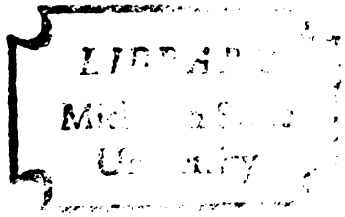
EMPATHY, MASS MEDIA, AND MODERNIZATION: A STUDY IN RURAL BRAZIL

Thesis for the Degree of Ph. D.

MICHIGAN STATE UNIVERSITY
GORDON C. WHITING

1967



This is to certify that the

thesis entitled

EMPATHY, MASS MEDIA, AND MODERNIZATION:

A STUDY IN RURAL BRAZIL

presented by

Gordon C. Whiting

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Communication

Major professor

Date December 3, 1971

EMPATHY, MASS MEDIA, AND MODERNIZATION:

A STUDY IN RURAL BRAZIL

By

Gordon C. Whiting

AN ABSTRACT OF A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Communication

1967

ABSTRACT

EMPATHY, MASS MEDIA, AND MODERNIZATION:
A STUDY IN RURAL BRAZIL

by Gordon C. Whiting

This study focuses on the process of modernization of individuals in developing nations and particularly on the role of empathy in this process. Empathy is viewed as a capacity for discriminating subtle cues and imaginatively and flexibly utilizing these to optimize goal attainment. Three traditional meanings of empathy are examined and criticized. Two newer approaches are presented which tie empathy more closely to the modernization process. The first approach suggests that the more empathic individual develops a more differentiated generalized-impersonal-other which helps him learn from and interact with strangers. The second approach suggests empathy as an instance of hypothetical thought or general cognitive flexibility. Other links are discussed between empathy and modernization, and a model is presented of empathy's contribution.

The focus of empirical investigation is narrowed to three general areas of concern: (1) the nature of empathy as a variable, i.e. its dimensionality, stability over time, relative importance as a predictor, and the possibility of a new approach to its measurement; (2) the place of more empathic individuals in communities of greater or lesser traditionalism; (3) empathy's relations with mass media and urban contact, especially whether aspects of empathy mediate the impact of messages in these channels.

Data were gathered in two waves of interviewing during 1966 in rural Minas Gerais, Brazil. Indices of variables were developed through factor score procedures and through Guttman scaling. Tests of hypotheses involved comparisons of appropriate correlations and/or regression coefficients. The dimensionality of empathy was investigated through factor analysis. Multiple regression routines helped evaluate empathy's relative usefulness as a predictor.

Factor analysis of 18 empathy items produced three factors: (1) interaction with strangers and role-knowledge, (2) skill with hypotheticals, and (3) imaginativeness. When factor analyzed in a larger pool with an additional 57 items, only components of the first and last factor achieved satisfactory loadings. When aggregated to a community level, empathy loaded well on a factor which included other indications of skill in interpersonal interaction.

As a predictor of modern attitudes and knowledge imaginativeness was superior to hypotheticals; both were decidedly inferior to mass media exposure, intelligence, and literacy. A three-item empathy index composed of role-taking questions had a test-retest reliability of .29 over six months. In terms of predictiveness, ease of coding, and possibly reliability a better measure might be obtained from interviewer ratings of respondents' performance on a variety of hypothetical items.

Other results:

1. Empathy shows no differential relationship to the individual's social role, integration, or communication position in communities of greater or lesser traditionalism.

2. Imaginativeness is correlated significantly more with print exposure than with radio exposure.

3. Print exposure is correlated significantly more with belief in work, political knowledge, and attitude toward change than is radio exposure.

4. The improvement in correlations among the preceding variables obtained by cross-classifying on imaginativeness is significantly greater than the improvement obtained by cross-classifying on hypotheticals.

5. The pattern of regression slopes suggests that the more empathic either increase the modernity of their attitudes and knowledge more rapidly per unit exposure to mass media or start higher on these variables when exposed to the media. If both slopes and intercepts are allowed freedom, the resulting pattern sometimes suggests a take-off phenomenon in which individuals in the middle levels of empathy learn more rapidly than those at either extreme. This result is consistent with the hypothesis that empathy facilitates decoding the modernization import of the media.

6. There is no evidence that empathy facilitated attraction to the city due to urban exposure.

EMPATHY, MASS MEDIA, AND MODERNIZATION:

A STUDY IN RURAL BRAZIL

By

Gordon C. Whiting

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Communication

1967

ACKNOWLEDGEMENTS

The author wishes to acknowledge the assistance received in the preparation of this thesis from the Department of Communication and the Computer Center at Michigan State University, from the Project on the Diffusion of Innovations in Rural Societies, and from the Federal University of Minas Gerais, the Rural University of Minas Gerais, and the Agency for Credit and Rural Assistance, Minas Gerais. More particularly, Dr. Hideya Kumata, Dr. David K. Berlo, Dr. Frederick B. Waisanen, Dr. Bruce L. Smith, Dr. Everett M. Rogers, Dr. Dennis Gilliland, and Mr. William L. Ruble provided encouragement, advice, and assistance of a unique nature.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION AND THEORY

One of the more fashionable areas of theorizing and research in contemporary social science is that of social change. Most social scientists interested in cross-cultural work pay considerable attention to social change leading toward the modernization of emerging nations. The sociology of this interest would itself be interesting, but is not the focus of present concern. The modernization and development of nations is. In general, communication as it interacts with characteristics of individuals is the focus here, not the more frequently researched question of aggregates of communication flow and their correlates with other indices of development. By choice, the aspect of modernization selected for attention here is modernization of the individual by "changing his mind."

I. MODERNITY

Smith and Inkeles point out that modernity has both a social-system and individual-system referents (Smith and Inkeles, 1966). For the social system such characteristics as increased urbanization, education, industrialization, and social mobility help to define change toward modernity. Indices of this nature have been shown to bear a high relationship to measures of communication flow (pieces of mail processed, etc.) and to the presence of the channel mechanisms needed for mediated communication (radio sets, cinema seats, etc.). Social systems have also been called more modern to the extent that they are more structurally differentiated, are capable of processing

larger quantities of information more rapidly and with greater fidelity, or tend to utilize to a greater extent the criteria of achievement rather than ascription in recruitment to given roles. These criteria of social-system modernity are drawn from different traditions of analysis and only give the flavor of the social-system approach to a definition. Inkeles summarizes this area by noting that the time-orientation of modern societies is toward the future, that they give great emphasis to adaptation and change, often at the expense of consolidation and conservation of tradition, and, most strikingly, that modern societies are energetically organized for continuous, self-initiated change.

The second referent of modernity centers on the individual and his characteristics. It is widely conceded that different sets of values, orientations, skills, and behaviors are needed for successful participation in a modern society from those required in a traditional. Smith and Inkeles believe that these personal characteristics are to a degree prerequisites for successful functioning in the roles fashioned by modern institutions. Recruits for these roles must have some inclination, training, or experience which enables them to adopt the attitudes, values and orientations the modern roles require. They also need at least minimal levels of modern skills if they are to be useful and productive. As these recruits participate in the institutions and the total matrix of modern society they further learn, and receive reinforcement of, modern orientations and skills.

Traditional ways are difficult to overlay with modern institutions. Innumerable constraints are exercised by the adoption of the new patterns of activity involved in modern institutions. A steel

factory simply does not produce steel dependably if the siesta system is maintained without modification. The relationship between institutions and individuals is certainly an interdependent one, wherein each modifies the other.

Granting that some of the characteristics of individual modernity may be learned on the job and that all of them receive reinforcement there, the problem remains of where traditional persons receive the needed training and necessary resocialization for initial entry into modern roles. This is particularly true for the rural populace, that portion of the citizenry which is typically most difficult to convert from traditions of subsistence, dependence, and subservience toward participation -- economic, political, and social -- in the modern life. Perhaps this is partly because agriculture, more readily than industry, can produce something without adoption of modern institutional arrangements. The constraints of modern, or at least semi-modern, agricultural technology on traditional behavior are much less powerful than those of industrial technology. Nevertheless, they exist, and for modern technology of any sort to be successfully utilized, many changes in behavior, values, attitudes, and skills are needed. This is particularly true in the habits of mind. The need is for a profound shift to a change orientation, since the modern technology of today will not be the modern technology of two years from now. The modernity of a farmer's enterprise might perhaps be better indicated by the rapidity with which he is able and willing to adopt newer technology than by the present state of his operations. In other words, the need is not for the adoption of a one-shot round of technological improvements as much as for the creation in the rural

populace of responsiveness to opportunities for continual change, and often for a modicum of speed in making the change.

Crucial to the development of a widespread change orientation is the development of the necessary styles of information-processing and of the skills needed for utilization of messages sent over modern information channels. The problem of developing a change orientation is not solvable simply by increasing the supply of information to the people, although this is necessary.

From what institutions or experiences can we expect the re-socialization of traditional peoples for entry into modern roles? The family, church, and traditional primary education are unlikely to do much to prepare for such recruitment. Their main push is in the opposite, traditional direction. One of the basic insights of recent years is that preparation for modern roles may be almost entirely a by-product of activities which have other ostensible justifications. One of the most important of these is utilization of mass media exposure. The media have their prime apparent utility as information suppliers and their prime attractiveness as sources of entertainment and diversion, yet they seem to communicate incidentally a great deal about modern role-specifications. Likewise people are sometimes thrust into other situations that give clues to modern roles, such as that of soldier. They may also travel, observe, and return with modern notions. But the incidences of military service and of extensive travel are typically low, especially for the rural populace.*

---

*In Brazil, the site of the research to be reported here, the laws on conscription of youth are not enforced in the rural areas, only in the towns and cities. A recent study in rural India located

In terms of present and potential incidence the mass media have overriding importance in extensiveness if not in intensiveness. They present a model of a different life and, by implication, the suggestion that this life might be adopted by their traditional audience. Hence the reaction of the guardians of tradition against them.

II. LERNER'S MODEL

The theory or model of modernization which most explicitly attempts to link the functions of mass media exposure and information processing to other modernization phenomena was proposed by Lerner in 1958 and has been expanded by him and others since then. Central to his model is the concept of empathy, for which he supplies a variety of definitions, the most central being "the capacity to see oneself in the other fellow's situation." (Lerner, 1959, p. 50) Empathy has, in Lerner's model, the function of a catalyst or lubricant among the processes of urbanization, literacy, industrialization, national political participation, and use of the mass media. Briefly reviewed, with the contribution of empathy emphasized, the theory is as follows:

> (1) Urban development is the starting point. When something like 7 to 17 per cent of the populace live in cities of more than 50,000, "take-off" toward modernization occurs. Since empathy makes physical mobility and integration into a new milieu more probable, the empathic are more likely to move to and remain in the cities.

---

only 3 ex-servicemen in a sample of 680 rural cultivators. This indicates that the servicemen are not recruited from the rural area or do not return to it, or that the size of the army relative to total population is quite small.

(2) Literacy is a basic skill underlying the modernization sequence, since it is needed for the emergence of industrial complexes and urban living. Literacy and urbanization rates rise together initially; the initially more empathic are more likely than the less empathic to become literate and to do so sooner.

(3) With urbanization and literacy providing an audience and the skills requisite to their development, the mass media expand; the empathic are more "mass media-participant." They learn from the media the intellectual skills and predispositional requisites of modernity. The mass media are "mobility-multipliers" because they provide mediated "travel" across the barriers of time and space to worlds of vicarious experience. Thus, they increase the empathic abilities of their audiences -- and their initial audiences consist disproportionately of the more empathic individuals.*

(4) With mass media participation comes the capacity and desire to participate politically and economically, to hold views and opinions on national and international issues, and to view as important concerns which formerly were outside one's traditional competence and purview. With the development of the market and industrialization, the spiral of progress rises upward to ever increasing heights of modernity. Each stage automatically constitutes the input for succeeding stages.

Lerner made this analysis of empathy so convincing that empathy has appeared quite regularly as an important variable in numerous development studies since 1958. (See for example Eister, 1962; Frey, 1964; Rāo, 1963; Rogers and Herzog, 1966.) Peters recently provided the testimonial that empathy is "an indispensable personal skill [sic] for persons moving out of traditional settings." (Peters, 1966, p. 6)

---

*Schramm and Ruggels report research which casts doubt on the generality of the simple pattern of mass media growth in relation to other elements of the society suggested by Lerner's model. Their research uncovers a variety of patterns. See Schramm and Ruggels, 1967.

III. SPECIFICATIONS OF THE CONCEPT, "EMPATHY"

The conceptualization of empathy calls for some discussion. Smith's summary of its traditional meaning is relevant to much that we will cover.

> The core idea of empathy is the ability to transpose oneself imaginatively into the feeling, thinking, and acting of another. (Smith, 1966, p. 19)

(Smith does not use this definition in his own work, but focuses instead of presumed similarity as an operationally useful conceptualization.) Katz provides an insightful characterization of empathy as "vicarious introspection." Through an identification process we introject the other person into ourselves and contemplate him. Coupled with this identification and introjection is a second stage, which artists refer to as "empathic distance," wherein we gain added awareness of our own feelings after the identification and introjection and in this way presume that we have gained added awareness of the feelings and probable behavior of the other individual. "We are still ourselves and it is our own imagination that is active, having been stimulated by the perceptual cues that came to us from the other person via our own eyes and our own ears." (Katz, 1963, pp. 93, 94) If empathic distance were lost, the barrier between our own identity and that of the person we are attempting to identify with would be sacrificed, with potentially embarrassing or otherwise distressing consequences. It is the ability to observe ourselves while taking the role of the other, imaginatively, that constitutes the potential pay-off from the empathic process, for only thereby can we learn about the other fellow.

The present study postulates that empathy is important in the communication process leading to development because empathy (1) facilitates effective interpersonal interaction, especially between persons who are strangers or whose backgrounds are markedly different, (2) makes possible greater fidelity in the transmission of information, especially of the implicit modernization content of communications from more to less modern systems, and (3) increases the probability that, to the extent that choices are available, more modern sources of information will be selected for attention and decoding. The more empathic person is more likely to select modern messages and is likely to decode them more accurately. Furthermore, he will be more likely to personalize and apply these messages to himself and his own situation. He will more likely see himself as a person involved in the changes advocated by the messages.

In other words, the emphasis here is on what the empathic person is likely to <u>do</u> with modern information as well as the greater likelihood that he will seek and understand it. Precisely because he is empathic he will be more likely to apply messages advocating change. This is because he has developed the capacity and habit of imaginatively generating messages for self-consumption concerning possible alternative courses of action. This capacity is indexed by his ability to place himself in other roles when called on to do so, but this imaginative, role-assuming capacity is only one aspect of a general cognitive syndrome involving flexibility, skill, and a greater propensity to contemplate hypothetical situations.

The more empathic individual may be regarded as possessing two distinctive characteristics: (1) an ability to discriminate more

cues in his information environment and (2) a capacity for recombining these cues with other, already stored bits of information in a useful and sometimes novel fashion. His skill in interpersonal interaction comes, presumably from his heightened capacity to observe in others slight indications of mood, intention, affect, frame of reference, etc. and then to utilize these cues to determine the behaviors on his part which will most effectively achieve his purposes. Frequently the focus in discussions of empathy is on those internal processes ("putting himself in the other man's shoes" etc.) which are involved in determining useful behaviors. But the cue-gathering stage is of equal importance. Both occur simultaneously in any given instance. Cues are being continually discriminated and brought into the information matrix which is contributing to ongoing behavior.

This more flexible manipulation of information, both stored from past experience and being fed into the individual at any given moment, is the key to his capacity to deal more effectively with hypotheticals and counterfactuals, relating himself to what his social milieu may define, at least hypothetically, as unreal. The contemplation of intellectual "heresy" is easier for him.

At the same time, the effective empathizer, in each aspect of his empathic skill, requires information. Perhaps this is most vividly illustrated in the imaginativeness aspect of empathy. Imagination in the absence of information is possible, but its outcomes would more closely approach autistic reverie than a useful new approach to problems in the environment. For imaginative activity to bear a resemblance or relevance to a given situation or problem without completely by-passing the issue, information is necessary. It

is rather difficult to respond meaningfully to a question like "What would you do if you were the 'Big Man' in the moiety on Fui-Fui?" in the absence of information about the role, 'Big Man', the institution of a moiety, and the general social and physical system found on Fui-Fui. Any response other than one equivalent to "I don't know" is likely to be 'imaginative' primarily because it is quite irrelevant. Only responses coming from one possessing sufficient relevant information about the role, its context, and the range of normal behavior in that role can be both imaginative and relevant in the manipulation of the alternatives open to individuals in that role.

Thus, empathic skill as a general phenomenon consists of a heightened capacity for gathering information from the environment (particularly information presented more subtley), and a certain flexibility in recombining past and present information in both unique and useful ways. As it relates to individual modernization, the subtle cues may be those present in the mass media or in the urban milieu. The empathic individual is more likely to decode these aspects of the media or the city, and he is more capable of incorporating them usefully into his own life. Lerner spoke of this in terms of the empathic individual's ability to reshuffle his self-system on short notice, as when thrust into a more modernized environment, e.g. someone passing rapidly from the farm to the factory. This reshuffling coupled with a heightened capacity to extract the more subtle and useful cues from one's experiences distinguishes the more empathic individual from his less empathic peers. The term, "empathic" is merely a convenient and traditional label for this ability. And the aspects of the ability to be explored in this study relate to its

basic components; discrimination, flexibility in manipulation, and incorporation of these cues into past elements of information.

IV. SOME EARLIER CONCEPTUALIZATIONS OF EMPATHY

Drawing on Lerner's work and on earlier intellectual traditions the following aspects of empathy may be distinguished: (1) imaginative role-taking, (2) insight into others' experiences, and (3) skill in interpersonal perceptiveness. The first two are quite similar, but they will initially be considered separately.

Empathy as Role-Taking.

Coutu defined role-taking as:

> ...the symbolic process by which a person momentarily pretends to himself that he is another person, projects himself into the perceptual field of another person, imaginatively "puts himself in the other's place" in order that he may get an insight into the other person's probable behavior in a given situation. (Coutu, 1951)

G. H. Mead's theory of the manner in which the self develops is heavily dependent upon this view of the role-taking process. Through role-taking shared meanings are developed. Additional uses of role-taking have been proposed as well. Stewart and Hoult, for instance, utilize deficiencies in role-taking to explain differential levels of authoritarianism. (Stewart and Hoult, 1959).

This role-taking conceptualization of empathy views it as a process of putting oneself in the other man's shoes in an attempt to understand and predict his behavior. The popular detective supposedly works this way, utilizing the counterfactual mode of thought which language allows to frame questions like "If I were the

bank robber, where would I hide?". In a less conscious or explicit fashion, Mead believed the development of a self-system grows out of symbolic interaction with others, and the imaginative re-enactment of social roles is crucial to this process. Thereby the individual comes to understand these roles, and by acting in them toward himself somewhat as he finds present incumbents actually acting, he develops a sense of self and a self-evaluation. A person viewing an exciting film may find himself identified with the hero to a point where his fists clench, his heart pounds, and his stomach flip-flops. This example comes close to the kind of thing which occurs when we gain vicarious insight into the experiences of others by feeling what we take to be the same emotions that they feel. Although emotional involvement is not ruled out in imaginative role-taking, and some would argue that it is a necessary means to gain insight into others' experiences, the cognitive aspects of the role-taking process tend to receive primary emphasis. Before either the words empathy or role-taking were coined, Adam Smith observed:

> As we have no immediate experience of what other men feel, we can form no idea of the manner in which they are affected, but by conceiving what we ourselves should feel in like situation. (Quoted in Katz, 1963, p. 94)

The process of imaginatively putting ourselves in others' roles to understand their thoughts and feelings and to anticipate their reactions to our actions is clearly indicated here. Also highlighted is the similarity notion, the assumption that others are like us. As we will see, this assumption forms an important link in explaining the utility of empathy for modernization.

Lerner's main concern is with this role-taking concept of empathy, and his measurement of it is linked to the individual's

ability to describe his activities in terms of modern, high-status roles. Along with this, Lerner postulates a net increase in human imaginativeness and greater cognitive flexibility. All this suggests a larger capacity for interior manipulation, particularly of the individual's concept of himself. (Lerner, 1966, pp. 221-224).

Empathy as Interpersonal Perceptiveness.

The view of empathy as interpersonal perceptiveness grew out of the psychology of perception and denotes differential ability in utilization of cues about others' internal states. This can lead to improved prediction of others' behavior and greater success in interpersonal relations. (Cline and Richards, 1958: Cronbach, 1955; Hastori and Bender, 1952; Foa, 1958) Interestingly, some writers suggest that this kind of empathy may be more characteristic of traditional or at least of primitive societies than of modern ones. Deutsch (1963) believes that traditional men are more interpersonally perceptive because of their experience in the extended family. Having a need to differentiate carefully between behavior toward a large number of children and adults who are found in close and constant interaction in the family, the child develops more capacity to size up individuals and behave accordingly.

In line with this, Margaret Mead (1964) and Hurley (1965) suggest that primitive man is already highly imaginative, involved in vicarious experiences, and empathic. Hurley claims that modernization wrings this out of the primitive. (Hurley, 1965, p. 34) More probably, both the primitive and the modern man are capable of role-taking but the modernizing individual learns to suppress or

channel his experiences into acceptable patterns rather than allowing his imagination free rein. It may be useful to see empirically whether more traditional individuals differ from less traditional in "net human imaginativeness."

Empathy as Imaginative Insight into Others' Experiences.

