriented, the opinion leaders in order to maintain their status in the group, may encourage the rejection of an innovation and thus conform to traditional norms. From what is known about social class distance, Rogers warns that family planning change agents working in traditional societies should be wary of making opinion leaders too innovative because part of their influence base seems to be related to their conformity to group norms.

In a study to determine the conditions under which an individual will emerge as an opinion leader, Palmore (1967, p.528) in the "Chicago Snowball Study" observed that the necessary conditions for the emergence of opinion leadership include: the development of a relatively intense set of attitudes regarding the issue and the perception by opinion leaders that these attitudes are presentable to their potential influences.

Friends, relatives, and neighbors. Takeshita (1966, p.699) and Palmore, et al (1971), among others, have illustrated the crucial role played by friends, relatives, and neighbors in effecting the diffusion of information and behavior change among their peers. Research in the area of diffusion of innovations points out that while innovators and early adopters are frequently influenced by outside communication sources and change agents, late adopters and laggards are more frequently influenced by their peers and relatives. The pattern of influence between early and late adopters could work to the advantage or disadvantage of the aims of a family planning program. If early adopters are dissatisfied with their initial experience, they could exert a significant negative influence on other potential adopters and promote rejection of and resistance to family planning methods.

The nature of influence exerted by early adopters on the others in the target population should be of special concern to family planning communication strategists since the discontinuation rate (particularly of the IUD) among early adopters is reasonably high in many programs. If we want to ensure that the pattern of peer influence works to our advantage, some of our communication efforts should be channeled in such a way so as to help maintain and reinforce the early acceptors, reduce drop-out rates, and counter the negative pressures generated by the dissatisfied peers by disseminating satisfactory experiences from the satisfied acceptors.

B. THE CHANNEL OF COMMUNICATION

For the purpose of this discussion, the channel of communication will be defined as the medium through which a message is transmitted from a source to the receiver. These are divided into two categories: (1) mass communication, and (2) interpersonal communication. The ensuing discussion will attempt to highlight the critical variables in each. Regardless of the nature of the media, in order to be effective all communication must satisfy the following conditions. These are: (a) exposure to the message, (b) level of interest in the subject matter to ensure complete exposure, (c) comprehension of the communication, and (d) assimilation or internalization of the message (Kar, 1968d, p.84). The media chosen often significantly influences these conditions and the intervention chosen influences the impact of such a communication.

1. Mass communication

Mass communication is defined as a process through which communication is directed simultaneously at a large population and on a massive scale. Any media which can be used for such a purpose is defined as mass media; some of these are: radio, television, movies, newspapers, leaflets, posters, and other printed
materials. Due to the nature of these media, they are often referred to as "one way" communication media. The question often arises as to the relative exposure of this channel. One necessary condition for exposure is the availability of a medium (Schramm, 1961, pp. 74-75). As would be anticipated, the greatest concentration of mass media are in the more industrialized nations; in more privileged social classes within a given nation, therefore, the media chosen would to a large extent determine the potential exposure to the message. The relative lack of accessibility to mass media in less developed countries, and in less privileged social classes, poses a serious constraint in the widespread and effective use of this media. Literacy is also an important factor in the effective use of most mass media. In many of the nations of the world, the literacy rate is reasonably low. In addition, literacy varies significantly by social class, sex, race and place of residence (urban, rural). The usefulness of printed or written communication is very limited in most rural societies of the less developed countries. A third critical variable to be considered is the differential exposure that exists with regard to the individual media. From the various studies, one general pattern that emerges is that radio tends to have the greatest impact, especially in the developing nations. Newspaper reading is often the second most widely spread medium and films and books trail somewhat behind (United Nations, 1971). In some less developed countries, television is gradually becoming a powerful mass medium, but not much is known about its role in family planning - primarily due to low use and the absence of careful study in the area.

There are other general patterns that are worthy of note (Schramm, 1961, pp. 82-83): (a) Mass media use tends to increase with education and economic status, (b) A person who uses one mass medium more than usual tends to be above average in his use of other mass media, (c) Media use tends to increase with age (at least until middle age is reached); the only exception to this generalization is movie attendance which decreases after the teens, and (d) Urban dwellers make more use of the media than their rural counterparts.

In addition to all of the factors mentioned, two other variables contribute to differential exposure. The first variable is the psychological process of "selective exposure". This process has been defined as the tendency to attend to messages that are consistent with one's existing beliefs. The second factor is commonly known as "selective perception". The psychological process of selective perception works in such a way that messages are usually interpreted in a manner which makes them consonant with prior beliefs and attitudes. In the "consonance model", discussed earlier, it was suggested that a communication is likely to be effective when it is based upon these prior beliefs and attitudes. Careful selection of media and messages is the essential ingredient of such an approach.

The above discussion on availability, literacy, differential exposure, wide variation in use of mass media, and selective exposure and selective perception signify the importance of the careful selection of the mass media based upon a knowledge of the potential of the different media in the target population.

2. Interpersonal Communication

Interpersonal communication is defined as a process in which the communicator and the communicatee engage in a face-to-face interaction. Some examples of this are: group meetings, post-partum consultations, interviews, classroom sessions, conferences, and the day-to-day conversations among individuals. Use of these media has the advantage of a "two-way communication", with immediate feedback. This is especially important for ensuring comprehension of a communication, in identifying barriers to communication, and in resolving conflicting motives related to the adoption of contraception. An additional advantage is that a two-way dialogue allows an opportunity for the source to help overcome selectivity processes within the receiver. Research in this area suggests that interpersonal (both group and individual) approaches which include a two-way dialogue and a group setting can be more effective than a one-way communication in changing attitudes and behavior (Lewin, 1943; Roberts, et al, 1963; Bogue, 1967).
Let us first turn our attention to the findings regarding the interpersonal group strategies. Lewin (1943) conducted one of the classic studies to examine the role of a two-way communication and the influence of group as a medium for attitude and behavior change. This study, performed in the United States during World War II, investigated the effect of group-discussion and decision on the attitudes and behavior of group members toward strongly held but traditional food preferences. The objective of the study was to change the meat consumption patterns of the group members (housewives) from the meats they usually bought to the ones considered less preferable (for example, beef hearts, kidneys, and sweetbreads). The housewives were first divided into two groups for different treatments (experimental groups). In one case, the groups were exposed to a lecture regarding the nutritional value and economy of the low-preference meats. The other groups were given exactly the same information but were encouraged to discuss the matter among themselves after the presentation. Immediately following the discussion, the housewives were asked to publically indicate whether they intended to serve the low-preference meats to their families. The group-discussion had a greater effect than the lecture on the decision to use the low-preference meats. After a period of time had lapsed, the investigator found that the housewives who participated in the discussion groups, more frequently used low-preference meats than those housewives who were exposed to the lecture approach. Subsequently, researchers have attempted to isolate what factors or combination of factors account for the influence of the discussion group on future behavior (Bennett, 1955; Pennington, Haravey, and Bass, 1958). These attempts have not always provided conclusive results. However, from what is known in this area, Cohen (1954) concludes that:

"...it appears that for individual decisions it makes no difference whether people receive a lecture or participate in group discussion. So long as they perceive some consensus in the group within which they make personal decisions, there will be some effect on their future action. On the other hand, when the consensus of an entire group, as a group, is sought, a discussion seems to be more effective than a mere lecture (p.104)."