Holbart and Fahlberg (1965) claim this is "the" social psychological approach, although something like it has long been known as the artistic meaning for empathy. (Langfield, 1920) They believe this concept centers on feelings, intuition, and perhaps identification with others and point to its major difference from the perceptual approach by the phrase: "knowing (another's feelings, not by seeing them in him but by feeling them in oneself." (Hobart and Fahlberg, 1965, p. 596, emphasis mine)

Deutsch provides a brief discussion of the topic which suggests the interrelatedness of these three approaches. He begins by distinguishing between understanding a person's situation and understanding his outlook. In the former we are able to put ourselves into someone else's place while in the latter we not only do this but also have in our imagination

> a model of his mind, with his memories and values, that is sufficiently accurate for us to predict -- and perhaps experience emotionally by empathy -- how he would act with his mind and his personality under conditions in which we ourselves might act quite differently. (Deutsch, 1963, p. 12)

The relation to perceptual psychology is obvious in the beginning of this quotation. Deutsch brings in the feelingful aspect at the end and reserves to it the name of empathy. A bit later he makes the further distinction between the two types on the following basis:

> a rational reconstruction of the personality, culture, or cognitive map of the actors concerned
>
> versus
>
> an emotional simulation of their feelings by an imaginative manipulation of our own minds. (Deutsch, 1963, p. 13)

I believe that Lerner includes both of these components in his conceptualization of empathy, and certainly they are not mutually exclusive. While we may distinguish them, and perhaps hope that for certain ends one type may predominate, they easily shade into each other. The distinctions between cognition and emotion, between role-playing and interpersonal perceptiveness are particularly difficult to formulate operationally for research purposes in terms that traditional persons can handle. (See Cronbach, 1958, p. 353) Though distinguishable, these three traditions of empathy may blend into one another when it comes to operations. Two recent approaches which do not attempt to distinguish cognition from emotion avoid this problem.

The Impersonal Other.

Waisanen and others in a discussion of literacy recommend that Lerner's notions of empathy be looked at from the vantage point of symbolic interaction and that this older theory be expanded to include "taking the role of the Impersonal Other." This approach not only links the variable of empathy to an earlier body of theory but provides a cogent explanation of the observed relationships between empathy and modernization. Skill in taking the role of the Impersonal Other

> ...enables the person to approach new social situations with confidence and to participate in them productively; it broadens social horizons and enables efficient interaction with strangers; it frees the self from the bounds of what is immediate and particular and, by the mechanism of abstraction and generalization, enables [sic] coping with the complex interplay of societal demands which touch time, authority, aspirations, reward preferences, the world as change and the self as potentiality. (Lassey, Mendez, and Waisanen, p. 6,7)

The crux of this view of empathy is that it shows how the empathic person does better in new social situations and interacts more efficiently with strangers.

As Waisanen puts it, it seems clear that in all societies part of the process of child development is an increasing capacity to take the role of the Generalized Other -- that general referent group of significant others whose judgments of oneself and of one's actions are internalized and shape one's self-concept.

It is not at all clear, however, that all individuals living in a peasant society always have much need for or opportunity to develop capacity to interact impersonally in a limited and efficient manner with strangers. Of course, reaction patterns to strangers are learned, but these patterns do not include taking the stranger's role in a limited and affectively non-involved manner which suffices for effective interaction.

For the traditional, rural individual, the concept of stranger is not likely to be very well differentiated. For the urban, modernized individual, there are many varieties and types of strangers. To the extent that differentiation leads to meaningfulness, we may say that the concept of stranger is more "meaningful," and less generally threatening or exotic for the urban, modernized man than for his traditional counterpart.

If we assume that one of the consequences of modernization and urbanization is bureaucratization then the link to skill in impersonal interaction is more apparent. Success through continuous face-to-face interaction in small groups may not develop the skills needed for success in a larger society mediated by impersonal systems, paperwork,

and regulations. The essence of bureaucracy is impersonality while relationships in traditional systems tend to be personalized.

The man who has more contact with urban centers is more likely to develop both generalized and differentiated skills in dealing with strangers. He, more than his stay-at-home neighbor, constructs a generalized Impersonal Other, and comes to take this role with alacrity. Urban contact, then leads to empathy.* This position is particularly interesting in view of Rogers' belief that neither mass media exposure nor trips to the city probably have much impact on the non-empathic person. Perhaps the contrast in viewpoints is not complete, for Rogers seems to say that without a modicum of empathy to begin with a "mental isolator" is present which immunizes the peasant from cosmopolitan influence. (Rogers, 1965, p. 53) Waisanen and others appear to assert that trips to the city tend to bring about a modicum of empathy.

Empathy as an Instance of Hypothetical Thought.

Requiring people to provide information about their actions in a role they have never experienced is to require them to think hypothetically about themselves and to describe their hypothetical behaviors. Such a process is similar to the thought processes which accompany uncoerced change -- new alternatives are brought into a decision matrix for consideration. In other words, a person who can

---

*This appears somewhat at variance with the summary of Lerner's model on page 6, but the divergence is only apparent. There we suggest that the more empathic are more likely to have urban contact. Here we indicate that such contact increases empathy. The two are not mutually exclusive.

tell you in some detail what he would do if he were the president of the country may also be able to imagine what he would do if credit became available or if he had a better seed to plant.

This way of looking at empathy emphasizes its importance because the practice of empathy is like the making of a hypothesis. The individual is able to think about relationships among actions he has never taken, and results which he has never experienced. A person who analyzes hypothetical situations well may cognitively manipulate and examine both his means and his goals with a mind toward change. Lerner has moved toward this point of view recently in calling empathy the "poor man's creativity." (Lerner, 1966, p. 243) I believe the referent for this may be the hypothesizing character of empathy.

This approach to empathy's correlations with other indicators of a modern orientation has the advantage of a very direct link to modernizing behavior. The link to the original role-playing questions is also obvious. The success a person has in handling such questions should be directly related to the success he experiences in handling hypothetical situations that make a difference in his world. He should be more capable of entertaining questions like "How much harvest would I expect to get if I tried this new seed?" or "Suppose I were living in town instead of out here -- would I be better off?" It is not only interesting to know whether a person <u>can</u> handle these kind of thoughts if asked about them in an interview, but also whether he spontaneously and customarily composes them in the absence of interviewers. My limited experience with traditional farmers leads me to believe that few of them have the habit of intellectually manipulating hypothetical situations to evaluate outcomes that might lead to different

and improved results for themselves and their families. At least such hypothetical thoughts as occur do not appear to be well articulated or easily verbalized.

Summary.

Five different approaches to empathy appear relevant to modernization. Three of them represent traditional conceptualizations. The fourth incorporates empathy into a well elaborated theoretical viewpoint, symbolic interaction. The fifth utilizes the similarity between skills required for empathy and skills involved in decision-making to account for linkages to modernization. The latter two can be viewed as ways of cutting across previous difficulties and getting at the root of the matter as far as national development is concerned.

V. EMPATHY IN THE MODERNIZATION PROCESS

Possible linkages between the locations of individuals in the process of modernization and the levels of their empathic abilities may be subsumed under three general headings. These three have to do with different aspects of empathy.

Similarity.

Some scholars stress the assumption of similarity among interacting individuals which is implicit in empathy. Smith approaches operationalization of empathy as "the tendency of a person to assume that another person's feelings, thoughts, and behavior are similar to his own." (Smith, 1966, p. 19) Katz makes the point that we "understand" best those whom we resemble. Analogous to this, we think we "understand" (or can "learn to understand") those whom we think we

resemble. Empathy follows presumed similarity. Mead asserted that the role-taking process was essential in attaining commonality of meaning among humans, and since communication with understanding is possible only insofar as meanings are shared, empathy is, in this sense, essential to successful communication.

The assumption of similarity implies a reduction in social distance among individuals. Rao has emphasized, perhaps overmuch, the mobility assumption underlying a person's ability to describe his behavior in another role. (Rao, 1963, p. 277 ff.) If I can say what I would do as the president I can almost imagine myself becoming president or at least I can assume that the current incumbent of that role is not such a very different fellow from myself and that my views on what is proper behavior therein are not completely presumptuous. One bedfellow of reduced social distance is relatively high social mobility and a positive valuation of it. This is one facet of the modernized personality.

The assumption of similarity implies an ability to enter into interaction with strangers. The more I perceive outsiders and strangers, even foreigners, as being "really" very similar to me, the more readily I can learn from them, the more I can approach interaction with them, and the less I will feel distrust and other barriers. The assumption of basic similarity facilitates my becoming more aware of the areas of difference existing between the stranger and myself, and perhaps I can therefore begin to differentiate the processes or means whereby these areas may be bridged. I become more tolerant in my awareness of the variety in human beliefs. I learn of the possibility that other forms of thought and action, other life-styles, may

have merit. In essence, the argument is that empathy, as assumed similarity, involves awareness of an underlying human unity and relates to the individual's ability to feel relatively unthreatened as he interacts with and learns from strangers and outsiders. This makes for a heightened awareness of the variety of human beliefs and of the alternatives implicitly available to the individual.

Cognitive Flexibility.

The more empathic person is less rigidly attached to convention and precedent, for he can entertain, at least in his imagination, alternative courses of behavior or alternative beliefs. He is relatively less preoccupied with the concrete and more with the hypothetical. In a sense, he is able to act rather than merely react. On the intellectual level, he thinks more about things, rather than just thinking things. (Thorndike, cited in Berlo, 1960, p. 121) The non-empathic cultivator who responded in frustration to an interviewer's questions about his opinions:

> Look, when I'm hungry I eat; when I'm sleepy I sleep dammit ...I don't think about things

was indicating an almost animal attachment to the concrete and immediate.

Katz argues that because the more empathic person not only has stored a larger number of identifications from his past but is also able to move flexibly from one identification to another he finds himself less threatened by the strains of transition to a modern society. He has the role-taking skill needed to achieve a better understanding of what is going on. His concept of self is likely to have more continuity as he moves from traditional social groups to others where his identity must be established anew. He finds through

the role-taking process the necessary social support and understanding of what is expected of him. In addition, he may be better prepared for the transition by his having played the roles imaginatively during his exposure to them as depicted in the mass media. Through the media and his application of their messages to his life, he may be incorporated into the larger national life, come to identify with it, and be concerned with matters outside himself and the community or valley in which he was born and raised. His self-image and world view are broad enough to include more of the variety the modern world presents. Not only does he arrive more rapidly and with less trouble in the modern institutions and roles, he also continues his adjustment with fewer problems once there. According to Katz,

> Everyone living in a mobile, mass society must be able to make rapid adjustments in attitude and to maintain self-esteem in the face of many threats. The poor empathizer is simply more vulnerable than the average citizen. He is less qualified to cope with conflicts and is less defended against the anxieties of living in a society of increasing alienation. (Katz, 1963, p. 110)

Katz's explanation of why this is so is in terms of the non-empathic person's supposed difficulty in generating and interpreting feedback sufficient to construct an appropriate self-image.

> He misses the feedback of the data he needs to assess his own behavior and lacks the sense of mutuality which he requires in order to maintain his self-esteem. The judgments he makes of others are out of harmony with the judgments of other group members or associates. (Katz, p. 110-111)

In sum, following Katz, we may indict the poor empathizer for (1) difficulty in communicating ideas and feelings, (2) misreading feedback needed to assess his behavior's impact on others, (3) a consequent lack of a sense of mutuality required to maintain self-esteem, (4) being out-of-step with other group members in judgments, (5) erroneous

interpretations of others' attitudes and evaluations, and (6) a consequent feeling that others do not respond appropriately. In brief, he is liable to become frustrated in attempting to manipulate social reality and alienated in his affective relationships with others. The swirl and flux of change in the modernizing environment confuse and annoy him. He is led toward isolation rather than toward participation, and his identity is eroded without the accompanying substitution of a newer, more useful self-concept.

Further, the more empathic person has energy for matters other than himself. He has less need to be preoccupied with self, being more successful in maintaining his identity and less threatened by new situations and new individuals. Here the bridge between the similarity and the cognitive flexibility notions becomes explicit; the more cognitively flexible person is less hypersensitive with strangers because he feels less suspicious and less threatened. Therefore, he is more able to learn from and about them.

The Construction of Alternatives.

A person able to say what he would do if put in another man's shoes is not only demonstrating his belief in the similarity between himself and that other man, or his belief in the possibility of playing to that man's role himself or at least learning something from persons in it; he is also demonstrating that he can contemplate change with a calm eye, evaluating its benefits and costs. If he can place himself in my hypothetical situation, then he can construct hypothetical situations involving himself, or at least apply them directly to himself when they are presented, ready-made, by others, e.g. via the mass media. Those who think about the decision-process assume that

such contemplation typically takes place. But the energy required to consider acting differently and the flexibility involved in such behavior may not always be present. Those individuals in developing societies who have something of the capacity to ask the "what if..." type of question have a definite advantage when it comes to making changes (either in a modernizing or traditionalizing direction) in their living habits and activities.

Empathy as an Interaction-Enhancer or as Identification.

There is another possible line of cleavage along which the contribution of empathy to modernization may be envisioned. It is essentially contained in some of the considerations already outlined. On one side, empathy may be regarded as a generalized "interpersonal-interaction-enhancer." This fits the psychologists' interest in interpersonal perceptiveness and the arguments for empathy's utility in interaction with strangers. Presumably the more perceptive individual is better able to adjust his messages (both before and during their emission) to achieve his purposes with his receiver. The weakness with this approach is that, except for the concern with interaction with strangers, there is little reason to assume that a more traditional person is necessarily less empathic than the more modern person. Certainly within his own social group the traditional man is well able to play the necessary roles.

Empathy might, however, be defined not in the general terms just stated, but specifically as an increased tendency toward identification with modern role models. These models are presented primarily through the mass media, although some contact may occur on a face-to-face basis or as a member of a crowd. The individual's

ability to describe himself in another modern high-status role, may merely be symptomatic of greater identification with persons in that role, and presumably with the values and attitudes they embody. Under this definition, the person scoring as more empathic on a set of questions simply is indicating that he has identified to a greater extent with modern roles. It is hardly surprising, then, that he has also picked up some of the other cognitive and affective accouterments of those roles and that these show up in his scores on other measures of modernity.

A partial summary of the aspects of empathy distinguished conceptually and their linkages to modernity may be useful at this point.

Aspects of Empathy	Links to Modernization
1. Capacity for imaginative role-taking	1. Identification with and adoption of attributes of modern role-models. 2. Greater understanding of those in modern roles and ability to interact more effectively with them. 3. Assumption of similarity, with implications of reduced social distance and of increasing social mobility.
2. Ability to handle hypotheticals	1. Useful in contemplating alternative courses of action. 2. Useful in adjusting to changes which are being imposed by forces over which one has no control.
3. Capacity to cognize and predict the behavior of others with accuracy--interpersonal perceptiveness	1. Useful in all forms of interaction and particularly in maintaining adaptation in a changing social situation. This ability is not necessarily more developed among the more modern.
4. Capacity for an affective, emotionally based, understanding of others and their points of view.	1. Relates to introspection, sympathy, and an understanding of the impact of events upon others, with a consequent concern for their welfare and rights.

5. Skill in taking the role of the impersonal other.	1. This skill may be negatively related to the tendencies outlined in the last item. It is useful in dealing with "segments" of others whom one has no need or desire to understand in their entirety. 2. Particularly useful in a bureaucratized, urban society where individual identity may be submerged in the interest of large scale operations and getting on with the business of production. 3. Facilitates productive interaction with strangers and the possibility of learning from them.

There is no intention in what has gone before to promote empathy as the most important variable in the individual's modernization process. Many other variables have been distinguished and their value is not disputed by the present study's focus on empathy. The variables of literacy and education are two of particular importance and interest. Literacy has close and, perhaps, more direct ties to modernization. It trains individuals in a skill essential to decoding messages in all the print channels of communication. Of perhaps even greater importance, it may produce a higher awareness of symbolic manipulations while training individuals in relatively mundane reading and writing skills. This aspect of literacy is of greatest interest to those trying to explain the modernization process. This aspect ties literacy directly to the development of one of the requisites of a modern social system -- actors capable of dealing with abstractions and of handling themselves in the richer symbolic environment brought on by increases in technology and urbanization.

Literacy is clearly closely tied to utilization of the mass media, as already indicated. Additionally, the ability to read and write is frequently a concomitant of social status in developing nations, and status implies the potential to obtain access to the media

channels, e.g. attend movies, buy newspapers, purchase a radio set, etc. Those able to educate their children to read and write are, typically, more affluent and lodged in positions of greater importance in the society. This is particularly the case for the rural sector of developing nations.

When investigated empirically, literacy relates closely to modernization and mass media utilization for yet another reason. Aside from its centrality in the causal nexus, it is considerably easier to measure than a skill such as empathy. Its outward manifestations are more easily recognized and can be elicited on demand. A person can be asked to actually read a selection, and he can be scored on the accuracy of his reading and tested on his comprehension of what he has read. It is more difficult to elicit, in a testing situation, an objective, behavioral measure of empathy. However, when we go behind the external manifestations of literacy and require evidence of increased capacity for symbol manipulation, the measurement difficulties for the two variables are more similar. From an ability to read a paragraph and interpret its content, heightened abilities in symbol manipulation are typically inferred. Similarly, from an ability to recount behaviors in a role one has never experienced and to do so in a novel and relevant fashion, empathic abilities are typically inferred.

Both capacities ultimately descend into the unobservable, covert, symbolic realms of human behavior. To the extent they are distinct, their causal relations are difficult to unravel.* Lerner's

---

*Empathy can perhaps be best distinguished from symbol manipulation in general on the grounds of greater flexibility in such

model, as noted, implies that the more empathic are more likely to seek literacy and endure the process of acquiring and maintaining the necessary skills. Likewise, one is safe in assuming that, since literacy opens an immense volume of information to the individual, the literate individual would have more opportunity to gather bits of information for inclusion in his decisions, i.e., he would have more alternatives available for manipulation. Even more to the point, if the inculcation of the skills of literacy in some fashion heightens the ability to manipulate symbols to useful ends, the literate person not only has access to more cues but is likely to be more capable of manipulating them in useful and novel ways. Thus, literacy should lead quite directly to increasing empathy. Just which causal thrust is strongest is unknown, although it appears that a better case can be made for literacy bringing about increments in empathy than for empathy bringing about increments in literacy (or in symbol manipulation, which is more to the point). The main argument here is that the two variables are mutually causal. They thus would require analysis through a systems approach rather than a simple, one-way model.

It is possible that, at least in some instances, literacy may be achieved without concomitant increment in important aspects of empathy. The few Europeans literate during the medieval period were

---

manipulation and by noting its dependence upon the discrimination of subtle cues in the environment. One can conceive of a person highly skilled in symbol manipulation along lines which rigidly control his thought who, at the same time, seems unable to discriminate subtle cues about the feelings, intentions, and reactions of those about him or is unable to perceive evidence which might lead him to adjust his too rigid frame of reference. Such a person would be low in empathy though quite high in symbol manipulation.

not universally noted for their differential empathic skills. As a more modern example, Communist China has reputedly doubled its literacy level during the past five years but, at least so far as can be observed, increments in empathy or openness to thought transcending the party-line seem absent.*

Formal education appears to function much as does literacy, perhaps because its primary impact, at least in Brazil, is the inculcation of literacy skills and little else (Bostian and Oliveria, 1965). Education may be regarded as an instance of a coerced, if benevolent, opening of the mind and an expansion of the alternatives, or skills to perceive alternatives, which a person can use in decision-making. As such it doubtless contributes to modernization. However, education in the rural areas of Brazil frequently includes heavy doses of indoctrination in traditional values and attitudes. Except for teaching literacy and some minimal arithmetic abilities, current rural education probably makes little contribution to the modernization of most individuals exposed to it. Of course, the impact of learning these skills is not to be minimized, and if the child continues on in the education system, something which is much more likely if his parents move to the larger towns or cities or if they are relatively affluent, then a greater modernization of views becomes likely and

*The report of two correspondents from the West who visited China for a month or more and had opportunities to talk with Chinese students is particularly striking in this regard. After several hours of questioning the students about conditions in China and their points of view, the correspondents asked if there were any questions about the West which the students would like to pose. There were none. Interest in the world outside seemed totally lacking. Perhaps this was a function of the sanctions of the social situation, but the correspondents felt that lack of interest in the outside was genuine.

capacity for change probably increases.

Despite the importance of literacy, education, and other variables which had earlier been neglected, this study limits itself to an examination of empathy. Except for occasional references to these other variables, we will not consider them further.

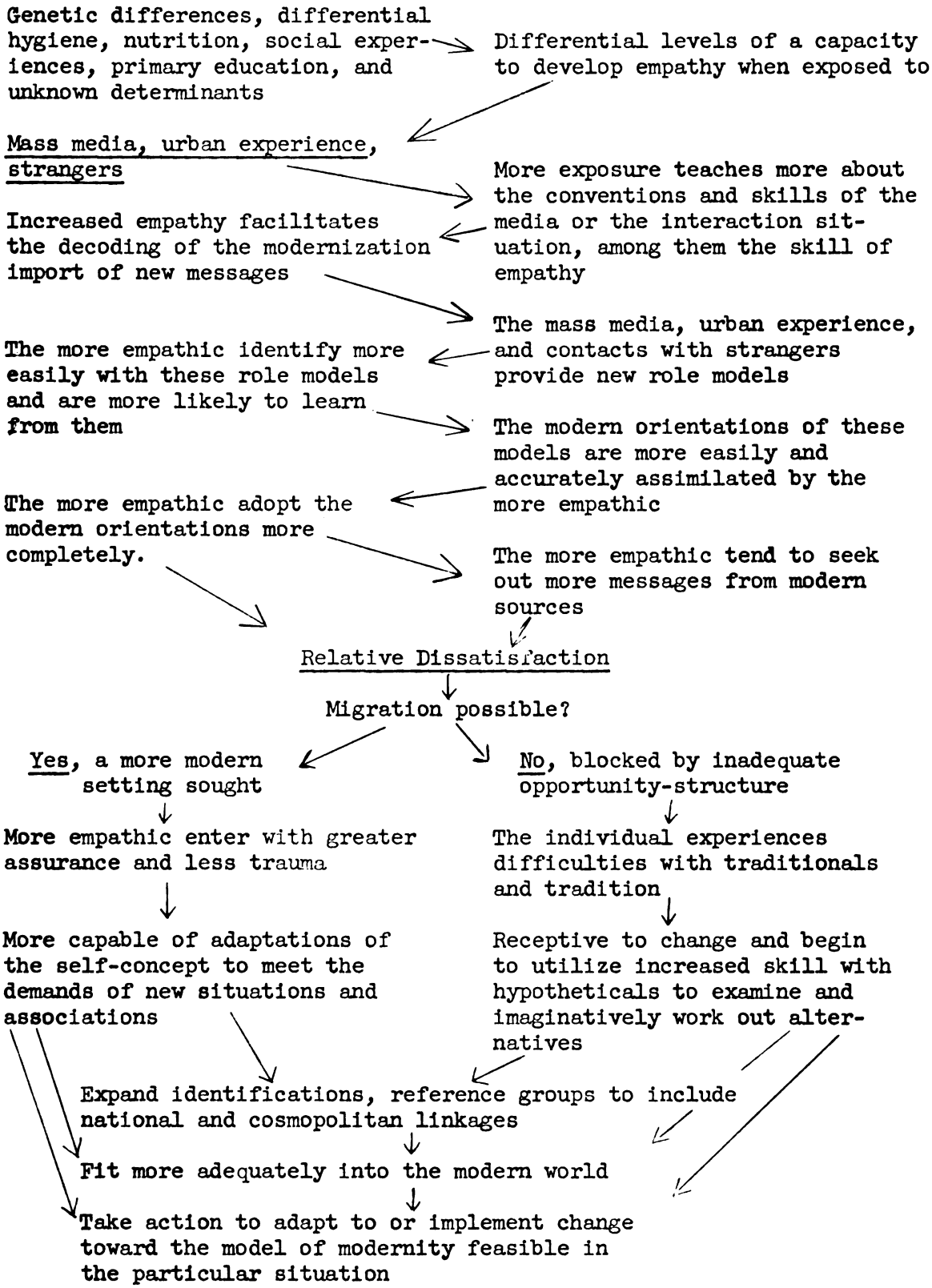
VI. A MODEL OF EMPATHY IN THE MODERNIZATION PROCESS

Having reviewed possible linkages between empathic ability and modernization, it may be useful to attempt to array these into a model which suggests some sequence and time order. The model is shown in Figure 1. The arrows indicate the general flow through time of one probable sequence of events. Something of the interactive nature of the process is suggested by the back and forth pattern of the arrows, particularly under the heading of mass media exposure, urban experience, and strangers.

Genesis.

Different levels of empathy or of capacity to develop empathy under given kinds of exposure to modern influences, have no very adequate and certainly no tested explanations. Perhaps genetic, hygienic, and nutritional factors play an important role in early life. Perhaps differences in perceptual acuity or tendencies toward introspection favor such development. Perhaps the social situation is of greatest importance. Opportunities to observe a variety of roles early in childhood, parental support for role play, position in the family, and degree of isolation from other social influences may be central. Deutsch suggests that experience in the extended family

Figure 1: A model of empathy in the modernization process



develops higher levels of interpersonal perceptiveness. Hagen's notion of the importance of strains induced in the child-rearing practices of parents caught in the modernization net might in some fashion help explain differences in empathic ability or in propensity for its development. Primary school experiences with peers and with older children and adults may play an important role.

No data which can be construed as bearing on the question of the genesis of empathy or of predisposing characteristics are available from this study. In their absence we will have to ignore the problem of origins and merely assume that some individuals have differentially higher empathic abilities which they bring with them when they encounter the modernizing stimuli of mass-media exposure, urban experience, and interaction with strangers representative of the modern sector.

Mass Media Exposure, Urban Experience, and Interaction with Strangers.

These stimuli are most effective with those who already possess a modicum of empathic ability. Initially, exposure helps teach the conventions and skills needed to decode the messages coming through these channels. Empathy is one of the skills which are differentially inculcated in those so exposed. One of the initial results of mass media exposure is the creation of doubts in the minds of receivers about the value of traditional ways, life-styles and behaviors. When the doubts are raised receivers may become less capable (at least temporarily) of decoding the messages being sent. The doubts raise barriers to understanding, a sort of "noise" in the receiver which tends to distort if not bar further modernizing messages. The empathic, because of their capacity to lay aside temporarily

the strictures of tradition, are more able to attend to modern messages. They are, thus, more likely to learn from modern messages and from those who embody modern roles.

The mass media, interaction with strangers, and exposure to the urban world help to teach the ability to interact impersonally with others. As traditional persons increasingly identify with modern role models, they tend to assimilate the orientations of these roles and imitate, as far as practical, the behavior of the role models. This process is easier for the more empathic, since they are more capable of imagining change in themselves.

It is also likely that the more empathic obtain more enjoyment from modern messages and consequently they not only tend to understand them better when exposed to them, but also, insofar as message alternatives exist, they tend to seek out those which are more modern.

Through occasional contacts in the city or with strangers an understanding is brought about of the impersonality necessitated by the grouping together of large masses of human beings. The conventions and rules needed to regulate behavior are better apprehended and are more likely to be tolerated by the empathic. Increased ability develops to interact with others in a way which is superficial, but sufficient to the attainment of goals. The more empathic learn more easily from such experiences and come to differentiate more completely the category of "stranger." They learn that at least some strangers may be useful to fulfillment of their goals.

Dissatisfaction With Traditional Restraints

One of the consequences of adopting more modern orientations will be dissatisfaction with at least some aspects of the traditional way of doing things. Perhaps many aspects of tradition will continue to be valued, but certain habits and procedures will be viewed as constraints, confining the person to fewer alternatives than he feels comfortable with, particularly with his newly found awareness of modern possibilities. A partial dissatisfaction with the traditionality of his surroundings will be aroused sooner in the more empathic man. If he is in a position of influence and can affect his community, it will become less traditional. If not, he may tend toward marginality and begin to look outside the community for his models, information, and attachments. He will tend to relinquish friendships and ties within the community to the extent that he tires of its restraints and obligations. He may get to a point where he will consider migration to more modern settings, typically to the city. If the opportunity-structure allows this, he will enter the more modern setting with less trauma and greater assurance. The more empathic individual will there adopt more easily a new self-concept. He will establish with greater ease the new reference groups and associations needed to uphold his sense of identity and to provide social feedback. In short, he should fit more adequately into the modern world.

This would also be the case if we could compare persons constrained to move to the city who differ markedly in their levels of empathy upon making the move. While urban experiences will probably increase empathic abilities, particularly the ability to interact

impersonally, those who arrive with more empathy in their kits of cognitive and affective tools should adjust more easily.

If the opportunity-structure blocks movement out of the traditional setting, the individual may come to experience some difficulties with traditionals. As noted, he may tend toward marginality in the community, or at least his focus of attention may shift to relatively more cosmopolitan concerns. He might aspire to more education and hope to see his sons in more modern occupations. If he must remain a farmer he is likely to seek to become a modern one.

Modernization Efforts.

With an increased capacity for venturing into modern settings and interacting successfully in them, and with greater skill in hypothetical thought and more of a tendency to plan, patterned after the modern role models with which he has identified, the more empathic individual will be more likely to modernize his life successfully. His influence and example will tend to upgrade the level of modernity of his community. For himself and his family he will provide a better fit into a changing world. He will be more receptive to change programs proferred by governmental and private agencies.

This model has been presented with some doubts. While it constitutes a very imperfect departure point for empirical tests, even in its current crude state it suggests more possible areas of research than can be dealt with in a single study. Therefore, the limited purposes of this study need to be spelled out with precision, and detailed statements of its hypotheses are required.

VII. OBJECTIVES OF THE STUDY

The present study aims to:

1. Explore through factor analysis the dimensionality of Lerner's conceptualization of empathy and provide other useful evidence about the nature of the variable. The following are included in this analysis:
   a. a comparison of four aspects of empathy: role-taking; ease and skill in impersonal situations; imaginativeness; and facility in dealing with hypothetical situations;
   b. indications of the stability of empathy, as usually measured, over time;
   c. an analysis of the feasibility of a new approach to empathy's measurement which requires no specific items and does away with coding problems.
2. Provide evidence about the differential placement and functions of the relatively empathic individual in social systems of relatively greater and lesser traditionalism. The following are included in this analysis:
   a. relative empathy and the likelihood of being indicated as an information source or friend in more and less traditional communities;
   b. relative empathy and agricultural opinion leadership in more and less traditional communities;
   c. relative empathy and social status in more and less traditional communities;
   d. relative empathy and integration into the social life of more and less traditional communities.

3. Investigate the relationship between empathy and modernization variables such as mass media use, cosmopoliteness, knowledge, and modern orientations such as the relatively favorable evaluation of change, planning and modern orientations to work as a means for achieving one's goals.

Measures of Empathy

A variety of aspects of the concept of empathy have already been distinguished. Obviously when we speak of empathy it is useful and necessary to specify exactly the aspects and indices of empathy we have in mind. The question naturally arises: are these aspects operationally distinguishable in research on traditional persons?

This study seeks to provide the beginnings of an answer to this question by a factor analysis of 18 items intended to measure various aspects of empathy. The items cover the aspects we have labelled role-taking, ease in impersonal interaction, imaginativeness, and facility with hypotheticals. The factor analysis procedure utilized and its outcome will be discussed in subsequent chapters.

Measures of Empathy's Stability.

Is empathy, as it has usually been measured in survey work in developing countries, a fleeting, shifting phenomenon, or can one be reasonably sure that the empathy score assigned a person will be essentially the same as the score he will receive a month or a year later? The reliability of the measure over time is important in judging its usefulness.

A New Measure of Empathy.

The important aspect of the Lerner type of role-taking item may be its measurement of a general aptitude for hypothetical thinking. It is clear that one thing involved in Lerner's items is also involved in any other item which asks a person to imagine himself in a hypothetical situation. If the adequacy of his performance in imagining himself in such a situation could be measured in some other way, it might be possible to eliminate the role-taking questions altogether. A score on general aptitude for hypothetical thinking could replace them.

Coding the responses to open-ended, role-taking, questions is a tedious task. Training of coders is relatively arduous. Even among trained coders the impression persists that the response written in the blank is a very poor indication of the adequacy with which the respondent placed himself in the role in question. A well-trained coder could do a much better job if he had access to the complete response, verbal and non-verbal, rather than that fraction which the interviewer preserves on paper. Something similar could be said, of course, for other open-ended questions, but the role-taking nature of the items makes it particularly crucial for empathy.

Suppose that interviewers were trained to estimate the degree to which the respondent placed himself in the situation? And suppose that not only questions on the order of "What would you do if you were president?" were thus rated by the interviewer, but also other hypothetical questions, the main purpose of which was the measurement of other variables of interest. A distinct methodological advance could be claimed if it were possible to eliminate the coding of

empathy items or to eliminate the empathy items themselves by obtaining the necessary information from interviewer ratings of the success with which the individual placed himself in hypothetical situations called for in other items. This study explores this possibility. The resulting measure is compared with the usual approach to measuring of empathy in terms of the degrees to which the two predict modernization behavior in the areas of mass-media exposure, urban contact, and adoption of farm practices. Their relative performance as predictors are used as a means to decide among them. The possibility of their use in tandem is also examined.

The Empathic Person in More and Less Traditional Communities

Two contradictory lines of thinking stimulate investigation into this area. On the assumption that empathy is useful to and developed from interpersonal interaction at the local level, one would expect the empathic person to have more friends than others and perhaps to be nominated more often as an opinion leader by his peers. On the other hand, to the extent that his aspirations and interests orient him to activities which are primarily outside the community, and particularly to the extent he finds himself without a chance of effecting community change, one might anticipate that he would be a marginal man, have few friends in the community, and not be nominated as an opinion leader. He might still, however, be regarded as a source of information about what is going on outside the community.

Stating these notions as hypotheses:

1. The more empathic person will more often be a marginal man in communities which are more traditional, i.e., he will have fewer

local friends and be less integrated socially. But he will be relatively well integrated and have more local friends in communities which show less traditionalism.

2. The empathic person will be recognized as a useful source of information about the outside world in both types of communities but more so in less traditional communities.
3. The empathic person will have higher status in less traditional communities than in more traditional communities.
4. The empathic person will receive more peer nominations as opinion leader in less traditional communities.

Empathy and the Mass Media.

As stated, what is important about empathy in national modernization may be the individual's capacity to think hypothetically. The ability and propensity to think outside of the ordinary to what may be strange, improbable, and surprising, lies behind attempting the changes involved in modernization. However, some sort of control over imaginative flights of fancy must be connected with the hypothetical thinking if it is to be productive.

The mass media may have such a controlling effect on their consumers. Lerner likes to call the media "mobility multipliers," thereby emphasizing that they make possible the expansion of imagination to distant times, lands, and people. (Lerner, 1958, p. 52 ff.) But the mass media may also route imagination into common channels, exercising a homogenizing influence upon those exposed to them.

Aside from a general shaping of imagination, the media may provide direct and pragmatic control over specific imaginative schemes. The print media may do this more than the electronic. Print is able

to aim messages in detail at specific audiences and to lay out step by step instructions. The conventions of literacy, more than the conventions of the electronic media, must make the semi-literate painfully aware of the control exercised over him. In contrast, messages in the electronic media are transitory, difficult to repeat, and unsuited, as Spector found in his field experiment in Ecuador (Spector, et. al., 1963), for giving detailed instruction.

Assuming that electronic media are best at exciting the imagination while print media are more suited to providing control over it, what kinds of differential relations with empathy are possible? One simple relation would be a high correlation between exposure to electronic media and those components of empathy that emphasize imaginativeness. This relationship is investigated in this study.

The relationship between empathy and exposure to mass media may be considered from another standpoint. Instead of distinguishing between types of media and their control capabilities, we may look at the value of empathy in decoding media messages. The more empathic should be more capable of drawing modernization import from messages in the mass media. In addition, the more empathic should apply these messages to themselves to a greater extent.

Satisfaction. Mass media exposure on the part of the empathic person who is in a traditional setting is likely to make him dissatisfied. The media present pictures of different and possibly better ways of life. The more empathic decode this and apply it to themselves more completely. Therefore, they should be more dissatisfied as a result of media exposure.

Yet dissatisfaction has proven surprisingly weak as an explanatory variable in past research with populations of developing countries. (See Bordenave, 1966, pp. 164-165) Perhaps this is because a person may be dissatisfied for many reasons, not all of them making for modernization. Perhaps it is also because a dissatisfied person with the power to effect changes may report satisfaction with his progress toward a goal; he feels he is making headway. It may be that what should be considered is not whether a person currently reports himself to be satisfied but whether he values being satisfied, i.e. feels one should not strive over much for anything beyond bare physical subsistence. Thus, a value for dissatisfaction may be conducive to change and something taught by the mass media. The teaching of resignation is traditional; the teaching of restless seeking for change and progress modern.

Aspirations. If dissatisfied and blocked by circumstances from leaving the land, a farmer may hope that his children will receive more education than he received, and that they will go into a higher-status occupation. This hope will be more likely to the extent he is empathic, and the high-status occupation selected by the more empathic will more likely be modern rather than traditional. Thus, the correlation between mass media exposure and aspirations should be mediated by empathy, for the empathic more completely decode the implicit message of intergenerational change and mobility.

Valuation of planning, attitude toward change, and concern with problems. To the extent that a person is seeking change because of dissatisfaction and aspirations for improvement, he should also positively value change, approve of planning rather than of leaving

events to chance, and be concerned with community problems and their solutions. This he learns from media exposure, and he learns it best if he is more empathic.

Political knowledge. The relationship between political knowledge and media exposure should, again, be stronger for the more empathic than for the less empathic. The less empathic would, assumedly, use the media for other purposes than to gather information about affairs which they feel are no concern of theirs. Consequently, they would not become so knowledgeable politically.

A number of variables have been presented. In each case it has been hypothesized that empathy mediates the relationship between mass media exposure and the acquisition of modern orientations or information. This mediation is related to improved decoding of the modernizing content of the messages.

Cosmopoliteness and Empathy.

The relationship between empathy and this variable in the modernization process should be similar to the relationship between empathy and mass media exposure. Simply stated, more empathy should make for more effective decoding of urban experiences and consequently for greater attraction to urban ways.

Analysis of cosmopoliteness in relation to empathy presents a rare opportunity to probe a possible antecedent and consequent of empathy. Two referents for cosmopoliteness may be identified: (1) frequency of trips to the city and (2) level of attraction to city life. We may suppose that in the beginning trips to the city are undertaken for practical reasons. For some individuals urban

contact leads to greater empathy. More empathy, in turn, should make urban life more attractive and motivate efforts to visit the city later. Other things being equal, a relationship between number of trips to the city and the felt attractiveness of urban life is to be expected. However, this relationship should be significantly smaller for the less empathic if empathy is an important mediator of urban experience. This hypothesis is outlined in Figure 2.

Figure 2. The hypothesized relationship between trips to the city, urban attractiveness, and empathy.

Time 1: Trips to the city undertaken for whatever reason result, for some, in more empathy which results in more attraction to city ways.

Time 2: Trips to the city for the less empathic are due mainly to practical constraints while for the empathic they are due <u>also</u> to the feeling of attraction for the city.

Therefore, the correlation between trips and urban attractiveness is larger for the more empathic than for the less empathic.

Trips ——→ Empathy ——→ Urban Attractiveness

VIII. A SUMMARY OF THE HYPOTHESES OF THE STUDY

<u>Empathy and Social Structure</u>

1. The more empathic person will typically have fewer local friends if he resides in a more traditional community than will his empathic counterpart residing in a more modern community.

2. The more empathic person will more often be regarded as a useful source of information about the outside world if he resides in a less traditional community than if he resides in a more traditional community.
3. He will have higher status if he resides in a community of lesser traditionalism.
4. He will receive more nominations from his peers as opinion leader if he resides in a community of lesser traditionalism.

Empathy, Media Exposure, and Other Variables

1. Empathy items heavily loaded on imaginativeness will correlate more highly with exposure to the electronic media than with exposure to the print media.
2. Empathy will relate positively to a rejection of satisfaction as a value. Cross-classifying on empathy will result in a significantly stronger relationship between mass media exposure and satisfaction for the higher empathy sub-classes than for the lower empathy sub-classes.
3. The same will hold true for media exposure and aspirations for social ascent through one's children.
4. Positive attitudes toward change, higher valuation of planning, and higher concern for community problems and their solutions will relate positively to higher empathy and higher media exposure. When cross-classified on empathy the relationship of these variables with mass media exposure will be stronger for the high-empathy sub-class.

5. Mass media exposure and political knowledge will be higher for the more empathic than for the less empathic.

Empathy and Cosmopoliteness

1. The relationship between frequency of trips to the city and the attractiveness of city ways will be mediated by the individual's level of empathy.

CHAPTER II

METHODOLOGY

I. BACKGROUND OF THE STUDY

In December, 1964, the United States Agency for International Development (AID) granted a four-year contract to Michigan State University's Department of Communication to conduct a large-scale study of the diffusion of innovations in developing countries. Everett M. Rogers was the director of the project, and under his leadership research sites were established in Brazil, Nigeria, and India during 1965. The theoretic aim of the study was to determine the degree of applicability to developing nations of research findings obtained in the United States and other developed countries concerning diffusion of innovations. In anticipation that other variables would be of particular interest and importance, theories of modernization, particularly of the rural and agricultural sector of society, were examined and the results of previous studies in underdeveloped areas were considered. Pragmatically, the main purpose of the study was to provide information which would accelerate the adoption of useful new ideas in the rural sectors of developing nations.

The study was planned in three phases. The first considered the village or community as the unit of analysis. A large sample of villages was selected and their characteristics were described.* The second phase considered the individual farmer as the unit of

---

*The results for Brazil are available in a Phase I report. (Whiting, et. al., 1967)

analysis. Interviews with all farmers in selected villages or communities were obtained in each country under study and an effort was made to investigate the characteristics making farmers more or less prone to early adoption of innovations and more or less likely to be regarded as opinion leaders by their peers. The third phase of the larger study involves the administration of different communication treatments in controlled field experiments designed to obtain evidence about the relative effectiveness and utility of some practical and theoretically interesting alternatives open to change agencies.*

From July, 1965 to December, 1966, the writer was resident in Brazil at the research headquarters in the city of Belo Horizonte, in the State of Minas Gerais, directing data-gathering and other preparations for this research project. The data for the first phase were gathered in January and February, 1966. The writer was allowed to incorporate some of his measurements of empathy and its correlates into the interview schedule constructed to measure the characteristics of the informal community leaders in each of the communities surveyed. The manner of their selection will be described shortly.

In July and August, 1966, the data for the second phase of the larger study were gathered. Again, empathy was included as a variable in the interview schedule, and this allowed the investigation of its reliability and its relationship to the mass media behavior and innovativeness of a broader cross-section of individual farmers.

---

*In addition to the report already cited, a number of working papers, progress reports, and resumes of the larger study are available. See the Bibliography for details.

Empathy and the writer's particular research interests were not in major focus during this phase, however, and the majority of the analysis reported here is based upon data collected in the first phase.

II. SELECTION OF THE SAMPLE

The sample of cultivators was drawn primarily for purposes of the larger study. This led to a somewhat complex system of selection that guaranteed a large geographical variation and selection from a large number of communities, 76. In the course of describing a community's characteristics, it was necessary to assess the character of its leadership.

First, to obtain a selection of communities where change programs had been operative long enough to have had some impact, the researchers constructed a list of all the local offices of ACAR, the State Extension Agency, which had been in operation for three years or more. There were 78 such offices. Then, through consultation with ACAR personnel, we determined that these offices were scattered through three regions, definable in terms of farm, market, and sub-cultural characteristics. These three regions appeared sufficiently different to justify, for the purposes of the larger study, stratification of the sample to obtain approximately equal numbers of communities within them. Completing this stratification, 13, 14, and 13 local offices were randomly selected in each of the geographic-economic-cultural areas of the State of Minas Gerais which could, on the criteria of three years change agency activity, be included in the

sample.