The effectiveness of the interpersonal individual approaches, particularly the day-to-day interaction among peers, has been discussed in the sections on social class distance, opinion leaders and the influence of friends, relatives and neighbors as sources of communication. The other more structured individual approaches, like post-partum consultations and home visits, have been widely used in family planning programs as change strategies. The effectiveness of these approaches seems to be a function of the individual attention given to the client, the empathy shown by the family planning worker, and the favorable predisposition of the receiver (for discussion of some of these issues see Roberts, Mico, and Clark, 1963). Finally, it should be recognized that individual decisions are rarely made in a vacuum. While attempts should be made to enhance the effectiveness of the interpersonal communication between a family planning worker and a client, we must not overlook the influence of the "significant others" on our client in the fertility decision. Effective interpersonal communication should therefore also include these "significant others" as well.

For analytical purposes, mass and interpersonal communication are often dichotomized. However, in most natural social settings, it is seldom that one of these two types of communication is totally absent (although they may differ in terms of when and what type of people they influence and with what result). Thus, it is the interaction between these two types of communication and their relative impacts, rather than the influences of one in the total absence of the other that is a more relevant area of study. The relative impact as well as the nature of interaction between these two types of communications has been a central area of investigation by those concerned with the process of social change, particularly in the field of communication.
One of the pioneering and classical studies in this area revealed that as compared to mass communication, interpersonal communication was significantly more effective in influencing political opinions and voting decisions (Lazarsfeld, Berelson, and Gaudet, 1944). This study and similar studies led to the consensus that while mass media may be more effective in disseminating factual information simultaneously to a large number of people, interpersonal communication is more effective in influencing attitudes, opinions, and behavior.

In their pioneering work, Katz and Lazarsfeld (1955) specifically attempted to identify the relative influence of these two types of media on decisions concerning the purchase of food and household goods, movie-going, and fashions. Based upon their results, the investigators formulated the now famous hypothesis of "the two step flow of communication", which stated that new ideas and information often flow from the mass media, i.e. radio and print, to the opinion leaders (step one), and from the opinion leaders to the less active individuals or the followers (step two) in a society. This and subsequent studies led to the generalizations that some people do play the rôle of opinion leaders and that they are more frequently exposed to mass media and other external sources of communication.

The research in diffusion of innovations (Ryan and Gross, 1943; Coleman, Katz, and Menzel, 1957; Katz, 1961; Rogers and Shoemaker, 1971; and Havelock, 1971) suggests that a new idea or practice spreads in a community through a multiple-step process, and that mass and interpersonal communication play significantly different but complementary rôles. In addition, the studies on diffusion of innovations suggest that the adopters of an innovation can be categorized in several groups depending upon how early or late they adopt an innovation and that each adopter goes through a multi-step psychological process before adoption or rejection of an innovation. These studies further indicate that the various categories of adopters vary in terms of their socio-economic and psychological characteristics, and that mass and interpersonal media influence the different categories of adopters differently. Finally, while innovators and early adopters are more influenced by mass media, the majority of the rest of the adopter categories are more influenced by interpersonal communication and primarily by their peers. (For further details, please see Rogers and Shoemaker, 1971; and Rogers, 1973).

One of the major generalizations derived from the studies on the relative influence of mass and interpersonal communication, and from the studies of the diffusion of innovations is that: When the primary objective of a communication is to spread factual information to a larger population as rapidly as possible, mass communication is likely to be more efficient; on the other hand, if the primary objective of a communication is to change attitudes, opinions, and motives, interpersonal communication is likely to be more efficient. According to this generalization, a communications strategist must carefully select one or both approaches based upon a careful determination of the primary objectives of the communication and the type of adopter categories toward which the communication is directed.

C. THE MESSAGE AND CONTENT OF COMMUNICATION

The various characteristics of the message which affect the communication process are: (1) the amount of communication, (2) the frequency of communication, (3) the effects of presenting a one-sided versus a two-sided appeal, (4) the effects of stating a conclusion, and (5) the effects of a dissonant versus consonant appeal.

1. The Amount of Communication

The amount of communication includes the total volume of information as well as the content area covered by such a communication. In family planning communications, the content area may deal with such relevant information as the physiology of reproduction, reasons for and against fertility control, specific means of contraception, and the location of supplies and services. The amount of communication
an individual receives can influence the impact of a communication. Too little information may not answer relevant questions of the communicatee and can influence the rejection of a proposed act; on the contrary, too much information may not be efficiently integrated into the cognitive system of the receiver or even may confuse him.

The learning theorists have provided us with some insights into the amount of information retained over time. One generalization that can be made is that individuals tend to forget most of the details of a communication, the net effect being the retention of a limited amount of information that is arranged in brief and concise form. Allport and Postman (1961 and 1947), from their study on "The Basic Psychology of Rumor" assert that this leveling or considerable loss of detail is psychologically purposive and is not a random process. Parts of a communication, that are of particular interest to an individual and that are consonant with an individual's expectations are least subject to leveling.

In addition to leveling, sharpening, or the selective emphasis on retention of a limited number of details, also takes place. As is the case with leveling, sharpening is also not a random process. Unusual or attention-getting words or phrases tend to be sharpened. The sharpening process works in such a way that numerical, temporal, and size distortions come about usually in the direction of making the facts retained more pronounced.

The processes of leveling and sharpening are important variables that influence the ultimate impact of a communication on a receiver quite independently of the role played by specific media used in a mass media of interpersonal communication.

2. The Frequency of Communication

The frequency with which a specific message or type of message is presented also determines the effectiveness of a communication. Frequent repetition of message is believed to be a successful technique for persuasion by many advertising experts. However, Klapper (1961, p. 316), from his review of the more successful persuasion campaigns asserts that repetition of the same message may only irritate the audience. Repetition with some variation in the emphasis of the message is a far more effective technique. Varying the content of a message serves the purpose of reminding the receiver of the general theme that is being advocated and tapping various needs and desires operant within an individual. In summary, repeated exposure to varied communications reinforces the tendency to act in those predisposed in that direction.

3. The effects of a one-sided versus a two-sided appeal

A significant issue in the process of planning for a communication intervention is whether it is more effective to present one side or both sides of an issue when attempting to influence opinions or attitudes. Hovland, Lumsdaine, and Sheffield (1949) conducted a pioneering study to explore the relative influence of one-versus two-sided communication. This study was conducted with samples of soldiers during World War II, and the topic presented was whether there would be an early end to the war with Japan after the 1945 surrender of Germany. The soldiers were tested on their beliefs about the likelihood of a prolonged war both prior to and after experimental treatments. One experimental group was presented only one-sided arguments supporting the position that the war with Japan would continue for a long time. The second group was given the same information plus some additional arguments stressing the United States' advantages and Japan's weaknesses. The investigators hypothesized that these soldiers exposed to the one-sided argument would be more likely to distrust the communication and therefore would be less likely to change their opinion. The findings revealed that both presentations were effective in changing opinion. However, when one takes into account the initial position of the listener, the net effects were different. It seems that the two-sided communication was more effective with those soldiers initially opposed to
The advocated position. On the other hand, the one-sided communication was more effective with those initially favorable to the advocated position.

The investigators also suggested that a one-sided communication would be more effective with the less educated men, whereas a two-sided argument would be more likely to influence the better-educated ones. It seems then that a person's initial position on an issue and amount of education influence the effectiveness of each type of presentation. Cohen (1964) summarizes the effect of these two variables:

"When initial position and amount of education are considered together, the two-sided communication turned out to be more effective with better-educated men, no matter what their initial position, and the one-sided presentation most effective when those less-educated men already convinced of the position advocated. Thus, to decide the most effective type of presentation requires information about the educational level of the audience and the beliefs that audience already holds (pp.3-4)."

Later research focused on the question of whether these two types of communication differ in terms of resistance to counter-influence. The results suggest that those who had heard the two-sided argument were more resistant to the counter-propaganda than those exposed to the one-sided presentation (Lumsdalne and Janis, 1953). Thistlethwaite and Kamenetsky (1955) have provided additional insights on this issue. In their opinion, introducing facts in support of the "other side" leads to less attitude change in the individual when the facts presented are unfamiliar. On the other hand, failure to include well-known facts supporting the "other side" will also tend to weaken the appeal. In the case of family planning, the implications of these studies raise such questions as: "How much of the opposing views should be presented to the communicatee?", "How much information should be given about the side effects and failure rates of contraception?"

4. The Effects of Stating a Conclusion

Hovland and Mandell (1952) explore the differential effects of stating a conclusion versus not stating it. The presentations used in their experiment were identical except for the stating of the conclusion to one group. The investigators found that when the conclusion was explicitly drawn, more than twice as many listeners changed their opinion in the direction advocated by the communicator. However, the strategy of stating a conclusion may not always be superior since a number of factors are thought to influence opinion change (Hovland, et al, 1953, pp.103-104). These factors include: (1) the credibility of the source, (2) the intelligence, personality type, and sophistication of the audience, (3) the complexity or nature of the issue, and (4) the explicitness with which the conclusion is drawn. Since the role of credibility has already been presented, the discussion will focus on the other factors. Thistlethwaite, de Haan, and Kamenetsky (1955) explored the role of intelligence in the effectiveness of stating a conclusion. Their data indicated that the less intelligent members of an audience exhibit greater opinion change when the conclusions are explicitly drawn than do their more intelligent counterparts. Subsequent research, as Cohen (1964, p.7) points out, has been unable to confirm the findings regarding the role of intelligence. Other researchers, in an attempt to explain these conflicting results, have suggested that perhaps the complexity of an issue is also a critical factor influencing the effectiveness of stating a conclusion (Hovland, et al, 1953, p.104).

5. The effects of consonant versus dissonant appeals

Festinger's (1957) theory of cognitive dissonance states that if two elements in a cognitive system are in a dissonant or incompatible relationship, tension or anxiety will occur. In such a situation, a person attempts to restore the balance and resolve the conflict by changing one or both of the conflicting cognitive
elements. Festinger suggests that there are three ways to reduce dissonance: (a) an alternative would be to change one or more elements of the dissonant relationship, (b) a second alternative would be to add new cognitive elements that are consonant with an already existing cognition, and (c) a third alternative would be to decrease the importance of the elements involved in the dissonant relationship.

Family planning messages have traditionally be designed in such a way so as to increase the positive forces or to emphasize the positive benefits from a small family. Equally important questions are: "Does this introduce a dissonance?"; "Does this help resolve an existing dissonance?". Brehm and Cohen (1962) in their discussion of the "boomerang effect" suggest that if the original cognition and the newly introduced cognition are in a dissonant relationship and are both highly resistant to change, the individual may reduce the dissonance by adding elements into his cognitive system that reinforce his original attitude. Thus, in this case, the introduction of dissonant information regarding family planning into the cognitive system of the individual may have the reverse effect of erecting psychological defenses and finally reinforcing the initial attitudes.

Janis and Feshbach (1953) suggested that the use of strong fear-arousing appeals usually produces less attitude and behavior change than a low or moderate fear-arousal appeal. In a subsequent study performed by Janis and Terwilliger (1962), they found that when a relatively high level of fear is produced, recipients tend to develop psychological resistances to the communication. Therefore, when attempting to add consonant elements or diminish opposing elements, one might avoid the use of high fear-arousing or dissonance-producing appeals until more is known about the conditions under which each type of appeal is effective.

D. CHARACTERISTICS OF THE RECEIVER

It is necessary to turn our attention to the relevant characteristics of the receiver as they affect communication impact. These characteristics can be dichotomized as demographic and social-psychological.

The demographic variables which affect response to a communication as well as fertility behavior include: education, occupation, income, age, parity, religion, race, marital status, participation of women in the labor force, place of residence (urban versus rural) and farm versus non-farm rearing. For a more complete discussion of some of these variables see: Duncan, 1965; Ryder and Westoff, 1971; Westoff, et al, 1961; Davis, 1956, 1951; Behrman, et al, 1969).

In addition to the demographic characteristics, the significant social-psychological variables which affect the response to a communication and fertility behavior include: attitudes toward family size, contraception, and family planning services; patterns and levels of aspirations; efficacy (feeling of mastery over one's environment), future orientation, value orientation, and social optimism (Day and Day, 1964; Kiser and Whelpton, 1953; Rainwater, 1960; Tietze, 1965; Kar, 1966 and 1971; Rogers, 1973; Fawcett, 1970). The influence of some of the social-psychological variables on behavior has been discussed in Sections I and II of this paper and will be further discussed in Section IV in the context of family planning interventions.
This section deals with the issues relevant to planning a strategy for intervention through communication inputs to initiate changes in those intrapersonal determinants which will in turn influence fertility behavior. In order to develop an appropriate communication strategy, three questions may have to be answered:

A. What must we know about the determinants of a fertility behavior of the communicatee?

B. What must we know about the communication process and media with specific reference to the communicatee?

C. How shall we evaluate the impact of a communication?

A. WHAT MUST WE KNOW ABOUT THE DETERMINANTS OF FERTILITY BEHAVIOR OF THE COMMUNICATEE FOR PLANNING A COMMUNICATION STRATEGY?