Within each of these 40 offices we asked the local agent to designate the community or sector of work in the office which was the most responsive to the ACAR program and the community which was the least responsive. Thus, we obtained initially 80 communities, scattered across the state and representative of those locales where the change agency had chosen to labor.*

In each local office we interviewed the local ACAR change agent and the more important formal leaders from the two communities he designated. The majority of these formal leaders lived in the towns and market centers, but school teachers in the communities themselves were included, as well as a few important store-keepers. We labelled these people "formal" leaders because they could be identified by their jobs. While a part of the rationale for this approach was to inform them of our purposes in visiting the communities, we also requested all formal leaders to nominate individuals whom they considered influential in the diffusion process in the communities. These same nominations were requested of the local ACAR agent. Following a tabulation of these nominations, we selected about 10 individuals for interview within each community, attempting always to interview those with the largest number of nominations. These were designated as "informal" leaders for the purposes of the larger study. They

---

*In one instance the ACAR change agent resigned the day before we arrived to interview. Without information from him the rest of the data collected in the jurisdiction of his office was not comparable with the data collected elsewhere and was, therefore, dropped. In another office we found that the ACAR change agent had worked in only a single community. Consequently there was no community for comparison and this local office was likewise deleted. We ended up with 76 communities.

themselves were asked to designate influential farmers in the community and a record was kept of these votes. While about 10 per cent of those nominated by the formal leaders received no nominations from their peers, the majority did receive such nominations. On the basis of a more complete census conducted six months later in the second phase of the research in 20 of the 80 communities, we were able to determine that the correlation between the number of opinion leader nominations received from peers during the first phase and the number received from peers in the second phase was .64. Consequently, we may be fairly certain the individuals interviewed in the first phase represented the leadership portion of the community. All were cultivators, all were landowners, and many had had contacts with the change agent.

In two of the 40 local offices unforeseen events forced us to throw out the data collected. This reduced the number of informal leaders interviewed from 806 to 775 and the number of communities represented from 80 to 76. The number of informal leaders interviewed in each of the communities that remained ranged from 13 to eight, the majority of the communities having over ten. This sample of community leaders, then, may be regarded as representing the more influential and established farmers in 76 communities located in three different regions of the State of Minas Gerais. Each of these communities has been a site of change-efforts by the state extension agency, ACAR.

The second phase of the study, already alluded to, selected 20 of the original 80 communities for more intensive study. This time the unit of analysis was the individual farmer. Because of our

interest in the opinion leadership structure of these communities, an effort was made to obtain a census of all the cultivators who were involved in the social life of the community and who owned farm property. This excluded the few absentee landlords and all families headed by farm laborers. The 20 communities were selected purposefully rather than randomly out of the original 80 according to a set of criteria intended to maximize their comparability and enable them to be utilized in the field experiment which followed. These selection criteria included the presence of a center in the community where meetings could be held, the reception of a common broadcast signal, and non-interference with other programs planned by the change agency. Only one community was chosen per local office; hence the spread was about half as large as in the first phase.

Interviews were conducted in these 20 communities during July and August, 1966, and 1,302 usable interview schedules were properly coded and available at the time the analysis reported here was run. Seven schedules were eliminated due to interviewer or coder errors, but these in no way effect the representativeness of the remaining data.

III. INSTRUMENT CONSTRUCTION, INTERVIEWER TRAINING, DATA COLLECTION AND CODING: PHASE I

Observation and contacts in the rural areas of Minas Gerais were made from July to September, 1965. During this time the writer participated with Luiz Fonseca in testing and refining part of the instrument to be utilized in a study of rural milk producers in one

municipality of Minas Gerais (Fonseca, 1966). Indications of political knowledge and risk orientation were subjected to Guttman scaling procedures and later incorporated, in part, into the interview schedule for Phase I. The sample was also selected.

From October through November, 1965, the interview schedules (originally five separate schedules, later four) were drafted in English and translated into Portuguese. In the process the ideas of other members of the diffusion project staff, particularly those present in Brazil, were incorporated. In addition the schedules drew upon earlier field studies done in Colombia (Rogers and Herzog, 1966), India (Roy, 1965), and some of the ideas developed by Inkeles for his multi-nation study of modernization orientations (Smith & Inkeles, 1966).

The translated versions of the questionnaires were pre-tested in December, 1965 and January, 1966. Three such pre-tests were conducted, with extensive revisions following each of them. The original versions were shortened to less than an hour average interview time, their formats were improved for interviewer and respondent ease, and numerous items were dropped which had turned out to be either incomprehensible to the farmers, essentially consensus items, or highly correlated with other items intended to measure the same variable. Continual effort was made to render the Portuguese of the instrument in the dialect of the rural area.

The first two pre-tests were conducted by Brazilian personnel brought into the project for training as interviewer supervisors. They were all graduates of four-year colleges. About 25 farmers were interviewed by these men. The third pre-test functioned, in part, as training for 20 interviewers recruited and trained during the latter

part of January, 1966, and about another 25 farmers were interviewed. Everett Rogers participated in the final revision of the interview schedules and gave much valuable advice.

The interviewers were recruited by circulating information about the project and the opportunities it presented among students in the Faculdade de Economia, Faculdade de Filosofia, and the Veterinary School of the Federal University of Minas Gerais, students at the Rural University of Minas Gerais, and students at the agricultural college in Lavras, Minas Gerais. We asked those interested to fill out forms listing their rural experience, age, academic background, prior training in social science interviewing, and other necessary information. Out of over 120 applicants, 29 were chosen for training. The training process further eliminated a few. Eventually, five teams were formed, provided with a vehicle and supervisor, and sent into the field.

The data were collected during the last week of January and the first three weeks of February, 1966. It was necessary to pause for five days toward the end of February for carnival. Following this we were able to send several of the teams back to complete the collection of data.*

---

*About ten weeks before we entered the field in Phase I, the Camelot scandle broke in Latin America. Considerable feeling was generated by this and many Latin scholars indicated they would no longer cooperate with U.S. researchers in their country. As far as we could tell, information about Camelot did not reach the individuals or institutions contacted concerning interviewing until after the completion of the Phase I data gathering. In the spring of 1966 the Ramparts article, linking Michigan State University to C.I.A. activities in South Viet Nam, reached into Belo Horizonte. We thereby became linked in the minds of many of the students, and perhaps some of the professors, with both the Camelot Project and the C.I.A. generally.

During March, April, and May, 1966, the data were coded. Coders were recruited initially from some of the original interviewers, but this was not completely satisfactory because of scheduling difficulties. Others were found to work at it on a more regular basis. The majority of the items had been precoded and most were fixed response. Some, however, were open-ended. Probably the most troublesome of these for the coders were the items requiring respondents to specify their actions if they were to find themselves in the roles of President, Prefect, ACAR agent, or the poorest person in the community.

Four coders were selected for training in the coding of empathy. About 200 of the questionnaires were selected and answers were culled for each of the empathy questions and grouped under a single heading where they were essentially identical. Four training sessions were held, each of them followed by independent coding of the items culled from the questionnaires. An abbreviated version of

---

This led to a noticeable decrement in interviewer motivation in Phase II as contrasted with the situation in Phase I when it had been remarkably good. It also made our day-to-day interaction with Brazilian intellectuals somewhat touchy. Fortunately, we had several things going for us, and the administrations of the Brazilian institutions we were linked to did not seek to oust us but rather to improve our communication with relevant others in their institutions.

A more ticklish problem in the Phase I data collection, so far as the rural populace was concerned, involved agitation over the activities of the Brazilian Institute for Agrarian Reform (Instituto Brasileiro de Reforma Agrária, "IBRA"). Farmers were very suspicious of IBRA's intentions. IBRA began its state-wide survey only a few weeks before we began our interviews. Despite the farmers' natural suspicions, we are relatively certain that the majority of them did not associate us with IBRA after our initial explanations. Interviewers introduced themselves as university students and spoke of the project's link to ACAR. ACAR is a highly trusted organization, as government organizations go, in the rural areas.

the criteria given coders for judging the responses follows:

If the answer is:	code as:
Don't know, foolish responses, responses that show respondent's inability to think of himself in the role, no response	0
Very general responses that show some understanding of the situation and the actions he could take	1
More specific responses with an indication that the respondent was actually thinking of himself in the role called for	2
Very specific responses where the individual really puts himself into the role, and makes good suggestions about carrying out the obligations of that role	3

After the fourth training session an average inter-judge reliability of .80 was obtained on the sum of the four empathy items.

All the data were transferred to data-sheets and sent to Michigan State for key-punching in June, 1966. Error checks were run on them during the summer and fall of 1966, eliminating illegal, contradictory, and improbable codes. A clean deck of data was available by November, 1966.

IV. INSTRUMENT CONSTRUCTION, INTERVIEWER TRAINING, DATA COLLECTION AND CODING: PHASE II

Preparations for the construction of the Phase II instrument were greatly facilitated by the production in April, 1966, of a document (Keith and Rogers, 1966) outlining the core variables and suggesting specific items for utilization in the instrument. Gustavo Quesada, a Brazilian project associate, utilized this document to draw up in Portuguese the first rough draft of the Phase II questionnaire. Other

staff members contributed their ideas and the questionnaire was pre-tested on about five farmers. Following this pre-test, the questionnaire was revised and in early June, 1966, taken to the field for a week in a pilot study. From this pilot study Guttman scale analyses were done for many of the items and the wording and flow of the questionnaire were reworked. While the pilot study was being analyzed, two staff members were sent out to obtain lists of farmers in the 20 selected communities eligible for inclusion in the interviews. These two also made rough maps of the communities and located each person to be interviewed. In addition, they pre-tested some new items and some new versions of old items on an informal basis with the farmers. From these sources the final interview schedule was drawn up. It required, on average, an hour to complete. It was an improvement over the Phase I schedule because it utilized suggestions on items supplied by project headquarters personnel, was drafted originally in Portuguese rather than English (avoiding thereby both the translation problem and the difficulties of subtle biases assumed when working in one language rather than another), went through a pilot study (which was analyzed through Guttman scaling procedures rather than simpler methods) rather than only pre-tests, and was the only schedule in need of preparation rather than being one of four, as had been the case in Phase I.

Interviewers were recruited by contacting the more satisfactory interviewers utilized earlier and making most of them supervisors. They were asked to contact friends or acquaintances whom they judged apt for the kind of work that they had experienced with us in Phase I. Although a slight amount of nepotism and cliquishness resulted, the

caliber of interviewers was generally superior to what we obtained in Phase I. Interviewers were trained in the use of the questionnaire, both in classroom exercises and in field experience. Data collection began in early July and extended through the first half of August. The completed schedules were coded over the next six months.

Again, difficulty was experienced with the coding of empathy, and no amount of training with the old system of coding seemed to improve inter-judge reliability to an acceptable level. After four training sessions the coders reached an average agreement of .65. Therefore, a new set of instructions was drawn up, making more explicit the stages of decision in the coding process:

Instructions to Coders on Coding Empathy Items

1. First, ask yourself if there is any evidence at all that the respondent placed himself in the role called for. If not, code his response as zero. He will receive zero if, for example:

   a. he fails to respond or says he doesn't know

   b. he answers in terms so general as to apply to any role or to any human being, e.g., "I'd be a good person." (Note: these usually are given in terms of cultural values or attitudes generally approved in the society)

   c. he answers in a completely irrelevant manner or in a way which is clearly intended as a joke, e.g., "I'd take a vacation."

2. If his response was general but does not indicate any particular knowledge of the activities of the role, then he receives a code of one for the response. You have, in other words, only minimal evidence that he took the role as directed. Examples of this kind of response are:

   a. "I'd do what he's doing right now."

   b. "I'd fulfill his obligation and do his work."

   c. "I'd act like he does."

One other type of response should also be coded as 1. This will be discussed later.

3. If he provides evidence that he understands the general area of work, or the type of thing that a person in the role does, then he receives a code of two. Responses of this type are considerably more specific than responses receiving only a code of one. For example:

a. "If I were the Prefect of the municipio, I'd open more schools and improve the roads."

b. "If I were President, I'd work to combat inflation."

c. "If I were in charge of a factory, I'd improve the working conditions and increase production."

d. "If I were the ACAR supervisor I'd try to get more credit and have it available all year."

NOTE THAT THE RESPONDENT DOES NOT SAY HOW HE WOULD GO ABOUT DOING THESE THINGS.

4. If, in addition to these fairly specific statements of an area of activity, he indicates how he would accomplish the task, he receives a code of three. For example:

"If I were the Prefect, I'd help the farmers by getting some tractors and cultivators for them to rent and by trying to get some other seed companies interested in opening stores here."

5. There are two cautions: Don't let your own opinion of the wisdom or correctness of the ideas expressed enter into your judgment. If he says that he as President would, for instance, do away with a certain political party or opponent, only consider whether this action is within the role of the President, not whether you would approve of it or not. This leads to the second caution. If the person says he would do something fairly specific in a given role but that activity is quite inappropriate to that role (usually because it is not appropriate to the scope of activities in the role) then he should receive a code of 1, even though his response is quite specific. He has shown ability to take another role, but doesn't know enough about it to take it accurately.

For example:

a. "If I were the Prefect, I'd raise the minimum price supports on corn."

This is something which a Prefect has no control over; hence the response is coded 1.

In summary:

Code as 0 if there is no evidence the person took the role.

Code as 1 if there is evidence he took it but only very generally or inaccurately.

Code as 2 if there is evidence he took it and mentioned a fairly specific and appropriate activity.

Code as 3 if there is evidence he took it, mentioned a fairly specific and appropriate activity, and mentioned how he would go about accomplishing it.

Don't let your own judgment of the wisdom or value of his ideas enter into your coding.

After a single training session the average inter-judge reliability among three coders on a random sample of 80 questionnaires was .92 for the sum of four empathy items.

The data arrived at Michigan State for key-punching in February and March, 1967. Error checks on all the variables reported on here eliminated respondents when illegal or improbable codes were encountered.

V. SCALING AND INDEX CONSTRUCTION

Most of the variables involved in this thesis were grouped into indices through factor analysis of conceptually distinct areas and the calculation of factor scores on the basis of the varimax factor loadings from an early and explicable factor solution. Six such factor analyses were run. The factor score procedure will be outlined in more detail when the results are discussed. It served to provide optimal combinations of items to measure particular dimensions. For the data from Phase I, 20 of the 26 measures utilized here are factor scores and one is a score from a four-item Guttman scale.

For Phase II data no factor-weighted indices were constructed. Instead a simple sum of the empathy items, the actual magnitudes of responses in the area of mass-media exposure, and a simple sum of the number of innovations adopted by the individual, were used. However, Guttman scaling of the interviewer judgments of skill with hypotheticals was undertaken.

Producing Guttman Scales of Skill In Hypothetical Situations From Interviewer Estimates

Thirteen items were selected for special attention from those utilized in Phase II. These were drawn largely from items intended to measure economic knowledge, empathy, need-achievement, the attractiveness of the city, and risk-orientation. In every instance the item asked the respondent to imagine himself in a situation outside his experience or to project himself into the future. The interviewers were instructed to indicate whether they felt sure the respondent placed himself in the situation in answering the question, felt sure he did not place himself in the situation, or were unsure. The scores of 2, 0, and 1 respectively were given him by the interviewer in a space provided to the left of each of the items. After two brief explanations one occuring before field experience with the questionnaire and one, following such experience, during the interviewer training sessions, the interviewers appeared to understand the instructions. Interviewer supervisors were especially asked to check to be sure the interviewers were dutifully making the required judgments. Upon completion of the interviewing, 80 questionnaires were randomly selected from the total sample and the ratings were subjected to Guttman scaling procedures. Utilizing the original total

score of interviewer judgments as a basis for ordering individuals, five of the 13 items survived the Guttman scaling procedure. Included among them were all four of the role-playing items and one item utilized in obtaining a measure of need-achievement. The characteristics and content of the scale are given in Table 1.

After the five items which scaled on the initial try were eliminated, the other eight were utilized to obtain a new total raw score for each individual. Individuals were ordered on this total score and the scaling procedure was repeated. A second Guttman scale emerged which also consisted of five items with a reasonably high coefficient of reproducibility. The characteristics of this scale are shown in Table 2.

Three items did not fit into either of these two scales. These were:

1. "If you had the opportunity, would you choose to begin life again in the city or in the country?"

2. "If a farmer had ten alqueires of corn and a million cruzeiros to spend do you think he should spent it to increase his production by buying more land to plant more or buying fertilizer for the ten alqueires he already has?"

3. "Let's play a game and look at this house plan. As you can see, it has three rooms and in each of these we have four boxes. In the first room three of the boxes have Cr$50,000 each, in the second room two of the boxes have Cr$200,000 and in the third room only one of the boxes has Cr$500,000. Now, you don't know which are the boxes that have the money, and in order to participate in the game you have to pay Cr$5,000; then you will be able to enter one of the rooms, and open only one of the boxes in it and keep the money you find in the box, if it is a prize one. Do you understand? Would you like to participate in the game and pay the Cr$5,000? If so, which room would you enter?"

The two scales correlate .45 with each other.

Table 1. Guttman scale of skill in hypotheticals on Lerner-type empathy items: scoring based on interviewer judgments *

Item	Scale errors	Cutting-point**	Per cent correct	Dichotomized between
"If you were in charge of a factory, what would you do?	7	35%	44%	0 & 1
"If you were the ACAR agent, what would you do?"	4	50%	50%	0 & 1
"If you were the President of Brazil, what would you do?	8	62%	60%	0 & 1
"If you were the Prefect of the Municipality, what would you do?"	7	69%	60%	1 & 2
"What do you intend to do in the next three years?"	9	78%	60%	1 & 2

Coefficient of reproducibility = .91

Minimum Marginal reproducibility = .60

Improvement over chance = 77%

*Based on a sample of 80 questionnaires. Items are listed in order of increasing difficulty. Note that interviewers scored most of the respondents as placing themselves in the situation called for.

**Per cent of the scale.

Table 2. Guttman scale for skill in hypotheticals having to do with economic items: scoring based on interviewer judgments*

Item	Scale errors	Cutting-point**	Per cent correct	Dichotomized between
"Do you think that if all farmers succeeded in increasing their production rapidly all would make a better profit?"	9	32%	41%	0 & 1
"If many people moved rapidly from the farms to the large cities and you stayed here, would you receive better or poorer prices for your products?"	11	59%	60%	1 & 2
"Let's suppose that everybody in Minas had a larger harvest than usual; would this mean that you would make more money, less money, or about the same amount of money?"	12	64%	60%	1 & 2
"What would you do if you had another 25 head of cattle?"	8	79%	70%	1 & 2
"Now, let's suppose that I gave you Cr$20,000 ($9) to be used in buying lottery tickets, and only for this; would you prefer to buy 6 different tickets, two blocks of three different tickets, or one block of only one ticket?"	4	89%	80%	1 & 2

Coefficient of Reproducibility = .89 (.906 if item 3 is dropped)

Minimum Marginal Reproducibility = .65 (.64 if item 3 is dropped)

Improvement over chance = 69%

*Based on a sample of 80 questionnaires. Items are listed in order of increasing difficulty.

**Per cent of the scale.

VI. ANALYSIS PROCEDURES AND RATIONALE

The analysis will be presented in the same order and under the same general headings as the objectives of the study.

The Measurement of Empathy

Factor analysis was selected to provide an indication of the empirically distinguishable aspects of empathy represented in the data collected. The varimax rotation procedure was utilized since the first principal axis solution did not account for a sufficiently large portion of the variance to warrant acceptance of the single factor solution. The varimax procedure works to maximize each item's loading on a single factor so that each factor can be described by a unique set of items. The criteria for the selection of a particular factor solution included the meaningfulness and parsimony of the factor clusters, the purity of the factor structure, its stability across successive rotations, the reliability of the particular structure as gauged by comparison with two sub-factor analyses where the data were randomly divided and each half independently factor-analyzed, and the per cent of the total variance explained.

The analysis of the test-retest reliability of empathy over the five to six month period between the two data collections involves only simple correlations.

The analysis of the feasibility of a new measure of empathy utilizes the multiple correlation approach with successive deletion of predictors to aid in determining the relative value of the various indices of empathy obtained in Phase II. This approach takes each of the empathy items or indices and forms a multiple correlation with a

particular dependent variable, e.g., innovativeness. The program then examines the value of each of the predictors in forming the multiple correlation and determines which is making the least contribution. This one is deleted and a new multiple correlation is calculated. The process is continued until a significance criterion is reached. This criterion specifies the point at which the deletion of another predictor would result in a significant reduction of the size of the multiple correlation. The criterion chosen here was .05. Since six dependent variables are utilized it is possible to compare the survival rate of each of the predictors across the six. In addition to an intuitive analysis of their relative value, a Friedman one-way analysis of variance of the rank order of deletion of the variables is possible. With only six comparisons, the chances of showing significant differences are slim, but worth testing.

The Empathic Person in More and Less Traditional Communities

This analysis depends on obtaining criteria to subdivide the 76 communities of the sample into two clusters, according to their traditionality. Then the correlation of empathy and the various dependent variables (opinion leadership, number of friends, etc.) for individuals in the more traditional communities can be contrasted with the same correlations for individuals in the less traditional communities. The appropriate statistical test for the difference in correlations utilizes Fisher's transformation for the difference between two correlations from independent samples.

Empathy and the Mass Media

The relationship between a measure of empathy which emphasizes imagination and exposure to electronic versus print mass media is best

tested by partialling out effects of print exposure from the correlation between this aspect of empathy and radio exposure and partialling out effects of radio exposure from the correlation between this aspect of empathy and print exposure. Then the difference between two partial correlations is checked for significance utilizing the standard t test for the difference between two correlations with a common variable from the same sample.

The analysis of the mediating effects of empathy in the process of decoding modernization messages gleaned from mass media exposure and visits to the city is a bit more complex. Since the hypotheses imply a causal direction (e.g., mass media exposure causes more positive attitudes toward change) regression analysis is more appropriate than correlation analysis. As Blalock points out, in working with causal models

> our interest in the magnitude of r is only as an indicator of how well we have estimated the slope or as a measure of how much error or dispersion we have. (Blalock, 1964, p. 101)

Were we to cross-classify the total sample on level of empathy and compare the magnitude of the correlations between mass media exposure and modernization attitudes and orientations under the hypothesis that the correlations would be higher for the more empathic, we would be testing, in effect, the supposition that the goodness-of-fit of the data around a least squares line is better for the more empathic than for the less empathic, not that the impact of units of mass media exposure on modernization orientations is greater for the more empathic. It is the regression line which indicates the amount of change on the dependent variable which can be expected for each unit change on the independent variable. Therefore, the regression co-

efficients of separate sub-samples obtained by cross-classifying on empathy should be compared in terms of their slopes and intercepts with the expectation that the more empathic will gain more from each unit of mass media exposure (have a steeper slope) and/or intercept the y-axis at a higher level.