The aim of family planning programs is to persuade eligible couples to adopt contraception and to sustain this behavior over time. In an attempt to bring about these changes, communications efforts must be based on a sound understanding of why people do or do not accept contraception. In the first section of this paper, a conceptual model for an analysis of the determinants of a behavior by using a systems approach has been presented. According to this model, a behavior is determined by multiple factors belonging to the four subsystems of determinants of behavior. These subsystems are (1) cultural, (2) social-psychological, (3) social structural, and (4) environmental and situational. It must be emphasized that an intervention strategy primarily based upon communication inputs is valid when a systematic diagnosis of the determinants suggests that the pattern of fertility behavior is primarily determined by social-psychological (intrapersonal) variables; under such circumstances an intervention aimed to alter the other subsystems would not be appropriate. As such, in this discussion, the social-structural and environmental-situational determinants will be reviewed from the perspective of extrapersonal factors which influence the intrapersonal (social-psychological) determinants.

1. Intrapersonal (social-psychological) determinants

Two broad generalizations may be drawn from the many studies conducted on knowledge, attitudes, and practices (KAP) related to family planning: (1) knowledge does not necessarily have an isomorphic (one-to-one) relationship with practice; only a small proportion of respondents who have adequate knowledge of contraceptives actually practiced these, and (2) positive attitudes do not necessarily assure behavior. Although most respondents in most of the countries regardless of nationality, creed, parity, or socio-economic status stated they desired only three to four children, most of them actually achieved fertility in excess of the desired number, furthermore, a majority of the respondents in the less developed countries did not practice contraception.
These generalizations suggest that in order to explain why some people do not practice contraception, even when they seem to desire fewer children than they have or are likely to have, we must not only be convinced that the social-psychological determinants have been accurately identified, but also be convinced that the various forces which intervene between a desire to control fertility and the actual use of contraception have been identified. Most of the KAP studies have identified knowledge and attitude at a very general and superficial level. In most of these studies, the knowledge had been restricted to mere awareness of a program or various modern contraceptive methods. These studies did not often define knowledge in a functional sense which influences decisions towards acceptance or non-acceptance of a particular method among the ones one is aware of. A functional knowledge would not only consist of awareness of various methods, but also various perceptions and beliefs which exhibit positive and negative influence on evaluating the desirability of limiting family size and using a particular method(s) for family planning. As a result, in a typical KAP study, respondents may score very high on knowledge (a broad awareness) and yet they may have strong misconceptions and reservations about the use of various methods. Unless these negative cognitive forces are identified, a simple measurement of the degree of awareness would not be meaningful in interpreting (a) the role of awareness in influencing acceptance, and (b) what types of persuasive communication would be necessary to create a positive functional knowledge.

A review of the measurement of attitudinal dimensions in these KAP studies indicates that this aspect has not been dealt with adequately enough to enable one to make effective predictions of fertility behavior. The literature dealing with the theories and measurement of attitude (Fishbein, 1967) suggest that an attitude has three distinct components: (1) a cognitive component - certain knowledge and beliefs about the objects toward which an attitude is held, (2) an affective component - the degree of positive and negative feelings associated with the object towards which the attitude is being measured, and (3) an action component - the tendency to act favorably or unfavorably towards the object of the attitude. A study of the attitude towards family planning should therefore include these three components, not merely the measurement of the cognitive component alone.

Furthermore, it is not sufficient to treat the concept of family planning as an abstract variable; it is necessary to identify various relevant components and have measurements for each of these. One could differentiate at least three such components: (a) attitude towards the concept of family planning - whether a person is in favor or opposed to the goal of fertility control for self, (b) attitude towards the means for achieving fertility control, and (c) attitude towards the providers of these means.

It is therefore not only necessary to measure attitude towards the concept of the small family per se, but it is also essential that there be measures on the attitude towards the means for fertility control, as well as the providers of these means. Finally, it is essential that while measuring attitude within each of these components, it is not sufficient to merely obtain information on whether a person is generally favorable or unfavorable, but it is necessary to measure the strength or the degree of his favorableness or unfavorableness.

A measurement of strength of attitude is particularly meaningful since when asked about the number of children desired by them, most respondents do seem to give a stereotyped response. In such cases, it would be desirable to have additional measures on how strongly a person feels towards the number of children desired, and how much excess fertility one is willing to consider "tolerable". The concept of a tolerable limit of family size should be differentiated from the concept of a desirable family size. The concept of tolerable limit may be described as follows: Two women may consider two children as the most desirable number and yet the first woman may not be as strongly opposed to having a third child and thus may not be too disturbed if she happened to be pregnant and has a third child. On the other hand, the second woman may feel so strongly against exceeding two children that she is willing to do everything possible to avoid a third child. The maximum number of
children one is willing to tolerate is defined as the upper tolerable limit, and the minimal number one tolerates is defined as the lower tolerable limit of family size. The strength of attitudes toward the tolerable limits seems to have the potential of a better predictor of behavior rather than a simple measurement of the desirable family size.

In exploratory studies of the concept of tolerable limits, respondents were asked to subjectively state how many children they would consider "too many" (upper tolerable limit) and how many they would consider "too few" (lower tolerable limit). The upper tolerable limit for late acceptors and non-acceptors was significantly higher than that for the early acceptors. When asked if they had to choose between "too many" or "too few", a significantly greater proportion of the non-acceptors and late adopters preferred "too many" (Kar, 1966, 1968).

In addition to a study of knowledge and attitude relevant to the various components of family planning (concept of family planning, means for controlling fertility, and providers of such means), the motivational patterns of the clientele would be a most significant component of the study of psychological determinants of family planning. If one accepts the conclusions of the recent literature dealing with the theories on human motivation, one must accept the thesis that most behavior is governed by individuals' motivations. It is therefore inconceivable how one can study a planned, deliberate and relatively stable behavior such as family planning without studying how this particular behavior is governed by the patterns of motivation. A review of the literature directly relevant to family planning suggests that in the final analysis, it is the pattern and level of motivation of the people which determine the acceptance of the available methods for fertility control (Grabill, et al., 1958; Hill, et al., 1959; and Cook, 1961). When motivation for fertility control is high, people will not wait for someone to deliver modern contraceptives; they will use any means accessible to them. On the other hand, if the motivation for fertility control is weak, even free services along with various forms of incentives do not convince more than a small minority of the population of the reproductive age group to accept modern contraceptives. The experiences in family planning in various countries illustrate this vividly.