In addition to more adequately testing the hypothesis that a mediation effect is attributable to empathy level, the regression coefficient is less sensitive to restriction of variance in independent variable as we move across levels of empathy, and less sensitive to unknown and unmeasured nuisance variables. On this point Blalock writes:

> A major advantage in comparing slopes, as contrasted with correlations, is that even though two samples may not differ significantly with respect to variations in the independent variable, they may do so with respect to unknown nuisance variables. If one sample happens to be more heterogeneous with respect to such variables, the size of r_{xy} will be relatively smaller, but the magnitude of b_{yx} should be unaffected, except that the sampling error will be large. (Blalock, 1964, p. 118)

Blalock further argues that if the nature of the relationship among variables is at issue, then attention should be focused on comparison of the appropriate regression coefficients rather than on correlations, which only provide an estimate "of scatter about the least squares equation and hence an accurate estimate of the true slope." (Blalock, 1964, p. 51)

The advantages and disadvantages of testing hypotheses through the use of correlations versus the use of regression coefficients are complex and not completely understood. While Blalock's treatment is the most thorough available, it does not provide complete guidelines for error-free decisions. Since the hypothesis of empathy as a

facilitator of the decoding of modern messages appears to involve the assertion that the nature of the relationship of the dependent and independent variables differs at different levels of empathy, and since regression coefficients are likely to be less sensitive to certain artifacts, the comparison of regression slopes was selected to test the hypotheses.

VII. CONCLUDING COMMENTS

The hypotheses of the first chapter are tested by data gathered through the survey method in rural Brazil. The advantages of the survey method in terms of representativeness and generalizability to a real population may be overshadowed by the disadvantages of being unable to (1) actually manipulate independent variables and examine the effect on dependent variables, (2) check the outcome under different levels of induced empathy, and (3) subject it to rigid controls for extraneous variables. While these shortcomings are serious, and must make the results very tentative, the manner in which a wholly appropriate experiment could be conducted is not clear to me. Perhaps with more time, a larger budget, and considerable experimentation with portions of the hypotheses or analogues of the variables in controlled laboratory situations, an effective field test of the hypotheses could have been mounted. Perhaps initial exploration with the sample survey technique allows a useful starting point.

There may be some objection to the utilization of parametric statistics on data for which interval levels of measurement have not been established. Perhaps the best defense is that most of the analyses of greatest interest would not have been possible with

available non-parametric techniques. A second point is that many of the departures from measurement assumptions probably worked to make it more rather than less difficult to demonstrate hypothesized relationships. If false positives are more dangerous than false negatives, the error in this instance was in the proper direction. The inadequacies of available alternative approaches should not be ignored. Blalock's comments in this area are apt.

> While it is true that the use of Pearsonian correlations and regression coefficients is not strictly legitimate unless one has at least an interval scale, it may turn out that it is no more misleading to make use of dubious assumptions about level of measurement than it is to make use of data involving arbitrary cut-points or ordinal scales that obscure differences in amount of variation. For exploratory purposes it may not be entirely unwise to make use of the rationale developed in connection with higher levels of measurement, even where actual measurement cannot be nearly so precise. (Blalock, 1964, p. 94)

It may also be objected that the assumptions of linearity utilized in the analysis may be unrealistic, and indeed, we will see that some of the outcomes seem to be more explicable in terms of non-linear models. However, the main effort in this exploratory study is to determine how well the data fit the simpler linear model; this does not imply a belief that the world is exclusively linear, just a belief that it is easier to start by seeing to what extent that model fits. Similar comments could be made to justify the use of orthogonal varimax rotations rather than the oblique rotations which probably are more isomorphic to underlying realities.

CHAPTER III

RESULTS

I. THE FACTOR ANALYSES OF EMPATHY AND OTHER MEASURES

Factor Analysis of 18 Items Intended to Tap Aspects of Empathy

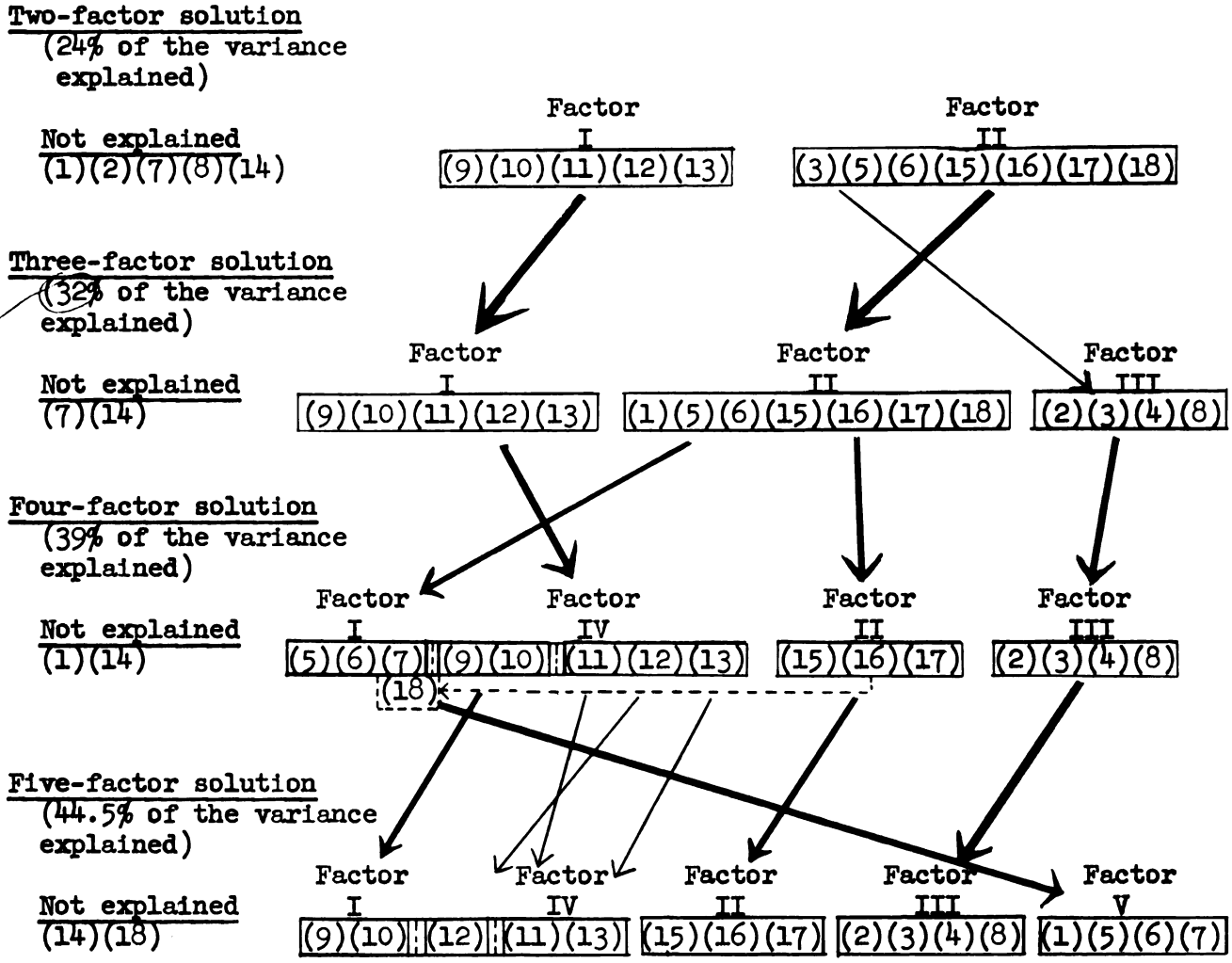
The items involved, their scoring, and the distributions of marginals are given in Appendix A. There were four role-playing items, e.g. "What would you do if you were President?" which required coding by judges after the answers were recorded by interviewers. In addition we asked the interviewee how much he knew about the role he had been asked to play and whether he had given much thought to this kind of question before. A number of questions dealt with his interaction with a foreigner or stranger. Some quizzed him about the extent to which he had day-dreamed about himself in other roles. His ability to visualize a situation where his cows suddenly started producing unbelievable amounts of milk was inferred from the originality and presumable utility of his plans for taking advantage of this windfall. He was also asked whether he could imagine someone believing differently than he did about some matter of importance to him. All of these questions were intended to gauge the flexibility of his thinking and the extent to which he was willing or able to think outside the ordinary, place himself in new roles, and react to new situations. In addition, ratings of his cooperativeness with the interviewers (an indication of his behavior with strangers), and of the degree to which he had opinions he was willing to express on the questions asked him in the other portions of the questionnaire, were

utilized in the factor analysis.

The correlation matrix for these 18 items was based on 775 observations, hence the correlations are relatively stable.* The first principal-axis factor accounted for only 16 per cent of the variance. Extracting more factors and rotating them according to the varimax procedure a five-factor solution was reached before stopping at the Kiel-Wrigley criterion. This solution explained 44.5 per cent of the total variance. For several reasons this was not the solution chosen. These reasons can be made more understandable by reference to Figure 3, where the structure of the factor solutions is depicted. While the two-factor solution leaves five of the items unexplained, in the sense that all their loadings are smaller than .40, the three-factor solution picks up all the variables except for items 7 and 14. Furthermore, the extra factor formed in the three-factor solution remains stable from there on out. The first factor shown in the two-factor solution also remains stable, although it begins to have substantial loadings on the fourth factor when the four-factor solution is reached. This kind of contamination is not found in the three-factor solution. In short, the three-factor solution was chosen because (1) it explained as many of the variables as were explained in any of the solutions up to the Kiel-Wrigley criterion, and (2) it contained the stable factor structures before they begin to merge into each other or break apart. There was a third reason for preferring the three-factor solution. When

*The .05 confidence limits are about ±.07 for the Fisher transformed r. Since most of the correlations are below .25, the transformation has little effect.

Figure 3. The structure of varimax rotated solutions for 18 variables intended to measure aspects of empathy



Note: The numbers in parentheses are the variables. The boxes represent factors. Dotted lines indicate variables with loadings in more than one factor. The arrows show the paths of individual variables or clusters of variables from one solution to another. Variables not explained are those with loadings of less than .40 on all factors. The numbering of the items in Figure 3 is identical to the numbering of them in Appendix A.

the data were randomly divided into two equal halves and these halves separately factor analyzed the results for the two halves were similar to each other and to the overall factor analysis in the structure of their factors and approximate magnitude of their factor loadings until the four-factor solution was reached. At this point the two halves seemed to begin to diverge from each other and from the overall analysis. Thus, we may be relatively secure in the assumption that the structure emerging in the three-factor solution is not random, but beyond this doubts may arise. The three-factor solution accounts for only 32 per cent of the total variance. It was judged better to forego the extra 12 per cent which would have been added by taking the Kiel-Wrigley criterion rather than put up with a structure which was less reliable, required two more factors and was more difficult to interpret. Table 3 presents the variables constituting the three factors, their factor loadings and factor weights utilized in the construction of factor scores. These weights were calculated by the formula: $W = r/1-r^2$ where r is the factor loading. This is an approximation of a much more complex calculation routine where the loadings would be utilized as predictors to obtain the best possible multiple prediction of the underlying hypothetical dimension constituting the factor. According to Burt this procedure does a better job of estimating the contribution of each item to this prediction than any alternative short of the exact solution.

Factor Analysis of 75 Items, Among Them the 18 Empathy Items

This analysis includes the 18 empathy items in a larger pool with an additional 57 items, many of which were utilized in measurement of other variables. Within this context all the empathy items

Table 3. Loadings and weights on the three-factor solution for 18 items tapping aspects of empathy

Item	Factor Loading	Weight*
Factor 1: Interaction with strangers and role knowledge		
"Would you know what to say to him?" (a foreigner you met for the first time)	.72	1.471
"Do you know what the duties of the President of Brazil are?"	.67	1.220
"Do you know what the duties of the Prefect of the Municipality are?"	.65	1.133
"Would you be very interested in getting to know him (a foreigner or stranger) better?" (if yes) Do you believe that, given sufficient time, you would understand why this foreigner thought and acted differently than you?"	.58	.882
"Let's suppose that you met a foreigner for the first time. If he looked friendly...do you think that you would feel at ease with this stranger?"	.52	.712
Factor 2: Facility in dealing with hypotheticals		
"If your cows suddenly started giving 40 liters of milk at each milking, what would you do?"	.39	.467
"If you were President of Brazil, what would you do?"	.46	.591
"If you were Prefect of this Municipality, what would you do?"	.50	.668
"If you were the ACAR supervisor, what would you do to improve the work?"	.47	.609
"How cooperative was he?" (Asked of the interviewer and scored 1-7)	.48	.621
Number of opinions expressed on 13 issues	.55	.796
Number of opinions expressed on 7 hypothetical situations	.57	.839

Table 3 continued.

Item	Factor Loading	Weight*
Factor 3: Imaginativeness		
"Have you ever thought what it would be like to live in your great-grandfather's time?"	.63	1.036
"Have you ever imagined yourself being a great hero?"	.71	1.408
"Have you ever imagined yourself being President of Brazil?"	.61	.972
"Have you ever thought of questions like these before?" (asked after the role-playing questions)	.57	.833
Items not included in any factor		
"If you were the poorest person around here, what would you do?" (Highest loading: .28 on factor 2)		
"Now think of something which you strongly believe. (PAUSE) Have you ever thought that someone could believe about it differently?" (Highest loading: .24 on factor 1)		

*Weight is defined by the formula $W = r/1-r^2$ where r is the factor loading.

tend to cluster into a single factor by the time the Kiel-Wrigley criterion is reached, but the factor is defined much more by the imaginativeness items taken together than by the Lerner-type role-playing items alone. There are some exceptions. The degree of role knowledge a person claims loads off on the first (and strongest) factor together with education, political knowledge, frequency of

reading, memberships in organizations, and two small intelligence tests, one utilizing arithmetic problems and other antonyms. While claims to role knowledge do have their largest secondary loading with the factor including the empathy items, they appear to be much more a function of education and general knowledge and skill levels.

Another exception is the score on opinionatedness, which loads off away from the empathy factor (to the extent it loads anywhere) and attaches more to a factor having to do with contacts with the ACAR change agent, loans made by him to the farmer, confidence in him as measured by a Cantril ladder scale, the individual's behavior if he were the ACAR agent, and the ratings received from the interviewer on cooperativeness, comprehension, and intelligence.

If we choose a factor loading of .40 as a lower limit for saying that an item is explained by a factor, then none of the Lerner-type empathy items and none of the interaction-with-strangers items are explained at the Kiel-Wrigley criterion in this factor analysis, even though they have their highest loadings with the items indexing imagination. Even in going one solution beyond the Kiel-Wrigley criterion we do not produce high loadings for the Lerner-type items. Instead they function as the weaker sisters of a factor which, though itself weak, appears to consist of imagination or, more crudely, reflective thought. The items defining this factor, and their loadings, are shown in Table 4. The Table would have to be considerably extended to take in the small loadings for items like "shows ability to take Prefect's role" (.24), "shows ability to take the role of the poorest person" (.21), and "says would feel at ease with a stranger" (.23) even though these are the highest loadings these three variables achieve in this factor analysis.

Table 4. "Thinking" or "imaginativeness" factor from the six-factor solution of a factor analysis of 75 items which include 18 empathy items

Item	Loading
Has imagined self as a great hero	.52
Thinks about problems	.49
Daydreams about great-grandfather's time	.47
Has imagined self as President of Brazil	.45
Thinks about solutions to problems	.44
Knows the Prefect's duties	.37*
Shows ability to take the President's role	.36
Knows the President's duties	.35*
Has thought about role-taking questions before	.33
Would like to get to know a stranger better	.33
Thinks himself influential in the community	.31
Says he would know what to say to a stranger	.29

*Has a higher loading elsewhere in the factor analysis

Empathy as a Community-Level Characteristic

While the four customary Lerner-type empathy items did not appear to do well when considered individually and at the level of the individual respondent, they did emerge as an important predictor when added together into an index and aggregated to the community level. When this score was submitted to factor analysis together with other scores similarly aggregated from the original data, which were taken to be descriptive of the characteristics of the community's leaders, empathy emerged as an important predictor on the second factor. This factor involved other variables indicative of skill in interpersonal relations and a higher level of community integration. The first factor in this analysis consisted of the variables of literacy,

education, political knowledge, frequency of reading and so forth--the familiar modern-knowledge-and-skills syndrome. The content of the second factor is shown in Table 5. The sample size is 76

Table 5. Factor loadings and items defining a community measure of interpersonal skill and group harmony among informal leaders at the community level

Item	Loading
Average informal leader score on trust	.67
Average informal leader score on empathy	.64
Average informal leader score on opinionatedness	.64
Average informal leader utilization of radio for farm news	.57*
Average informal leader evaluation of modern information sources as more credible than traditional	.57
Average number of best-friend nominations exchanged among informal leaders	.55
Average feeling of self-efficacy in controlling community change	.48
Average interviewer estimate of respondent cooperation	.41

*The utilization of radio for farm news shows a high loading on this factor. When the data were analyzed on an individual basis rather than community, the individual level of radio use showed no sizable loading anywhere. Its best loading did appear with the variables composing the factor shown in Table 4, but the factor loadings were only .24 for utilization of radio for farm news and .21 for general radio use. Strikingly, and consistent with other research, radio utilization refused to cluster with the utilization of other forms of mass-media.

rather than 775 and the measures typically are appropriate central

tendencies aggregated from individual measures.*

Factor Analysis of 26 Indices, Including the Three Indices on Aspects of Empathy

Purely in the interest of a search for relationships, the indices constructed out of the responses of the 775 persons interviewed in February and March of 1966 were subjected to factor analysis. Twenty-six variables are involved and the majority of them were formed by factor weighting procedures. For example, there are the mass media indices from a factor analysis of items in this area, the scores on modernization orientations from their factor analysis, scores on literacy and intelligence from a factor analysis of items in these areas, scores on the three aspects of empathy selected from the factor analysis already described, etc.

The Kiel-Wrigley criterion for stopping rotation was reached at the six-factor solution. Had we excluded variables which lack a loading of .40 or greater on any factor, the three-factor solution which accounts for 37 per cent of the total variance would have been the Kiel-Wrigley stopping point. In the interests of parsimony we will examine this first with only a few later references to the four-factor solution.

The first factor is composed almost exclusively of mass media exposure. This is partly artifactual in that several scores were constructed utilizing the data from the earlier mass media analysis and some of these scores had components common to them. Granting that the formation of this factor may be somewhat predetermined thereby, it is still interesting to note which variables are pulled away to

*For further detail about the community based analysis, see Whiting, et. al., 1967.

load together with mass media. This is shown in Table 6. It is worth

Table 6. First factor from a three-factor solution to a factor analysis of 26 indices constructed for testing hypotheses in this study

Item	Loading
Utilization of literacy and cinema	.93
General media use	.93
Mass media exposure	.91
Favorable to change	.68
Objective status	.60
Perceived status	.49
Intelligence	.43
Social memberships and social integration	.40

noting that intelligence, while it has its highest loading on this factor, has other loadings elsewhere which are almost as high. In other words, intelligence is factorially complex in this particular context of variables. The two measures of status and the measure of attitude toward change show their highest loadings on this mass media factor.

The second factor consists entirely of contact with the ACAR change agent and sociometric popularity. It is shown in Table 7.

The third factor appears to pick up some kind of cognitive dimension involving facility in dealing with strangers and a belief in the efficacy of work rather than luck in getting on in the world. Its loadings are also shown in Table 7.

If we were to move to a four-factor solution (explaining

Table 7. Second and third factor from a three-factor solution to a factor analysis of indices constructed for testing hypotheses in this study

Second factor:

Item	Loading
Number of nominations received from peers as a source of information about the outside world	.75
Number of nominations received from peers as best friend	.72
Number of nominations received from peers as opinion leader	.68
Involvement in ACAR programs	.67
Knowledge about and trust of the ACAR agent	.50

Third factor:

Belief in work rather than luck	.71
Facility in dealing with strangers and role knowledge	.71
Political knowledge	.47
Imaginativeness	.45
Skill with hypotheticals	.40

42.5 per cent of the variance) the fourth factor would be formed by splitting the first two items factor three away from the rest. They would then have higher loadings, but the loadings of the other three items in factor three would also become higher (except for political knowledge, which would now be spread about equally across three factors, the first, the third, and the fourth). In addition, this new fourth factor would pick two variables out of the group of variables unexplained in the three-factor solution: the use of mass media for agricultural

information and functional literacy. It would also largely steal away from the first factor the variable of intelligence. The degree of knowledge about and trust of the ACAR agent would also be stolen from the second factor. Many variables would continue to have low loadings on all factors. These include the number of godchildren the person reports having, his aspirations, his value for dissatisfaction, his exposure to urban living, his preference for the city life, and his tendency to think about community problems. The composition of this fourth factor is given in Table 8.

Table 8. Fourth factor from a four-factor solution to a factor analysis of indices constructed for testing hypotheses in this study*

Item	Loading
Skill with hypotheticals	.72
Knowledge and trust of individual ACAR agent	.58
Intelligence	.57
Imaginativeness	.47
Literacy	.46
Use of radio for agricultural information	.42
Political knowledge	.37

*This factor consists mostly of portions of factor three from the three-factor solution and variables which were formerly not well explained.

Were it not for the fact that the third factor in the four-factor solution has only two variables with relatively high loadings, the four-

factor solution would be preferable to the three-factor solution since it picks up literacy and manages to load skill with hypotheticals quite purely onto the last factor. Political knowledge would then load on three factors, the first (mass media), the second (belief in work, skill with strangers and role knowledge), and the third (hypotheticals, trust of ACAR agent, and intelligence). It is included in Table 8 partly because as successive factors are extracted it achieves its highest loading together with the variables in Table 8.

II. THE RELIABILITY OF MEASURES OF EMPATHY OVER TIME

In this section we consider how well individual measures of empathy hold up over time, how well an index composed of three empathy items intercorrelates with itself over time, and the test-retest reliability of empathy compared with that of other variables such as age, education, literacy, etc. The sample size for all these comparisons is 102, comprising individuals reinterviewed in 20 of the original 76 communities after a lapse of six months.

There were three items tapping empathy both times:

1. What would you do if you were President of Brazil?
2. What would you do if you were Prefect of this Municipality?
3. What would you do if you were the ACAR agent?