The history of fertility control among the populations of Western Europe for over a century demonstrates that highly motivated people do not need a program or a convenient delivery system of sophisticated contraceptives in order to control their fertility. During the demographic transition in these developed countries, there was a pattern of interaction of strong motive-strong barrier. There were no organized educational efforts and methods were cumbersome. The reason for practice, then, was high motivational forces such as standard of living, and increased participation of women in the labor forces. Over time the negative forces (lack of dependable and accessible contraceptives) have been reduced so that the present situation may generally be described as strong motive-weak barrier. In contrast, many less developed countries have recently launched major family planning programs which provide free modern contraceptive methods and monetary incentives for acceptance of these methods. In many such countries there is little or no religious, political, or individual opposition to the idea of family planning, most couples desire fewer children than they actually have, modern contraceptives are becoming increasingly accessible, most often these contraceptives are available free of cost, and in several cases even monetary incentives are provided to acceptors and promoters of family planning. Yet, in many of these countries, only a very small proportion of the eligible couples practice family planning. The situation in these countries can be characterized as a weak motive-weak-barrier interaction.

Acceptance of family planning therefore is determined by the interaction between two categories of factors: (1) motivation for fertility limitation, and (2) accessibility of means for fertility control. When both motivation and accessibility are high, acceptance rate will be high. In Table 3 a simplified version of the various patterns of interaction is presented for illustrative purpose.
TABLE 3*

ACCEPTANCE OF FAMILY PLANNING BY MOTIVATION AND ACCESSIBILITY ON MODERN METHODS (i, ii, iii)

<table>
<thead>
<tr>
<th>Level of Motivation</th>
<th>ACCESSIBILITY OF MODERN METHODS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HIGH</td>
</tr>
<tr>
<td>HIGH</td>
<td>High use of modern methods</td>
</tr>
<tr>
<td>MODERATE</td>
<td>Moderate use of modern methods</td>
</tr>
<tr>
<td>NIL</td>
<td>Frequent use of traditional and folk methods</td>
</tr>
<tr>
<td></td>
<td>Moderate use of modern methods</td>
</tr>
<tr>
<td>MODERATE</td>
<td>Infrequent use of modern methods</td>
</tr>
<tr>
<td>NIL</td>
<td>No use of any method</td>
</tr>
<tr>
<td></td>
<td>Some use of modern methods for non-family planning reasons</td>
</tr>
</tbody>
</table>

Notes:  i. Acceptance = frequency of use of available contraceptive methods

ii. Motivation = strength of desire to control pregnancy for family planning only

iii. Accessibility = availability of modern contraceptives. High accessibility means (a) readily available modern method, (b) with low cost (including non-monetary), and methods believed to be (c) highly effective and with (d) low undesirable side-effects. These attributes will decrease and diminish as we move from high to moderate to nil categories.

A valid diagnosis of the motivational determinants of fertility behavior must uncover the positive and negative motivational forces and, furthermore, identify which of these are amenable to changes through communication and persuasive inputs. A diagnosis of the motivational pattern related to fertility behavior may include the following aspects: (1) the patterns of aspirations, which include the hopes, wishes and desires as positive motivating forces and fears, worries and concerns as negative motivating forces, and (2) the level of striving - the strength and tenacity with which one strives for his aspired goals. A proper diagnosis of the patterns of aspirations and the level of striving could enable a researcher to understand whether the size of a family is perceived as a means for achieving one's personal goals or avoiding personal fears and worries. On the basis of such a diagnosis, one could develop the content of communication which will be consonant with the patterns of aspirations of the clientele by persuading that the size of the family can significantly increase or decrease the chances of achieving some of the significant personal goals. From this standpoint, the message of communication would be to interpret family planning as a means for achieving some of their personal aspirations.

It is often also true that sometimes fears of ill consequences of contraception may act as negative motivating forces. Under such circumstances, the proper communication approach would be to eliminate the negative motivational forces (anxieties and fears) through proper counseling and advice (Lewin, 1947). In the

* Based upon Kar, 1968a and 1968d.
absence of such a diagnosis of the motivational pattern, a communication message can be global and abstract; it may appeal to the virtues of a small family in abstract, with complete disregard to how the concept of a small family fits into the motivational pattern of the persons whom the communication attempts to persuade to change regarding their fertility.

Implications of Theories of Motivation: From the works of prominent behavioral scientists including Allport, 1959; Erikson, 1956; Hollingshead, et al, 1958; Hyman, 1960; Kluckhohn, 1956; Krech, et al, 1962; Lewin, et al, 1944; Lipset and Bendix, 1959; Maslow, 1954; McClelland, 1955, 1961 and 1965; Merton, 1957; Murphy, 1959; Rosen, 1956; Sorokin, 1959; Srole, 1956; and Warner, et al, 1949; the following implications (adapted from Kar, 1968e) of motivational studies for family planning have been abstracted:

1. Human behavior is purposive; this is more so in the case of planned behavior; therefore, it is necessary to find out what purposes acceptance or non-acceptance of family planning serve to the persons whose behavior is being studied.

2. One behavior may serve various purposes or motives and a purpose or motive may be expressed through different behavior. Therefore, people may accept or reject family planning for different reasons and a person may accept or reject for several reasons. A present or standard communication appeal may not be consonant with the need system of the communicatee.

3. Motives are interrelated and form a pattern (pattern of aspirations). Trying to isolate them is futile. Thus, a unitary explanation of family planning behavior is rarely adequate; one must search for a pattern of motives, and develop communication which deals with these motives.

4. People in similar situations may strive toward the same goal but the strength of striving may differ. Achievement of a small family requires strong motivation, and sustained and effective practice of family planning; thus, effective family planning may be a function of the level of striving.

5. Level of aspirations and acceptance of family planning vary with socio-economic status. Thus, the appeals for family planning must vary according to the socio-economic status of the people.

6. Motivated behavior is dependent upon situational and environmental conditions. Thus, observed behavior may not always reflect motives.

7. The outcome of a behavior or success of contraceptives may be the result of non-motivational or non-physical factors. Thus, the behavior (practice of contraception) should be the dependent variable, and not the success or failure with contraception.

8. Because motivated behavior satisfies values and values are subjective, motivation for family planning must be measured through the respondent's own frame of reference rather than preset scales showing the relationship between one motive and one behavior.