The context of the items changed somewhat in the two questionnaires and the scoring procedures for the second set were changed somewhat. The test-retest correlations for these three items are: (1) if President, .17, (2) if Prefect, .34, and (3) if ACAR agent, .29. When the three items are summed into indices the intercorrelation of the two indices is .29.

For this sample size any correlation larger than .195 is significant at the .05 level. However, a correlation accounting for about nine per cent of the variance between essentially identical measures at two points in time would seem to doom the usefulness of that measure. If the variable itself fluctuates this much over time, then it cannot be very useful in predicting anything.

In order to obtain some perspective in this, it is useful to examine the test-retest correlation of other variables measured at both times. The test-retest reliability coefficients for 17 other variables from these two surveys are given in Table 9.*

Looking down Table 9, we find that measures of mass media utilization are relatively reliable. Indeed, attendance at movies happens to be as reliable as such matters as age or possession of a car. The estimate of education is surprisingly unreliable as is the estimate of literacy, even though this was based on a test performed by the interviewer with the subject. If the respondent's word is taken for it, the reliability of literacy estimates is very low indeed. Although there is fair consistency in claims of belonging to a cooperative, the number of memberships claimed in formal organizations barely reaches significance. The modernity of occupational aspirations for children does not reach significance.

In general, with the exception of the estimates of mass media exposure, the most reliable items appear to be those which are very

---

*It should be noted that the correlation for trust and cooperativeness was derived from indices containing different items at the two points in time. The correlation is based on standard scores from each of the two indexes.

Table 9. Test-retest reliability of 17 variables over a six-month period

Variable	Test-retest correlations
Index of trust and cooperativeness	.09
Modernity of occupational aspirations for children	.10
Claims to be able to read a newspaper	.18
Number of memberships claimed in formal organizations	.21
Literacy test based on the correct reading of a paragraph	.39
Number of conversations reported with the ACAR agent	.44
Number of years of education	.48
Innovativeness score based on the adoption of six practices	.54
Political knowledge based on a four-item Guttman scale dealing with factual knowledge of political events	.59
Claims to belong to a cooperative	.61
Claims to have resided outside the community	.61
Number of magazines or newspapers read per month	.63
Has piped-in water in his home	.74
Has electric lights	.75
Has a car	.82
Age in years	.85
Number of movies attended per year	.87

concrete and which require scarcely more than a yes-no response. One exception to this is the reliability of self-professed ability to read. Among the variables for which we have data, the empathy does better than any of the subjective variables and better than the subject's estimates of the number of his memberships, although the latter difference is not significant. The reliability of the literacy test is not significantly different from the reliability of empathy but

the number of years of education is significantly more reliable.

III. THE FEASIBILITY OF A NEW MEASURE OF EMPATHY

Two Guttman scales were constructed from interviewer estimates of the respondent's ability to handle counterfactual questions. The first scale is dependent upon interviewer estimates of interviewee performance on questions used to obtain an index of empathy. The second scale utilized hypothetical economic items. Each scale had five items. The intercorrelation of the two Guttman scales is .45. The first scale, based primarily on interviewer judgments of performance on empathy items, correlates .70 with the empathy index derived from coder judgments of these items. The second scale, based on interviewer judgments of performance on other items correlates .38 with the empathy index. (The sample size for all correlations presented in this section is 1,302.)

Our empathy index, with which the scales will be compared, is composed of the sum of scores given by coders to responses to four questions:

What would you do if you were President of Brazil?
What would you do if you were Prefect of this Municipality?
What would you do if you were the manager of a large factory?
What would you do if you were the ACAR agent?

To test the relative adequacy of these scales as compared to the usual measure of empathy, we placed the three as predictors in multiple regression equations predicting six criterion variables in turn: (1) the number of visits made to the city, (2) the frequency of radio listening, (3) the frequency of television viewing, (4) the number of newspapers and magazines read, (5) the number of movies attended, and

(6) the number of agricultural innovations adopted by the individual. The comparative adequacy of the scales versus the index was judged on the basis of the order in which they were deleted as successive predictors were dropped from the multiple regression equations.

Table 10 presents the rank order of deletion of each of the three predictor variables on each of the six modern behaviors. In addition, it indicates the number of variables left when deletion stopped at a .05 level of significance and the multiple correlation after deletion was stopped. Predictors which are retained longer have higher ranks in Table 10. The sum of these ranks is given on the right hand side of the Table.

Unfortunately, the interpretation of Table 10 is not unequivocal. Scale A and the empathy index turn out to be equally important in terms of the point at which they are deleted in the prediction of these six variables. One interesting difference is that Scale A is retained in the final solution every time whereas the empathy index is twice dropped. Scale B is dropped three times but happens to survive longest in the multiple prediction of the dependent variable with the highest multiple correlation coefficient, that predicting adoption. Another difference between Scale A and the empathy index is that Scale A seems to have more usefulness on variables for which relatively small multiple correlations are developed, whereas the empathy index does a little better with three mass media variables. If the two scales are compared with the individual items composing the empathy index a more decisive pattern emerges. Though it is somewhat unfair to compare the scales with individual items as we can see from Table 11, which outlines the six predictors and the six criterion variables in the same

Table 10. Rank order of deletion of three predictors of six modernization behaviors

Predictor variables	Modernization variables: Films attended	City visits	Papers read	Radio hours	TV hours	Adoption	Sum of ranks
Scale A (based on empathy items)	3*	3*	2*	2*	2*	1*	13
Scale B (based on other hypothetical items)	2	2*	1	1	1	3*	10
Empathy index (based on the sum of coder scores responses to 4 empathy items)	1	1	3*	3*	3*	2*	13
Multiple correlation after deletion to the minimum significance criterion of .05	.12	.20	.22	.26	.26	.40	

*This variable was retained in the solution

fashion as Table 10, the fact that Scale A survives to the last on all predictions should not be ignored. But of perhaps greater interest are the contributions coming from the individual items composing the empathy index. Items having to do with the roles of factory manager and ACAR agent seem to be more useful predictors than the two political roles -- Prefect of the Municipality and President of Brazil. The two

Table 11. Rank order of deletion of six predictors of six modernization behaviors

Predictor variables	Modernization variables: Films attended	City visits	Papers read	Radio hours	TV hours	Adoption	Sum of ranks
Scale A	6*	6*	6*	6*	6*	6*	36
Scale B	4	5*	3	3	3	4*	22
If factory manager	5*	4	5*	2	5*	2	23
If ACAR agent	3	1	4*	5*	4	5*	22
If Prefect	2	3	1	4*	2	3	15
If President	1	2	2	1	1	1	8
Multiple correlation after deletion to the minimum significance criterion of .05	.14	.20	.22	.27	.27	.41	

*This variable was retained in the solution.

political roles are dropped from the prediction 11 times out of 12 whereas the two non-political roles are dropped only six times out of 12. The difference is significant on a Friedman one-way analysis of variance in which only the ranks of these four variables are considered.

Although it is not the focus of this section to examine the level

of prediction, it is interesting to find that three measures of hypothetical thought manage to explain 16 per cent of the variance in the adoption of agricultural practices. Table 12 shows the pertinent characteristics of this prediction.

Table 12. The prediction of adoption from three measures of hypothetical skill

Predictor	Correlation	Contribution to multiple R
Scale A (interviewer judgments of the degree of role-taking on empathy items)	.36	38%
Scale B (interviewer judgments of the degree of assumption of the hypothetical situation on economic items)	.29	25%
Empathy index (the simple sum of four empathy items)	.35	37%
	Multiple correlation = .40	

In percentage terms, Scale A and the empathy index make about equal contributions to the multiple prediction of adoptions despite the high level of intercorrelation between them.

IV. THE EMPATHIC PERSON IN MORE AND LESS TRADITIONAL COMMUNITIES

In order to test the hypotheses of this section, criteria were needed for subdividing the sample of 76 communities, from which the

775 respondents were drawn, into communities high and low on traditionalism. To accomplish this, thirty-three variables purporting to provide measures and estimates of community wide development levels were submitted to factor analysis. A three-factor solution was selected as intelligible and reasonably stable. The items, factor loadings, and factor weights utilized in construction of factor scores for communities are shown in Table 13. Since the items were first normalized and then summed according to the weights derived from the factor analysis it is difficult to paint a composite picture of the 'typical' traditional community under a given set of items or of the range of traditionality within our sample. Table 13 can best be read in terms of more traditional communities having fewer institutional facilities, fewer channels of communication with the outside, less developed medical facilities and fewer medical personnel, more health problems, more dependence upon a single crop, and a larger percentage of cultivators who are not landowners. The less traditional communities would have more facilities, channels, access to a wider geographic area, somewhat better health and educational facilities, more diversification of cropping, and more land-owning cultivators. The difference between more and less traditional communities is one of degree. None of the communities involved could be termed modern as a U.S. rural community is modern with extensive paved roads, electrification, telephone system, bussing of children to consolidated schools, etc. Thus, this discussion consistently refers to degrees of traditionality rather than to a traditional-modern dichotomy. In addition, the communities range across points on a continuum rather than clustering at the extremes. This helps account for the fact that three separate dimensions appear to be

Table 13. Items and factor loadings from a factor analysis of measures of community development

Item	Loading
Factor I: Institutional development	
Community has a government office	.77
Community has a postal service	.70
Community has a bar	.67
More kinds of work done in the community	.65
Community has a plaza	.65
Community has a barbershop	.62
Community has telephone service to outside	.60
Community has a football field	.50
Community has bus service to the outside	.42
Community has a school	.42
Distance to the most used commercial center	.36
Community has a store	.34
Factor II: Medical development and non-dependence on farming	
Number of visits by doctors per month	.65
Per cent of community not involved in farming	.56
Per cent of community having sanitary toilet facilities	.55
Distance to nearest large factory	-.52
Infant survival rate	.51
Per cent of farm income from a single crop	.45
Per cent of community using filtered water	.45
Per cent of homes without a hunger problem	.48
Community receives more than one TV station	.38
Per cent of crops sold annually	.37
Number of months community is isolated by weather	-.31
Factor III: Urban contact	
Per cent of inhabitants who have parasites	.62
Community lacks a school	.59
Most farmers have visited the capital at least once in their life	.53
Community lacks a store	.48
Someone visits the capital monthly	.46
Community has motor transport for getting crops out	.45
Community has postal service	.44
Most farmers are not primarily renters but owners	.43
Time needed to get to big city by bus	.41
Most farmers have relatives in the city	.39

necessary to explain an adequate amount of variance in the factor analysis.

The first factor to emerge was named "Institutional Development." Items for it were drawn largely from the work of Frank and Ruth Young. (Young and Young, 1962) The second factor had its highest loadings on indices of medical facilities and on indications of non-dependence on farming. The third factor seemed to be composed mostly of some kind of urban contact dimension. It also included a high loading on parasite infestation level which, curiously, loads off away from the medical items in the second factor.

Following construction of the factor scores, the communities were arranged in order of their scores on each of the factors separately and these arrangements dichotomized at their medians.* Since the three factors are orthogonal and the factor scores uncorrelated, the three criteria for dichotomization were independent.

With the sample of respondents dichotomized three times according to three independent criteria, correlations were calculated for upper and lower halves of each dichotomy between hypothetical thinking and (1) number of godchildren, (2) number of peers who designated a respondent as a friend, (3) social memberships, (4) the number of nominations received as a person who brings in information from the outside world, (5) status as self-perceived, (6) status as measured from objective criteria, and (7) number of opinion leadership nominations from peers.

---

*The sample split almost exactly in half each time, with sample size of 385 for the top group on institutional development and 390 for the bottom group, 388 for the top group on medical resources and non-dependence on farming versus 387 for the bottom group, and 393 in the top half of the split on urban contact versus 382 in the bottom half.

Despite the degree of precision afforded by the relatively large sample sizes, only one of the 21 comparisons of correlations reaches significance at an acceptable level. The correlation between scales on hypothetical thinking and self-perceived status for individuals in communities relatively high on institutional development reaches .33, while the same relationship for those in communities low on institutional development is .19. The difference is significant. However, one significant difference in 21 is exactly the sort of finding that statistical inference anticipates, hence it seems inappropriate to attempt to interpret this lone positive result.

Table 14 presents the correlations of our measures of aspects of empathy with the seven variables considered in this section. The total sample, without dichotomization on traditionality, is the basis for the correlations in Table 14.

Table 14. Correlations of three aspects of empathy with seven measures of integration, status, and influence in the community

Variable	Correlation with Hypothet-icals	Imagin-ation	Strang-ers
Number of godchildren claimed	.00	.03	.02
Number of nominations as a friend	.05	.01	.06
Number of memberships in social groups	.10*	.14*	.05
Number of nominations as an information source	.15*	.10*	.13*
Self-perceived status	.27*	.29*	.13*
Objectively determined status	.11*	.14*	.16*
Opinion leader nominations from peers	.15*	.01	.06

*Significantly different from zero at the .05 level of confidence; N = 775.

Although the majority of the correlations can confidently be regarded as representing real relationships, it is difficult to generate enthusiasm over only two, four, or eight per cent common variance represented by most of the data in Table 14.

V. THE RELATIONSHIP OF IMAGINATIVENESS TO EXPOSURE TO RADIO AND EXPOSURE TO PRINT

It was hypothesized that the imaginativeness aspect of empathy would relate most strongly to exposure to radio and less strongly to exposure to print. The factor analysis of exposure to mass media produced a factor which appeared to be composed primarily of utilization of literacy. Items selected for a factor score on exposure to print are given below; the numbers in parentheses indicate the weights given each item in forming the factor score:

1. How often per month do you read (or does someone read to you) magazines and newspapers? (2.299)
2. Do you read news about agriculture in the magazines and newspapers? (0.794)
3. How many letters do you write (or ask to have written for you) per year? (1.301)
4. How many times a year do you go to the movies?* (1.325)

We shall refer to this score as "print exposure."

The exposure to radio score was composed of the following items:

---

*It was surprising to find movie attendance showing more relationship to exposure to print than to exposure to radio. It seems likely that we are dealing with an economic restraint. The radio is the poor man's means of entertainment. If he can scrape together enough for the purchase, he has little expense thereafter. Furthermore, literacy or travel to a distant center is not necessary. Then too, many films shown in rural Brazil require literacy since they are produced in other countries and only provided with Portuguese subtitles, not dubbed voices.

1. How many hours a week do you listen to the radio attentatively? (1.206)
2. Do you listen to agricultural news on the radio? (2.460)

The correlation between imaginativeness and print exposure is .32. With radio exposure partialled out, the correlation is .30. The correlation between imaginativeness and radio exposure is .18. With print exposure partialled out it drops to .13. The difference between these two partials is significant at better than the .0005 level.* The result is in the direction opposite that hypothesized earlier. Exposure to print shows a significantly greater relationship to imaginativeness than exposure to radio. This is true both for the comparison of appropriate partials and for the zero order correlations. The intercorrelation of the two factor scores on print and radio exposure is, incidentally, only .19. (This is largely a function of the orthogonal factor analysis and does not necessarily represent the degree of relationship between exposure to one of these media and exposure to the other.)

The zero order correlation of skill-with-hypotheticals and print exposure is .23 which is identical to its correlation with radio exposure. The correlation between interaction with strangers and print exposure is .15, while its correlation with radio exposure is .06. This difference is also significant and favors the print media.**

---

*t = 3.768 with 771 degrees of freedom (an extra degree was lost since the test was a comparison of first order partials rather than zero order correlations).

**t = 2.1798 with 772 degrees of freedom.

VI. REGRESSION TESTS ON MASS MEDIA VARIABLES

Two aspects of empathy are considered separately as classificatory variables in this analysis: skill-with-hypotheticals (often shortened to "hypotheticals" hereafter) and imaginativeness. Both are operationalized as normalized factor weighted scores. The items composing hypotheticals were listed in Table 3 under the discussion of the factor analysis of empathy items. There they emerged as factor two. Their weights for factor score construction were likewise given there. Since each item was cast into a normal distribution before weighting, the scoring system associated with the raw items is not important. The items composing imaginativeness were also given in Table 3, together with their weights, as the third factor from the factor analysis of empathy.

For this analysis the 775 subjects were first cross-classified by their scores on hypotheticals and all regression analyses performed; then they were cross-classified by their scores on imaginativeness and these analyses repeated. Since the correlation between the two aspects of empathy was .20, the cross-classifications were not identical.

Two measures of mass media exposure are used separately in this section. This was necessary because the factor analysis of mass media items indicated that radio exposure, and particularly radio exposure for farm information, tended to load away from exposure of other types. Since the first principal axis factor did not contain high loadings for exposure to radio, the decision was made to investigate radio exposure separately. This seemed particularly needful in view of the fact that hypotheticals were more closely associated with

radio exposure than with the measure of general mass media exposure derived from the first principal axis solution. Also imaginativeness was correlated at a significantly higher level with general mass media exposure than with exposure to radio.

The mass media exposure index was formed from the variables given below:

1. How often per month do you read (or does someone read to you) magazines and newspapers? (2.125)
2. How many hours a week do you listen to the radio attentatively? (0.389)
3. How many times a year do you go to the movies? (0.880)

This score was similar to but not identical with the "print exposure" score described in Section V. The radio exposure score from Section V was utilized again here.

In general, the procedure of cross-classifying the sample on scores on either hypotheticals or imaginativeness resulted in a moderate progression of the means of the groups on mass media variables roughly corresponding to the level of empathy. The five groups were of equal size (155 each); hence the regression estimates derived from them were equally stable, although not equally good fits to the clusters of data.

The correlations of both types of mass media exposure failed to reach significance with the dependent variables of (1) aspirations, (2) value for dissatisfaction, and (3) a tendency to think about problems. Nor did the multiple correlation obtained utilizing levels of mass media classified on the two aspects of empathy result in significance for these variables. Therefore, we must regard these variables as not clearing the first hurdle of this analysis by failing to show a significant relationship to either variety of mass media exposure, even under cross-classification conditions. This probably

results from poor measurement of the three dependent variables. Two of the three were dependent on single items and the third relied on only two items. The three variables will not be considered further in this section.

Three of the dependent variables did clear the first hurdle by showing significant relationships to exposure to mass media when levels of aspects of empathy were utilized to cross-classify the data. These three were (1) belief in the efficacy of work rather than a fatalistic reliance on luck (hereafter called "belief in work"), (2) political knowledge, and (3) a favorable attitude toward change.

Possible Statistical Outcomes from Regression Analysis

Cross-classifying the sample on five levels of an aspect of empathy allows each level of the independent variable to act as a separate, independent predictor in a multiple correlation. Instead of merely having the correlation between, say, exposure to radio and belief in work we have the multiple correlation of five different independent variables -- exposure to radio-lowest empathy, exposure to radio-low empathy, exposure to radio-average empathy, exposure to radio-high empathy, exposure to radio-highest empathy -- and a single dependent variable, belief in work. Any improvement over the simple correlation due to this cross-classification can be a result of (1) allowing freedom in the points of intercept for the five independent variables, (2) allowing freedom in the slopes of the five, or (3) allowing freedom in both intercepts and slopes. In most studies, allowing freedom to the intercepts is somewhat more important than allowing it to the slopes; this is consistently the case in the analyses presented here.

If a restriction is introduced in the slopes of the five independent predictors making them all equal, this restriction can be tested to determine whether it significantly reduces the predictiveness of the "unrestricted" solution, i.e. the solution in which both slopes and intercepts are free to vary. It can also be tested to determine whether it is a significant improvement over the completely restricted solution, i.e. the solution which ignores cross-classification altogether. The first test is known as the test of the hypothesis of a common slope.

If a restriction is introduced which forces the intercepts of the five predictors through a common point on the ordinate, the degree to which this restriction reduces the unrestricted solution can be tested for significance. This test is known as the test of the hypothesis of a common intercept. Likewise, the partially restricted solution with a common intercept can be tested to determine whether it is significantly superior to the completely restricted solution.

The following types of outcomes exhaust the relevant possibilities:*

I. The multiple correlation of the unrestricted solution is significantly larger than the multiple correlations of the partially restricted solutions and the correlation of the completely restricted solution.

II. The multiple correlation of the unrestricted solution is significantly larger than that of the partially restricted solution with a common intercept and the correlation of the completely restricted solution; but it is not significantly larger than the multiple correlation of the partially restricted solution in which a common slope and different intercepts are utilized.

---

*It would be possible, of course, for the correlation of the unrestricted solution to be significantly larger than that of the completely restricted solution while the correlations of the partially restricted solutions were not significantly different from either the unrestricted or the completely restricted solutions. This did not occur in this study and so is excluded from the list given here as an unnecessary complication to an already complicated topic.

III. The multiple correlation of the unrestricted solution is significantly larger than that of the partially restricted solution with a common slope and the correlation of the completely restricted solution; but it is not significantly larger than the multiple correlation of the partially restricted solution in which different slopes and a common intercept are utilized.

IV. The multiple correlation of the unrestricted solution is significantly larger than the correlation of the completely restricted solution; but it is not significantly larger than the multiple correlations of either of the partially restricted solutions, i.e. the solutions in which either the slopes or the intercepts are free to vary .

V. The multiple correlation of the unrestricted solution is not significantly larger than the correlation of the completely restricted solution.*

These outcomes characterize the analyses that follow and will be referred to therein by their Roman numerals.

It may not be clear why one might be interested in the partially restricted solutions. Basically the reason is parsimony. Frequently, when no restrictions are laid on the formation of the multiple regression equation the regression planes are laid through the data in a mathematically optimal but theoretically unintelligible fashion. In this event, the partially restricted solutions may recommend themselves. Clearly they do so more strongly when they are not significantly inferior to the unrestricted solution although still superior to the completely restricted solution. But even when the difference between the unrestricted and one of the partially restricted solutions is statistically significant, we may, for reasons of intelligibility, prefer to interpret one of the partially restricted solutions. In so doing we are placing higher value on our ability to make some sense

---

*This occurred with three of the independent variables, as already noted. Its occurrence eliminated them from further consideration.

out of the outcome than on the optimization of the goodness-of-fit of the data to a mathematical model.

One other comment is necessary. In the Figures included in this section results will be graphed in two dimensions. Strictly speaking this distorts the outcome since with five independent predictors a six-dimensional space is necessary to represent the results. However, the Figures are a permissible simplification since the five predictors are merely subgroups of the same variable and hence fall on the same dimension for graphing purposes.