A careful diagnosis of the motivational determinants of fertility behavior will enable a communication strategist to design the content and appeal of the communication so that they are consonant with the motivational system of the communicatee. Where there is a need to resolve the problem of conflicting motives or to change motivational structure - one way (mass communication) appeals may not be sufficient. Effective interpersonal communication and persuasive techniques based upon a careful diagnosis of the need-system would have to be used. Mass communication appeals in turn can be based on a motivational diagnosis and would follow face-to-face communication (for identification of motivational structure and appropriate appeals) rather than precede it.
2. **Interpersonal (situational-environmental) determinants**

Both social-structural and physical-environmental factors are important determinants of behavior and must be considered along with psychological predispositions. Man is a member of a society and his society and his position in it partly determine the decisions he makes. The socio-economic status, religion, ethnic background, age, sex, and parity significantly influence the adoption of contraception. Other important determinants and ones which a communicator should consider when developing a strategy are (1) leadership roles, i.e., who influences whom or who in the informal network of communications influences whom and what are the attributes of these functional opinion leaders in matters of fertility and how can these opinion leaders and early adopters be involved in promoting family planning programs, (2) the role of the recognized opinion leaders, (3) intraspouse decisions, i.e., do spouses discuss family planning matters and if so how do they arrive at decisions, (4) the communication network, i.e., how messages are passed from one to another, what kinds of media exist and which are more likely to reach whom, (5) the role of drop-outs, i.e., to what extent and in what manner do they influence others. Physical factors such as the nearness and accessibility of clinics, supplies, and family planning workers also play an important role in determining contraceptive behavior, and finally (6) the contraceptive delivery system. The significance of the interpersonal determinants and environmental-situational determinants have also been discussed in the previous sections, and further detailed discussion would be beyond the scope of this paper.

B. **WHAT MUST WE KNOW ABOUT THE COMMUNICATION PROCESS WITH SPECIFIC REFERENCE TO THE COMMUNICATEE?**

False Dichotomy between Mass/Interpersonal Communications

Most studies in communications have compared and contrasted mass media with interpersonal communications but they are complementary processes and should be viewed as such. Rather than trying to establish the superiority of one method over another, it is more useful to study the relative effectiveness of each as well as of the combination of the two. Measuring the impact of a single communication media or input in an artificially created experimental situation is not usually a meaningful approach in determining the real potential of such a medium in a natural setting where the simultaneous influence of other media and determinants cannot be controlled. A better approach would be to study the impact of a combination of media which best approximates the natural situation through a pilot project and use these experiences for wider application. In Section II and Section III, the various critical variables which influence a communication process have been discussed. To avoid repetition, in this section several additional criteria relevant to communication research, evaluation, and intervention are presented primarily for the purpose of enumeration of these criteria rather than for an intensive discussion on each.

1. **Accessibility to Media**

When planning the communication components of a program, it will be necessary to ascertain which media are available in the community and which methods or which combinations of methods are more likely to reach which persons. The various characteristics which determine response to various forms of communication have been discussed in detail in the preceding sections.

2. **Quantitative vs. Qualitative Impact**

Communication efforts are often reported in numbers - X number of persons attended Y number of film shows, or X number of pamphlets were distributed among Y number of people, etc. Such quantitative measures do not tell the communicator much about the effectiveness of the message. Thus a qualitative or process evaluation should be undertaken to determine the strengths and weaknesses of the communication and how it could be more effective.
3. Definition of the Behavioral Outcome

It is quite possible that communications efforts have been very effective and that a person has adequate knowledge, favorable attitudes and the desire to practice contraception but is prevented by environmental or situational factors. Under such conditions communications efforts have often been recorded as failures when in fact they may have been quite effective. The effectiveness of a communication should be so defined and measured to enable a researcher to determine whether non-acceptance is due to the failure of the communication in producing necessary interpersonal changes, or whether it is due to those conditions which were not amenable to change through communication intervention.

Thus interpersonal measures such as change in knowledge, attitudes, motivations, and decisions to adopt contraception should be a major component of an evaluation of a communication intervention. At the same time data would have to be collected on the availability of services necessary for adoption of a particular contraceptive behavior.

4. Immediate Impacts and Stability of Change

Most evaluation of the impacts of communication in family planning measure the immediate changes, but do not measure the stability of those changes over a period of time (Bogue, 1967; Rogers, 1973; Kar, 1968a, 1968d and 1970; Dubey, et al, 1969; and Rao, 1968). People may be favorably persuaded immediately after a communication, but may later change their initial opinion when faced with counter arguments (See discussion on the Sleeper Effect; Section III). Thus, it is essential that an evaluation of a communication measures the stability of changes as well.

Another important dimension of such an evaluation is the "secondary effects" - both positive and negative of a communication. Studies have shown that in the early stages of a communication, usually a few are persuaded to accept a new practice; but these early adopters or opinion leaders often influence others and it is important that the influence be positive. In one mass communication campaign in favor of smallpox vaccination, it was noted that only 6 per cent received the message directly from mass communication; however, by the end of two weeks 54 per cent had received the message (Kar, 1968b, p.208). Thus measurements performed immediately following a campaign may not provide information on stability of change or secondary effects of communication. It is therefore necessary to have subsequent and on-going evaluations.

5. Positive Versus Negative Impacts

Most studies of the impact of communications in family planning have studied the positive effects, yet it is also important to know the negative effects in order to reduce them. There are many cases which have illustrated that while people often gain helpful information from a planned communication effort, they also develop misconceptions, rumors, and unrealistic expectations which can play strong negative influences on their behavior. For example, studies on participation in D.D.T. programs revealed that many persons believed that all insects would be killed and some thought it would make men sterile (Dhillon and Kar, 1965). Another study on participation in a smallpox vaccination program showed that some persons thought vaccinations would prevent cholera, chickenpox, and other diseases. Some thought the vaccination is too risky to health and when a death of unknown causes occurred shortly after a vaccination, it was attributed to the vaccine (Kar, 1969a). Thus assessing positive effects of a communication alone is not sufficient; the negative effects must also be studied and communications must be designed to deal with them.

6. Expectations from Mass Communications

The most frequent expectation of a mass media campaign is to change the behavior of large numbers of people rapidly, but communications affect different people
in different ways depending on psychological predispositions. Some who are highly motivated may need only limited factual information in order to act; others may be highly motivated but apprehensive and will have to have their fears reduced; still others may not see any advantages to a practice and will need intensive persuasion, and so on. Studies on the impact of mass communications show that a minority are usually reached directly and this minority are the more innovative persons of influence, more prone toward a change, better educated, and more exposed to mass communications. Thus often an effective change in a few "gatekeepers" or opinion leaders (qualitative change) rather than the quantitative change in many could be a valid and realistic expectation of communication efforts in the initial phase of a program.