Belief in the Efficacy of Work as a Dependent Variable

This variable is formed out of the sum of the following items:

1. What is the most important for the future of the people of this community -- hard work or luck? (2.054)*
2. What has most to do with why some families are rich -- hard work or luck? (1.897)
3. What's the most distant place you've ever visited? (0.455)

The first two items were scored such that people who indicated more belief in work received higher scores; the third item gave higher scores to people who had visited more distant places. As the weights show, about four-fifths of the variable comes from the first two items.

Mass media exposure classified on imaginativeness. The simple correlation between belief in work and exposure to mass media is .21. Cross-classifying the sample on five levels of imaginativeness, a significantly larger multiple correlation of .28 is formed.** The

---

*The weights applied to the items as derived from a factor analysis of modernization orientations are shown here.

**Significant at better than the .0005 level of confidence.

result of the cross-classification is an instance of a type IV outcome. In other words, it is permissible to assume in turn that (1) all the levels have a common slope and examine only the pattern of their intercepts or (2) all the levels have a common intercept and examine only the pattern of their slopes.

With the slopes restricted to equality and the intercepts free to vary we have a slope of .252 and a generally increasing pattern of intercepts.* In other words, if we assume that everyone increases the favorableness of his attitude toward work at the same rate per unit exposure to the mass media, then the best fit to the data occurs where the more imaginative groups of people start at a higher level of belief in work than do the less imaginative.

On the other hand, we can also assume a common intercept. Then we find a rising pattern of slopes as imaginativeness increases. In other words, if everyone started at the same level of belief in work, the best fit to the data occurs where the rate of increase per unit mass media exposure is greater for the more imaginative than for the less.** Under the assumption of a common origin, the more imaginative appear to derive more belief in work per unit mass media exposure than do the less imaginative.

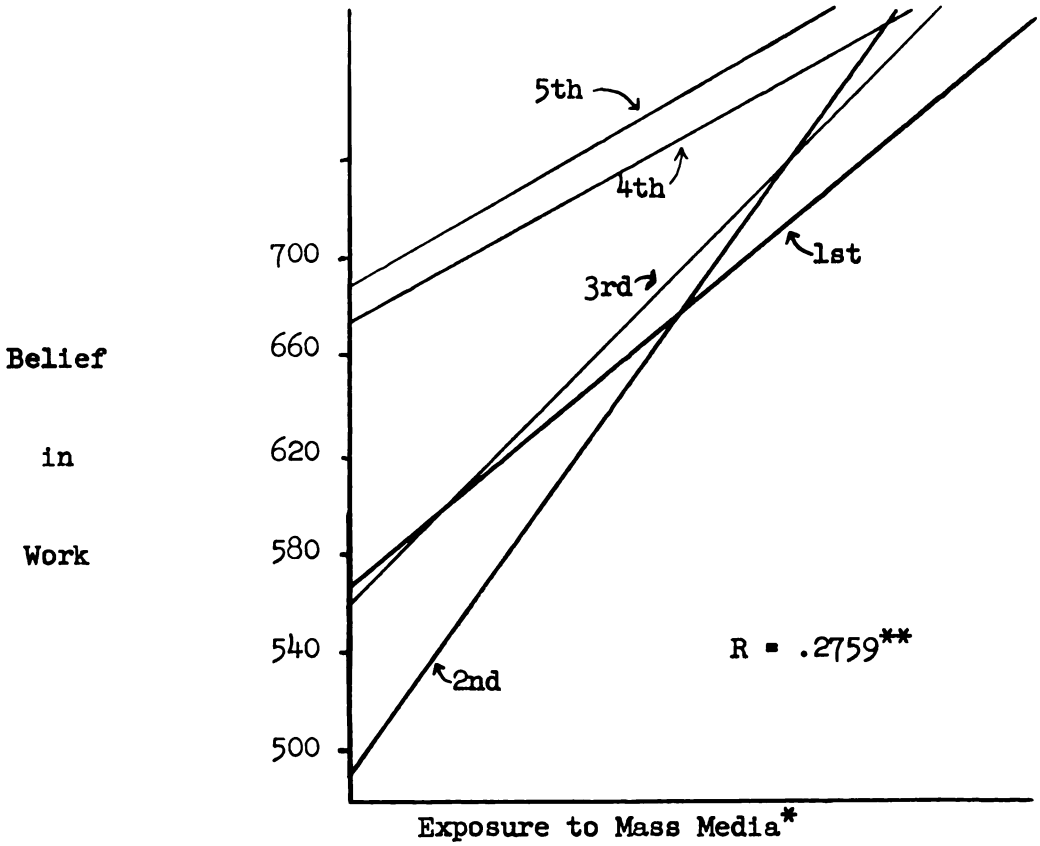
If we place no restrictions on either the slopes or intercepts we obtain the pattern graphed in Figure 4. This pattern is not easy

---

*These start at 580 for the lowest level and go to 609, 604, 632, and 648 respectively for levels two through five. Except for the small reversal for levels two and three, the intercepts rise as the level of imaginativeness rises.

**The slope for the lowest level is .18 followed by .24, .23, .27, and .30. Except for the slight reversal between levels two and three, the data conform to the hypothesized pattern.

Figure 4. Belief in work predicted by exposure to mass media: data classified on five levels of imaginativeness



Regression Analysis

Level of Control	Intercept	Slope*
5	686	.189
4	675	.178
3	559	.333
2	496	.459
1	562	.284

*The independent variable in the graph has been divided by a constant of 3 to display the slopes more effectively.

**Significantly greater at better than the .0005 level than the correlation of these variables without consideration of levels. That correlation is .2129.

to interpret. Ignoring small internal reverses, the intercepts form somewhat the same pattern as found earlier -- those with less imaginativeness tend to start lowest in their belief in work while those with more start somewhat higher. The pattern of slopes is more jumbled, particularly since the slope for the first level is more similar to that of the third level than that of the fourth. The data are presented below Figure 4. The best rough interpretation is that persons who have more imaginativeness start at a higher level of belief in work but increase on this belief more slowly per unit exposure than do persons low in imaginativeness. On the other hand, the most unimaginative (level one) increase their belief in work more slowly than do the somewhat more imaginative (level two). These show the most rapid increase per unit exposure, even though they start much lower.

Exposure to radio classified on imaginativeness. The simple correlation of belief in work and exposure to radio is .07.* Cross-classifying the sample on five levels of imaginativeness, a significantly larger multiple correlation of .23 is formed.** The result of the cross-classification is an instance of a type IV outcome. In other words, it is permissible to examine in turn only the pattern of intercepts or only the pattern of slopes.

With the slopes restricted to equality at .056 and the inter-

---

*Since the correlation between mass media exposure and radio exposure is low (.20) and the sample size large, the simple correlation for radio exposure is significantly smaller than that previously reported for mass media exposure, .21 (t = 3.14 with 773 degrees of freedom).

**Significant at better than the .0005 level of confidence.

cepts free to vary, the pattern of increase corresponds to expectations. The only exception is a slight reversal for levels two and three. The data are presented and graphed in Figure 5. It appears that if we assume no difference in rate of increase per unit exposure to radio, the best fit to the data occurs where the more imaginative start with more belief in work.

With slopes free to vary and a common origin selected on the ordinate the pattern shown in Figure 6 occurs. If everyone started with the same level of belief in work, the best fit to the data would occur where the rate of increase in belief in work is greater for the more imaginative. There is a slight reversal of pattern for levels two and three, but aside from this the results conform to the hypothesis.

If we place no restrictions on either the slopes or the intercepts we obtain an uninterpretable pattern. Since this is so and since the unrestricted solution is not significantly superior to either of the partially restricted solutions graphed in Figures 5 and 6, we will ignore it.*

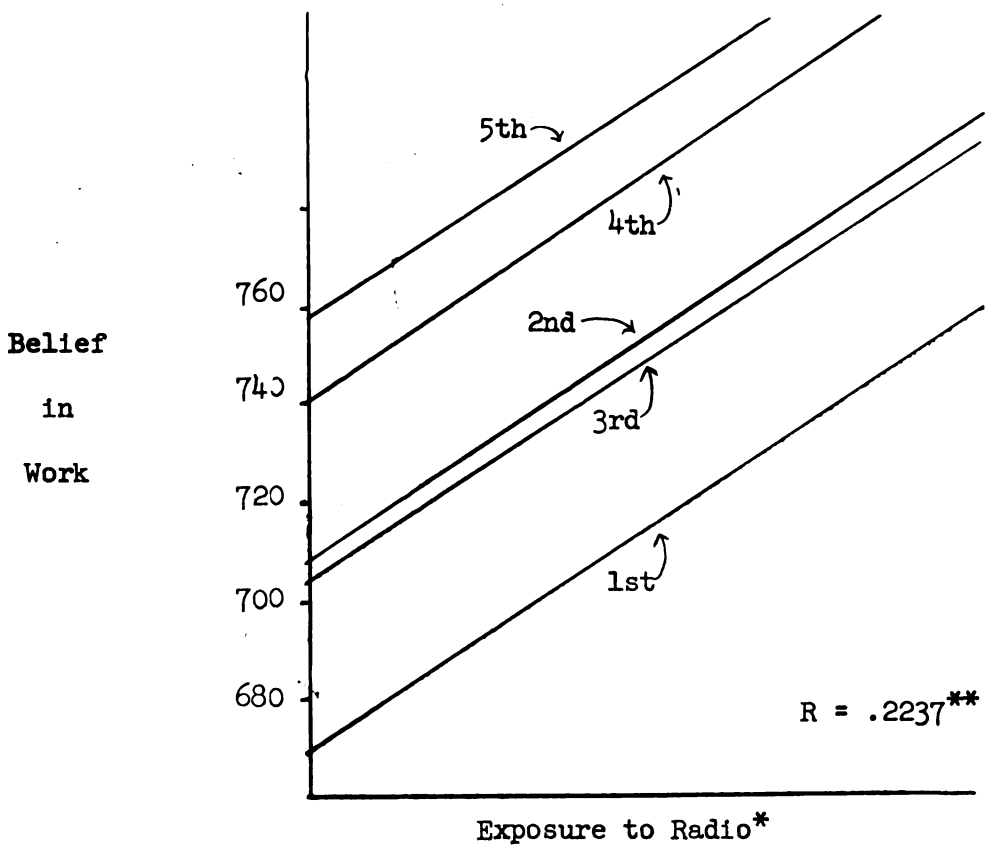
Mass media exposure classified on hypotheticals. The simple correlation of belief in work and mass media exposure is .21, as already reported. Cross-classifying the sample on five levels of hypotheticals produces a significantly larger correlation of .25.** The result of cross-classification is an instance of a type IV

---

*The pattern of slopes for this unrestricted solution is .103 for the lowest level followed by .038, -.008, .092, and .053. The pattern of intercepts is 647 for the lowest level followed by 720, 747, 714, and 762.

**Significant at better than the .0005 level of confidence.

Figure 5. Belief in work predicted by exposure to radio: data classified on imaginativeness, slopes made equal



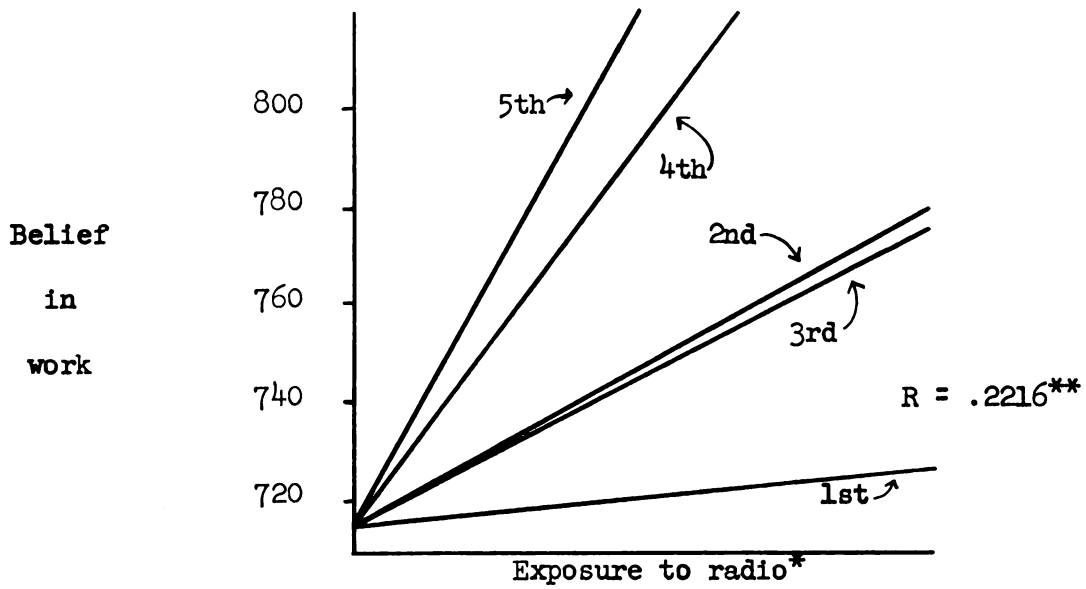
Regression Analysis

Level of Control	Intercept	Slope*
5	760	.056
4	742	.056
3	703	.056
2	708	.056
1	678	.056

*The independent variable in the graph has been divided by a constant of 10 to display the slopes more effectively.

**Significantly greater at better than the .0005 level than the correlation of these variables without the consideration of levels. That correlation is .0737.

Figure 6. Belief in work predicted by exposure to radio: data classified on five levels of imaginativeness, intercepts made equal



Regression analysis

Level of control	Intercept	Slope*
5	713	.120
4	713	.091
3	713	.040
2	713	.048
1	713	.006

*The independent variable in the graph has been divided by a constant of 15 in order to display the slopes more effectively.

**Significantly greater at better than the .0005 level than the correlation of these variables without the consideration of levels. That correlation is .0737.

outcome. In other words, it is permissible to examine in turn only the pattern of intercepts or only the pattern of slopes.

With slopes restricted to equality at .296 the now familiar pattern of increases in intercepts with increases in levels of hypotheticals is found.* Those higher on hypotheticals start with more belief in work when the rate of increase per unit mass media exposure is held constant.

With the intercepts constant we find the familiar pattern of slopes increasing as hypotheticals increase.** This indicates that if everyone started at the same origin those more skilled with hypotheticals would increase their belief in work more rapidly per unit exposure to the mass media. This outcome agrees with the hypothesis.

If we place no restrictions on either the slopes or intercepts we obtain the pattern graphed in Figure 7. In this pattern the intercepts generally rise (with two reversals, one from levels four to five and the other from levels one to two). On the other hand, the slopes generally drop in Figure 7 (with a single reversal from levels four to five). This indicates that while those with more hypothetical skill start higher at the present time, their rate of increase is a little slower per unit mass media exposure.

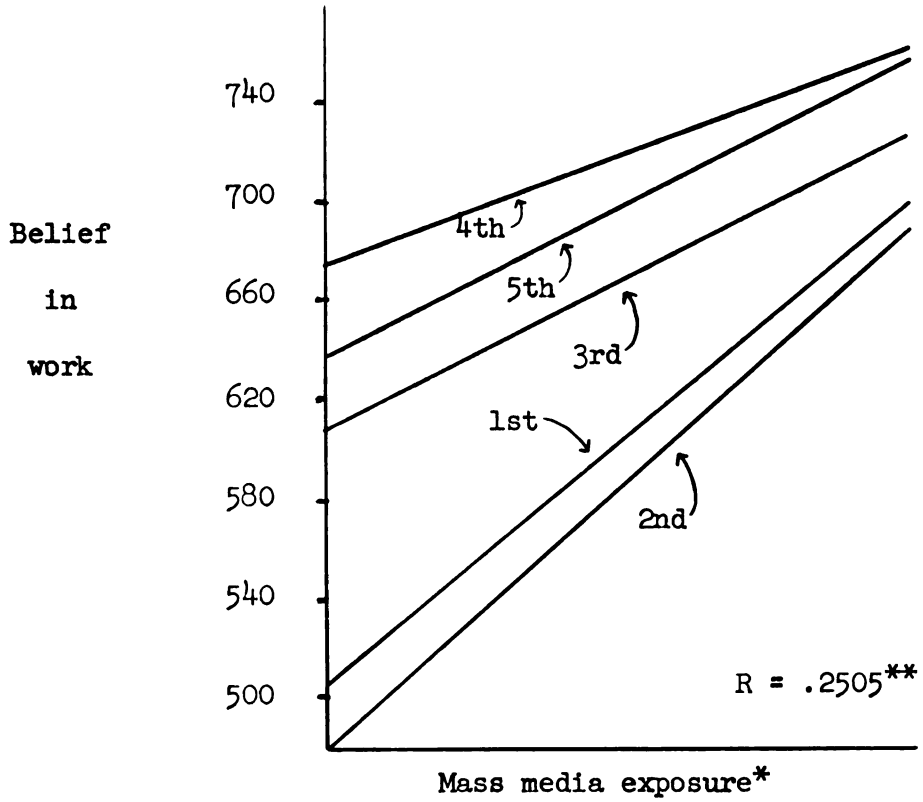
Exposure to radio classified on hypotheticals. The simple correlation of belief in work and exposure to radio is .07, as already

---

*The intercept for the lowest level is 576 followed by 569, 588, 605, and 610. The multiple correlation produced by this solution is .24. A minor reversal in pattern occurs moving from level one to level two.

**The slope for the lowest level is .274 followed by .262, .292, .318, and .327. The common intercept is 590. There is a reversal of pattern between levels one and two.

Figure 7. Belief in work predicted by mass media exposure: data classified on five levels of skill with hypotheticals



Regression Analysis

Level of Control	Intercept	Slope*
5	639	.246
4	677	.170
3	607	.263
2	490	.437
1	505	.426

*The independent variable in the graph has been divided by 2 to display the slopes more effectively.

**Significantly greater at better than the .0005 level than the correlation of these variables without the consideration of levels. That correlation is .2129.

reported. Cross-classifying the sample on five levels of hypotheticals produces a significantly larger multiple correlation of .17.* Again, the cross-classification results in a type IV outcome. In other words, it is permissible to examine in turn only the pattern of intercepts or only the pattern of slopes.

With the slopes equal at .0615 the intercepts rise as the levels of hypotheticals rise.** In general, the more hypothetically skilled start with greater belief in work when the rate of change per unit of exposure to radio is held constant. With the intercepts constant at 711 the slopes generally increase as the levels of hypotheticals rise .*** If everyone started at the same point those more skilled with hypotheticals would increase their belief in work more rapidly per unit mass media exposure. This conforms to the initial hypothesis.

When both slopes and intercepts are free to vary both patterns disappear and a jumble of regression lines is found.**** Since this unrestricted solution does not significantly improve the correlation between the independent and dependent variables over either of the partially restricted (and intelligible) solutions, we will not consider it further.

---

*Significant at the .024 level of confidence.

**The intercept for the lowest levels is 698 followed by 692, 710, 732, and 742. There is a slight reversal of pattern between levels one and two.

***The slope for the lowest level is .040, followed by .037, .060, .090, and .105.

****In order from lowest to highest levels, the slopes are .067, .033, .024, .197, and -.007; the intercepts are 738, 752, 736, 600, and 743.

Political Knowledge as a Dependent Variable

This variable was measured as the sum of correct answers to the following four questions:

1. Who is the present governor of Minas Gerais?
2. To what American country did Brazil send troops last year?
3. Who was the Brazilian President who was deposed by the revolution two years ago?
4. What Latin American country turned communistic a few years ago?

These items were selected by Guttman scaling procedures out of a pool of 11 items. The four survivors displayed suitable scaling characteristics.* All four items received equal weight in the index of political knowledgeability.

Since this variable was not converted to normalized form and made into a factor weighted score its regression slope on variables so structured appears to be very low. This is largely an artifact of score construction. It is removed in the Figures used in this section, but the regression coefficients are reported as they were produced by the computer.

Exposure to mass media classified on imaginativeness. The simple correlation of political knowledge and mass media exposure is .37. Cross-classifying the sample on five levels of imaginativeness a significantly larger multiple correlation of .44 is obtained. Restrictions on slopes closely approach significance (.06) while restrictions on intercepts reach it at .02. Strictly speaking, the result of cross-classification is an instance of a type II outcome. Statistically speaking, then, it is permissible to examine the pattern

*The measure was also relatively stable over time with a test-retest reliability of .66.

of the intercepts under the restriction of equal slopes but not permissible to examine the pattern of slopes under the restriction of equal intercepts. On the other hand, since the latter solution does represent a significant improvement over the completely restricted solution it may be worth holding in abeyance our knowledge that the restriction to a common intercept involves a statistically significant reduction and examine the pattern of slopes as well.

With a common slope of .00054 a pattern of increasing intercepts is found.* Therefore, if persons at all levels of imaginativeness increased their political knowledge at the same rate per unit mass media exposure, the more imaginative would start at a higher level of knowledge.

If we start everyone at the same level of knowledge, then the slopes of those high on imaginativeness are steeper than the slopes of those low on imaginativeness.** This fit of regression slopes to data clusters conforms to hypothesis.