7. Credibility of Source

It is known that source credibility is an important determinant of the effectiveness of communications (See Section III). One should explore the extent to which a communication is considered credible by the communicatee. Moreover, it is important to identify and involve credible sources who are the potential opinion leaders.

8. Roles of Interpersonal Communication

It has been noted that mass communications can be effective in the initial phases of a campaign when one is arousing the interest and awareness of influential persons (Section III). Yet success rests on subsequent personalized persuasion. These persuasive efforts must deal with negative and conflicting motives and cognitions. They require an understanding of hopes, fears, and worries of the communicatee, and should be channeled through opinion leaders, credible sources, and through peers (friends and relatives).

9. Opinion Leaders and Early Acceptors

The opinion leaders and innovative persons are exposed to a communication campaign earlier than the majority of the community, and their response to a communication may play a significant role in the response of the rest of the community. The experiences with the IUD (Intra-uterine contraceptive devices) accepted world-wide indicates that a significant proportion of the acceptors drop out within a year (sometimes as high as 50 percent). It should be noted that all these drop-out cases were once motivated to use the IUD, but were subsequently disappointed with it. The literature also suggests that the peer-influence plays a very important role on the acceptance of contraception on the majority of the people and that these drop-outs do communicate their experiences with their peers. From the perspective of a overall acceptance, it is conceivable that the absolute number (and the rate) of total acceptors may increase, simultaneously the absolute number of drop-outs (and the rate) may also increase. Thus a significant operational question would be: "What influence do these drop-outs have on their peers?" A similar question should be asked with regards to the opinion leaders who are not in favor of the behavior change proposed in a communication. It is therefore essential that research carefully identifies the roles played by the opinion leaders and early acceptors and the means to use them positively for a communication strategy.

10. Traditional versus Modern Media

In many less developed countries, communication strategy in family planning programs heavily depends upon modern media of communication and printed materials (e.g. posters, pamphlets, radios, movies, etc.). While these media can play useful roles in the wider dissemination of information, they are not very effective in persuading those who are hesitant, or are opposed to family planning (See Section III for a detailed discussion on relative roles of mass and interpersonal communication). In addition, in many rural societies these media do not have a potential for a high level of exposure and the people reached may view these as alien media and the concepts with a great deal of suspicion. It is thus highly desirable to supplement these modern media with effective traditional media. In
many societies, highly effective traditional media are used both for socialization and recreational purposes. For example, it is fascinating to observe how, in India, folk media are used to effectively transmit some classical epics and mythologies ("Ramayana" and "Mahabharata") from one generation to another. These enormous volumes of material are transmitted with an unbelievable degree of accuracy through such media as "Bhajans" and "Kirtan" (religious choirs), "Yatra" (dance-drama), "Kabir Larai" (competition among poets who improvise their lyrics and music on-the-spot in question and answer dialogues), "Kaawali" and "Gazals" (light songs on various moods and themes), "Natak" (plays), and "Mela" (festivals and fairs), etc. There is no reason why some of these folk media could not be used effectively for family planning communication. Unfortunately, most communication strategists and researchers are guided by their professional preferences and urban bias and consequently very little scientific research is available on the effective use of the traditional media and informal communication networks. This could constitute a very significant area of communication research and intervention.

This section dealt with some of the neglected aspects of communication research and interventions. Furthermore, several suggestions have been made about criteria for evaluation of communication impact, some of which will be discussed in the remaining portion of the section.

C. HOW SHALL WE EVALUATE THE IMPACT OF A COMMUNICATION?

In the immediately preceding discussion several suggestions and criteria for an evaluation of a communication intervention have been presented. This section deals with additional methodological issues relevant to an evaluation. A general principle of evaluation is that a program of intervention usually aims to achieve multiple objectives which may be arranged in a hierarchical order and in a time dimension, therefore, an evaluation of these various levels of goals is needed at relevant time points. These goals can be trichotomized as (1) immediate, (2) intermediate, and (3) ultimate goals of the program (Suchman, 1967, p.51).

The second principle is that in order to maximize the efficiency, it is not sufficient to evaluate the final impact (ultimate goals), but it is essential to have on-going (periodic) evaluation of immediate and intermediate goals and to determine the factors which promote and inhibit the achievement of these.

Third, an evaluation consists of both (a) measurement and (b) judgement; the first component concerns reliable and valid measurement for which scientific and objective standards are available. The second component, on the other hand, concerns value decisions which are determined by intervention goals and often by unarticulated expectations. It is thus necessary to have a clear statement of the intervention goals and to have a clearly defined criteria of "success".

Finally, an evaluation design must contain valid measures to determine the true impact of the intervention as opposed to the impacts caused by extraneous (unplanned and non-intervention) causal factors.

The types of evaluation studies are categorized in terms of the level of goals or effects being evaluated. Suchman (1937, pp.60-73) suggests five basic categories:

Effort: Attempts to answer "What did we do?" through a determination of the quantity and quality of activities undertaken or inputs (such as the amount of money spent, persons trained, publicity materials produced and distributed, etc.).

Performance: Attempts to answer "How effective have we been?" through a determination of the effects of the efforts undertaken (such as the extent to which an immediate or an intermediate goal has been achieved, whether and how much unplanned impacts have been produced). This type of evaluation is also known as the evaluation of effectiveness.
Adequacy of Performance: Attempts to answer "Are the intervention efforts adequate for the need?" through a determination of the extent to which a real need has been met by various program inputs (it is possible to have highly effective results on a very small scale without having a major impact on the problem at large. Under such a circumstance, the program may be highly effective, but inadequate in terms of the overall need).

Efficiency: Attempts to answer "Are there more efficient and less expensive ways of having the same impact?" through a determination of cost of various alternative means of inputs (such as does it appear more efficient to use full-time family planning workers or to use various out-reach workers for family planning on a part-time basis).

Process: Attempts to answer "How and why something worked or did not work" through a determination of the positive and negative aspects of various components of the intervention.

For further discussions of these and other types of evaluations, please consult Suchman, 1967; Denniston, et al, 1968a, 1968b and 1970; Kar, 1968c. In the remaining portion of this section, several issues relevant to an evaluation of communication intervention are presented very briefly. Ideally evaluation of an intervention should include; (1) A base line measurement on the status of fertility behavior and the determinants of these behavior, (2) a built-in mechanism for process and performance evaluation, and (3) a terminal measurement to determine the ultimate impact of the intervention.

1. Evaluation of Impact

A program must be evaluated against the goals of intervention and these goals must be defined in measurable non-ambiguous terms. To achieve a final demographic goal of a family planning program, certain intermediate or communication objectives will have to be achieved. Some of these are:

(i) remove ignorance and misconceptions about the process of conception and contraception
(ii) increase knowledge about contraceptive methods
(iii) generate favorable attitude towards the concept of small family norm, specific contraceptive methods, and the providers of contraceptive services
(iv) remove personal doubts and hesitations which act as barriers to adoption of contraception
(v) increase social support for persuading the resisters and hesitants
(vi) increase acceptance of contraceptives on a sustained basis through group pressure and
(vii) determine the relative efficiency of various communication interventions.

Since program success is dependent on the achievement of these intermediate goals, they must be assessed periodically (through performance and process evaluation) to change intervention strategies where needs arise. In order to assess these goals, valid indicators and measurement techniques must be developed and pretested.

2. Time Dimensions

When searching for indicators of change, the influence of time dimensions must be considered. The stability of initial change, the sleeper effect, negative
forces originating from drop-outs and the opponents are some of the critical variables which change in time and in turn affect the ultimate impact. Evaluation of these components at different stages may involve different sets of indicators depending on the kind of change measured at a specific time point in the evaluation.

3. Indicators of Change

In selecting indicators, it is important to have a starting point and appropriate units of measure. Behavioral measurements are not usually as exact or as precise as measurements in physical science; however, a starting point and approximate units of measurement are needed. Two major criteria which could be used to select indicators of change are: (a) how close the indicator is to change in ultimate goal and (b) whether valid techniques for measuring the indicator change are available. Other criteria suggested are (Kar, 1968c):

(i) simplicity of measurement
(ii) scope for quantification, precision of measurement
(iii) observable indicators against verbal response
(iv) indicators used previously by other investigators.

4. Types of Indicators

A measurement of impact of a communication intervention should include valid indicators within these three types of change: (a) cognitive - knowledge, perception, beliefs, (b) attitudinal and motivational, and (c) conative - actual behavior.

(a) Cognitive Indicators

This type includes beliefs and knowledge concerning (a) family planning and how it relates to improved standard of living and marital or domestic happiness, (b) specific contraceptive methods, and (c) services and providers of family planning.

(b) Attitudinal and Motivational Indicators

This includes measurements of the feelings, attitudes, and motivations directly relevant to three aspects of family planning. The three aspects which constitute the overall content and further measurements are: (a) the social-psychological determinants of fertility goals and preferences, (b) attitude towards specific means for fertility control, and (c) attitude towards the contraceptive providers and services. While evaluating changes in any of these aspects, it is necessary to measure both the direction (positive and negative motive, attitudes, etc.) and the intensity (how strong are the positive and negative attitudes or motivations, etc.). Unless evaluation measures the direction and intensity of changes in each of these components, the result would provide partial and distorted description of the impact and would lead to invalid conclusions (for a detailed discussion of these components, see Sections II and III as well).

(c) Conative Indicators

Indicators for Behavior Change: Because behavioral indices are closer than the other indices to the desired goal, there should be a careful measurement of the magnitude, direction, and stability of overt behavior. Some of the useful indicators of impact of communication in behavior are:
1. increase in clinic attendance
2. increase in the rate of new acceptors
3. increase in the continuation rate
4. decrease in drop-out rate
5. increase in secondary acceptance (referred by friends and relatives)
6. decrease in cost for recruitment of new cases and follow-up.

The final impact of an intervention would have to be determined within the context of other interventions and in terms of changes in the fertility and demographic status of the clientele. The evaluation criteria relevant to measuring fertility and demographic changes is not within the scope of this paper, and hence has been excluded. In the final analysis, an evaluation of the behavioral impact of communication should be measured in terms of (a) the magnitude of positive and negative changes, (b) the stability of these initial changes, and (c) the efficiency of the intervention strategies used to generate these changes.
SUMMARY

This paper reviews the significant elements of communication research and suggests their implications for further research and for intervention through communication inputs for fertility control. Communication is defined as all those planned and unplanned processes through which a communication influences other persons' behavior; thus a communication intervention for family planning is defined as all planned interaction with the intent to alter the fertility behavior of the communicator. The text of the paper is organized into four substantive sections:

Section I: Conceptual Framework for Analysis of Determinants of Behavior

In this section, emphasis is placed on a systems approach for studying the determinants of a behavior. The author cautions against the bias introduced by the "law of the instrument" and reviews several models for studying fertility behavior. Based upon a review of these models, the author presents a model which can be used to study the determinants of fertility behavior (Fig. 1). This model suggests that an analysis of the determinants of a behavior must use a systems approach (as against a simple and sovereign causal model), which includes four subsystems of determinants: (a) cultural, (b) social-structural, (c) social-psychological, and (d) environmental-situational. Such a diagnosis will enable a communication strategist to determine which or what combination of factors determine a particular behavior.

Section II: Conceptual Framework for Planning for Intervention

This section discusses the issues relevant to the two proposed standards of justification for an intervention. These are: (a) ethical and (b) scientific justifications. This section presents an analysis of various situations and five forms of interventions pertinent to these situations (Table 2). These forms of intervention are: (1) informational, (2) instructional, (3) consonance (resolution of conflicting motivations, attitudes, cognitions, etc.), (4) environmental-situational, and (5) motivational (major change in the motivational structure). It is suggested that in most situations, non-acceptors of family planning can be favorably persuaded through a consonance model, and that it is not necessary to change the deeply rooted beliefs, values, motives (primary intrapersonal variables). This section also reviews the merits and constraints of changing various levels of psychological determinants of a behavior (Fig. 2). These determinants are conceptually arranged in three concentric circles (primary, intermediate, and tertiary psychological determinants), and the validity, cost, and effectiveness of changing each of these categories is presented. Finally, this section presents a model for intervention (Fig. 3) to promote the acceptance of contraceptives. Figure 1 presents a framework for diagnosing which combination of causal factors determines a behavior, and whether these are amenable to change through communication intervention. Figure 3 presents an analytical framework and a model for determining the conditions under which intervention through communication would be valid for changing a fertility behavior. In this model, a fertility behavior is analyzed in terms of interaction between two categories of variables: (a) the determinants of fertility behavior operant in a population, and (b) the interventions or planned inputs to change these determinants.
Section III: Review of the Significant Variables and Generalizations of Communication Research Relevant to Family Planning Communication

This section presents a review of significant components of communication research relevant to fertility behavior. These components are: source, channel, message, and the receiver of the communication. This review suggests implications for further research and particularly for communications in family planning.

Section IV: Implications of Communication Research for Family Planning Interventions

This section presents the implications of the analyses of the preceding sections for planning a communication strategy. This section also raises several issues relevant to evaluation of the impact of a communication intervention for changing fertility behavior.

One of the major purposes of this paper is to identify research needs and suggest criteria for intervention, and it is hoped that the issues presented in this paper will contribute toward productive research and effective intervention.
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