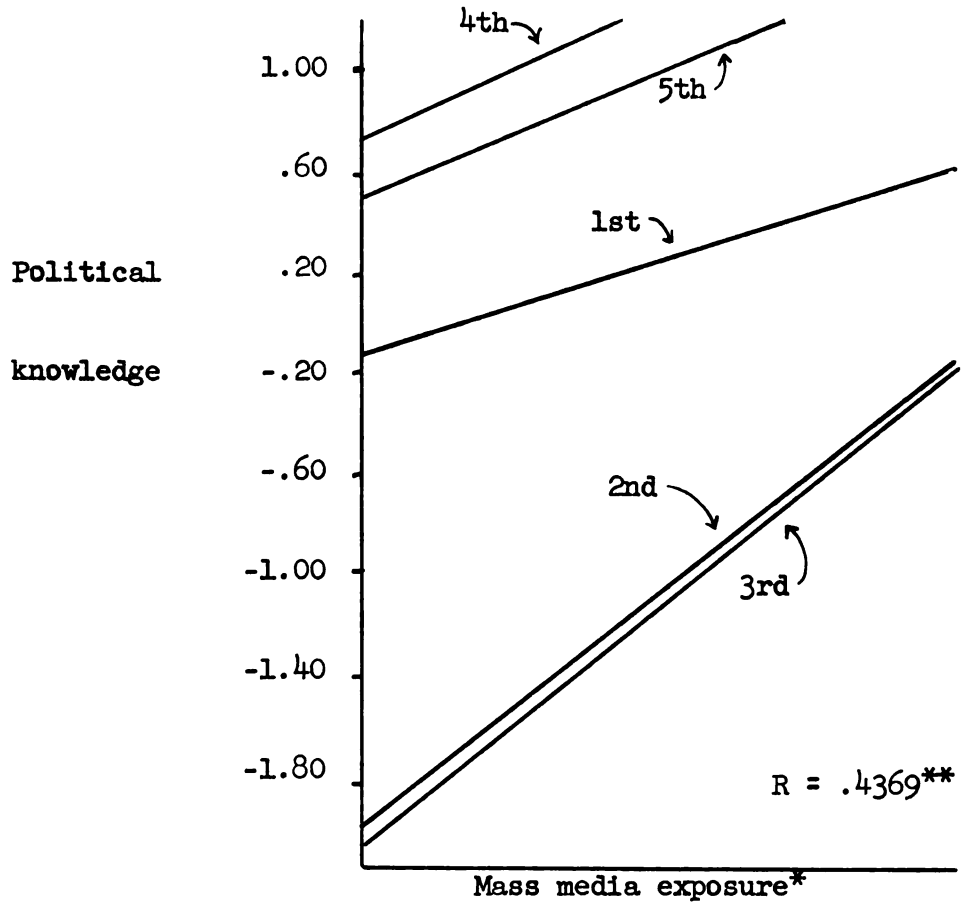
When we examine the unrestricted solution a more confusing pattern emerges. It is graphed in Figure 8. Persons in the second and third levels start considerably lower and increase more rapidly; those in the first level start higher but increase more slowly; those in the two highest levels increase somewhat the same as those on the first level but intercept the ordinate at a higher points. This pattern seems to suggest a take-off phenomenon. Those with

---

*For the lowest level of imaginativeness the intercept is -.87. This is followed by -.58, -.45, .04, and -.03. There is a small reversal of pattern for levels four and five.

**For the lowest group the slope is .00043. This is followed by .00049, .00051, .00059, and .00058.

Figure 8. Political knowledge predicted by mass media exposure: data classified on five levels of imaginativeness.



Regression analysis

Level of control	Intercept	Slope*
5	.47	.00045
4	.73	.00042
3	-2.17	.00085
2	-2.12	.00082
1	- .1539	.00040

*The independent variable was divided by 1000 to display the slopes more effectively.

**Significantly greater at better than the .0005 level than the correlation of these variables without the consideration of levels. That correlation is .3702.

enough imaginativeness begin to learn political information rather rapidly from exposure to mass media while those who have not reached a certain threshold of imaginativeness increase somewhat more slowly and those in the highest levels of imaginativeness also increase slowly.

Exposure to radio classified on imaginativeness. The simple correlation of political knowledge and exposure to radio is .18.* Cross-classifying the sample on five levels of imaginativeness a significantly larger correlation of .35 is obtained.** The result of cross-classification is a type IV outcome. It is permissible to examine both the pattern of intercepts and the pattern of slopes.

With a common slope of .000217 a pattern of increasing intercepts is found.*** With a common intercept the slopes likewise increase as hypothesized.**** The more imaginative increase their political knowledge more rapidly per unit exposure to radio.

The unrestricted solution is sufficiently difficult to inter-

---

*Since the intercorrelation between exposure to mass media and exposure to radio is low (.20) and the sample size large the simple correlation for radio is significantly larger than that previously reported for mass media exposure, .37 (t = 4.50 with 772 degrees of freedom).

**Significant at better than the .0005 level of confidence.

***For the lowest level of imaginativeness the intercept is .59. This is followed by .89, 1.00, 1.73, and 1.68. There is a slight reversal of pattern between the intercepts of the two higher levels.

****For the lowest level the slope is .00014. This is followed by .00019, .00020, .00030, and .00030.

pret that we will prefer either of the alternative, partially restricted, solutions.*

Mass media exposure classified on hypotheticals. The simple correlation of political knowledge and mass media exposure is, as already reported, .37. Cross-classifying the sample on five levels of hypotheticals, a significantly larger multiple correlation of .40 is obtained.** The cross-classification results in a type VI outcome. Thus, we may with statistical propriety examine either the pattern of intercepts or the pattern of slopes.

With all slopes at .000605 the familiar increasing pattern of intercepts is found.*** If individuals at each level of hypotheticals increase their political knowledge at a uniform rate per unit mass media exposure, then those with more hypotheticals start at a higher level of initial knowledge. With all intercepts set at -.73 the pattern of slopes is also one of increase as hypotheticals increase.**** If everyone starts at the same point in political knowledge those with more hypotheticals increase more rapidly per unit exposure to the mass media.

The unrestricted solution is difficult to interpret, and since it is not a significant improvement over the partially restricted

---

*From lowest to highest level the intercepts are .09, .27, 2.03, 2.70, and .73. The slopes, in the same order, are .000292, .000308, .000069, .000077, and .000350.

**Significant at the .022 level of confidence.

***The lowest intercept is -1.07 followed by -.88, -.78, -.54, and -.49.

****The lowest level's slope is .000545 followed by .000579, .000594, .000640, and .000642.

solutions just presented, no attempt will be made to interpret it.*

Exposure to radio classified on hypotheticals. The simple correlation of political knowledge and exposure to radio is, as already reported, .18. Cross-classifying the sample on five levels of skill with hypotheticals, a significantly larger multiple correlation of .26 is obtained.** Cross-classification results in a type IV outcome. It is, therefore, permissible to examine the pattern of intercepts or the pattern of slopes.

With all slopes at .000222 the intercepts increase as we pass from the lowest to the highest levels.*** If individuals at each level of hypotheticals increase their political knowledge at the same rate per unit exposure to radio, then those with more hypotheticals start at a higher level of initial knowledge. With all intercepts set at 1.07 the pattern of slopes is likewise one of increase with increasing levels of hypotheticals.**** If everyone starts at the same point on political knowledge, then those with more hypotheticals increase more rapidly per unit exposure to radio.

With both slopes and intercepts free to vary a jumble of patterns occurs. This jumble is particularly due to the fifth level,

---

*In order from lowest to highest level, the intercepts are -1.33, -.90, -.30, -1.16, and -.17; the slopes are .00065, .00061, .00052, .00071, .00055. Except for the reversal of pattern in the intercept of the fourth level, the intercepts at least would form a pattern of increase.

**Significant at the .01 level of confidence.

***The lowest intercept is .79 followed by .98, 1.05, 1.38, and 1.52.

****The lowest level has a slope of .000183 followed by .000212, .000221, .000262, and .000284.

which finds its intercept midway between the third and fourth levels and has a very gradual slope. Were it not for this level, the intercepts, at least, would fall into an interpretable pattern.* However, since the completely unrestricted solution is no improvement over either of the partially restricted solutions there is no need to interpret the unrestricted solution.

Favorable Attitude Toward Change as a Dependent Variable

This variable is formed out of the sum of the following items:

1. Whom do you trust most when it comes to new agricultural ideas, educated persons (2) or persons with practical experience (0)? (.475)
2. If you could change things around here would you leave them as they are (0) or make changes (2)? (.444)
3. Compared with your father's time would you say that farming has changed (yes and that's good = 3, yes and that's bad = 0) or has stayed the same (yes and that's good = 1, yes and that's bad = 2)? (.619)
4. Is the respect shown by youth for the aged changing? Is this good or bad? (same codes as 3 above) (1.169)
5. Do you think changes bring more problems (0) or more improvements (2)? (1.343)
6. Do you have much influence in the way things change around here? (.607)

The weights applied to the items are from a factor analysis of modernization orientations. They are given in parentheses next to the items.

Exposure to mass media classified on imaginativeness. A favorable attitude toward change correlates .59 with exposure to mass media. Cross-classifying on the five levels of imaginativeness produces a significantly larger multiple correlation of .62.** The cross-

*In order from lowest to highest level, the intercepts are .472, .390, .636, 2.830, and 1.755; the slopes are .000271, .000309, .000018, .000189.

**Significant at better than the .0005 level.

classification results in a type I outcome.* Nevertheless, the consideration of this data classified by levels while imposing either a common regression slope or a common intercept results in a significant improvement over the completely restricted solution. It happens that the unrestricted situation is readily interpretable. As can be seen in Figure 9, the intercepts rise regularly and the slopes fall regularly as we move across levels of imaginativeness. This indicates that persons who are more imaginative start with a more favorable attitude toward change and increase their favorableness somewhat more slowly per unit mass media exposure.**

Exposure to radio classified on imaginativeness. The simple correlation of a favorable attitude toward change and exposure to the radio is .18.*** Cross-classifying the sample on five levels of imaginativeness a significantly larger correlation of .36 is found.****

---

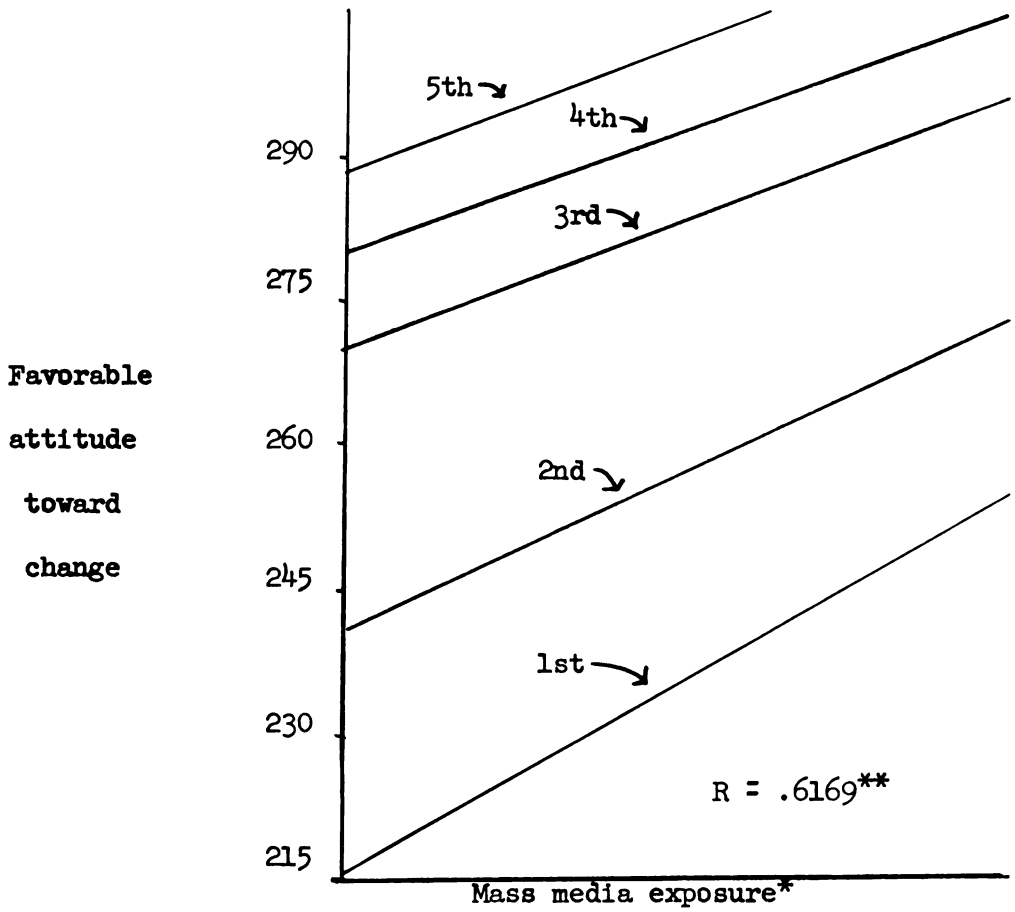
*The imposition of restriction on slopes is significant at the .018 level while the imposition of restrictions in intercepts is significant at the .002 level. Hence, both the hypothesis of a common regression slope and the hypothesis of a common intercept must be rejected.

**Were we to force all slopes to be equal the intercepts would continue to fall into a pattern of increase similar to that shown in Figure 9. Their range, however, would be restricted to only ten scale points rather than the 71 scale points they now cover. The lowest level would have an intercept of 261 followed by 262, 265, 271, and 271. Were we to use a common origin on the ordinate for all five levels the more imaginative would increase their favorableness toward change more rapidly (rather than less rapidly, as is the case with the unrestricted solution). The regression coefficients would be .181 for the lowest level followed by .183, .188, .198, and .197.

***Since the intercorrelation between exposure to mass media and exposure to radio is low (.20) and the sample size large the correlation with radio is significantly smaller than that previously noted for mass media exposure generally, .59 (t = 11.39 with 772 degrees of freedom). Apparently a favorable attitude toward change is more related to exposure to mass media in general than to exposure to radio for agricultural information

****Significant at better than the .0005 level of confidence.

Figure 9. Favorable attitude toward change predicted by mass media exposure: data classified on five levels of imaginativeness



Regression analysis

Level of control	Intercept	Slope*
5	288	.162
4	280	.175
3	270	.181
2	241	.229
1	217	.270

*The independent variable was divided by 2 to display the slopes more effectively.

**Significantly greater at better than the .0005 level than the correlation of these variables without the consideration of levels. That correlation is .5933.

Cross-classification gives a type I outcome. However, both partly restricted solutions do a considerably better job of predicting the dependent variable than would be the case if levels were ignored altogether. Thus, we might be willing to look at the pattern of slopes or the pattern of intercepts even in the face of knowledge that a significantly better prediction occurs when we consider both simultaneously, because a likewise significantly better prediction occurs when at least one of them is free to vary.

The unrestricted solution is difficult to interpret. Figure 10 depicts it. We see particularly that the intercept and slope of the second level depart from an otherwise regular pattern of increasing intercepts and decreasing slopes.

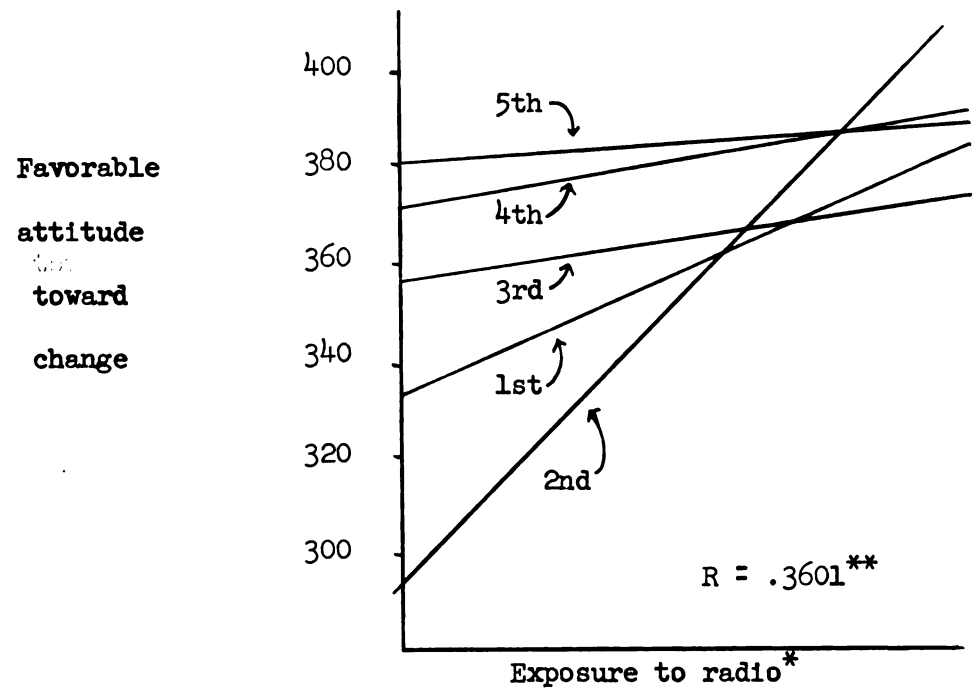
Since the interpretation of the unrestricted solution is not completely straight-forward, we will look briefly at the solutions with restrictions, even though we know these restrictions make the correlation significantly smaller than that found in the unrestricted case. With a common slope of .041 (which restriction is significant at the .01 level) a multiple correlation of .34 is produced and the intercepts have a regularly increasing pattern.* If a common intercept of 344 is set (which restriction is significant at the .001 level) a multiple correlation of .33 is produced and a regularly increasing pattern of slopes is found.** It would appear that if either an artificial starting point could be imposed or respondents at all

---

*They start at 336 and mount to 338, 341, 355, and 357 as we move up levels.

**The slope of the lowest level is .030 followed by .034, .037, .057, and .058.

Figure 10. Favorable attitude toward change predicted by exposure to radio: data classified on five levels of imaginativeness



Regression analysis

Level of Control	Intercept	Slope*
5	381	.0068
4	372	.0169
3	359	.0140
2	295	.1047
1	334	.0433

*The independent variable was divided by 10 to display the slopes more effectively.

**Significantly greater at better than the .0005 level than the correlation of these variables without the consideration of levels. That correlation is .1789.

levels of imaginativeness forced to increase the favorableness of their attitudes toward change at a uniform rate per unit exposure to the radio, then the more imaginative would either start at a higher level of favorableness or increase more rapidly. However, we know both conditions to be artificial and must defer for later investigation an explanation of the pattern of slopes and intercepts found in the unrestricted case. This explanation may involve an early take-off followed by more gradual levels of increase.

Mass media exposure classified on hypotheticals. The simple correlation of a favorable attitude toward change and exposure to mass media is, as already reported, .59. Cross-classifying the sample on five levels of skill with hypotheticals, a significantly larger multiple correlation of .62 is obtained.* Cross-classification gives a type I outcome.** However, either partially restricted solution is significantly superior to the completely restricted solution. Thus, we might be willing to look at the pattern of slopes or the pattern of intercepts, even in the face of knowledge that a significantly better prediction occurs when we consider both simultaneously, because a likewise significantly better prediction occurs when at least one of them is left free to vary.

The interpretation of the unrestricted case is not too difficult if we ignore the reversals of position of the top three levels when it comes to intercepts. Since the three are relatively

---

*Significant at better than the .0005 level of confidence.

**Restrictions on slopes reach significance at .039 while restrictions on intercepts reach significance at .005.

close together this may be permissible. The steeper slopes are associated with the first two levels followed by the fifth level. The relationships are shown in Figure 11.*

Exposure to radio classified on hypotheticals. The simple correlation of a favorable attitude toward change and exposure to radio is, as already noted, .18. Cross-classifying the sample on five levels of skill with hypotheticals a significantly larger correlation of .30 is produced.** Cross-classification gives a type I outcome. However, either partially restricted solution is significantly superior to the completely restricted solution. Thus, we might be willing to look at the pattern of slopes or the pattern of intercepts, even in the face of knowledge that a significantly better prediction occurs when we consider both simultaneously.

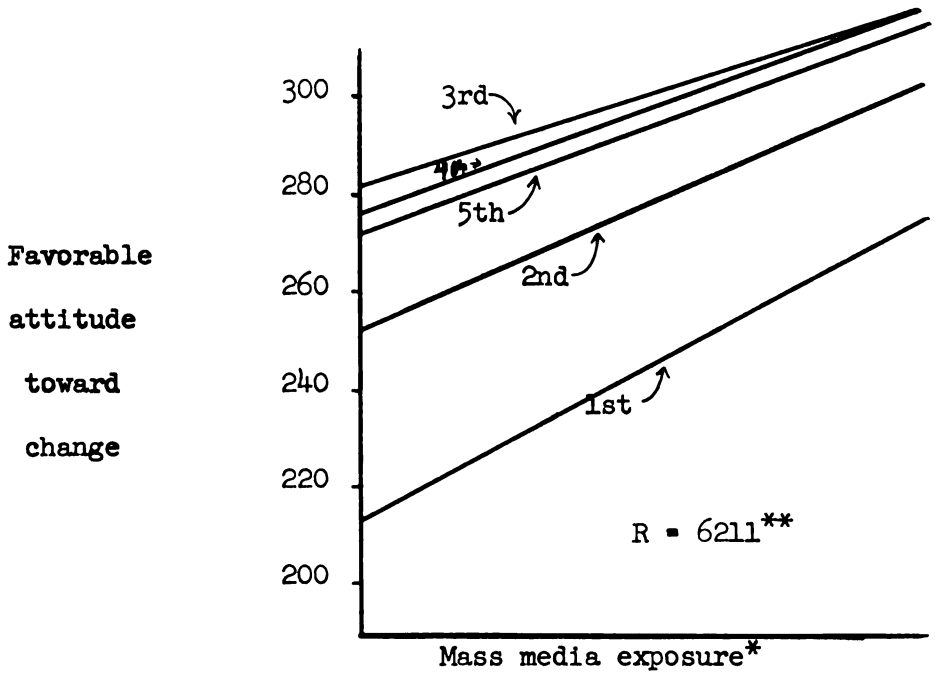
The interpretation of the unrestricted solution is decidedly difficult. The first level has both the lowest intercept and the highest slope but it is followed by the second level with a rather high intercept (above that of the fifth and third levels) and a very low slope. The fourth level has the highest intercept but a slightly

---

*Were we to allow ourselves the restrictions of a common slope set at .120 the pattern of intercepts would be one of consistent increase. The lowest level has an intercept of 252 followed by 263, 264, 264, and 266. Apparently, if everyone increased the favorableness of his attitude toward change at the same rate per unit exposure to mass media the more hypothetically skilled would start with a more favorable attitude. If we allowed the even stronger restriction of a common intercept set at 262, the pattern of slopes would rise with only one small reversal as the levels of hypotheticals increased. The slope for the lowest level would be .1812 followed by .1997, .2008, .2003, and .2040. As noted, either of these solutions would result in a significantly better prediction of attitude toward change from exposure to mass media than that found in the completely restricted solution.

**Significant at the .0005 level of confidence.

Figure 11. Favorable attitude toward change predicted by mass media exposure: data classified on five levels of skill with hypotheticals



Regression analysis

Level of control	Intercept	Slope*
5	273	.187
4	276	.172
3	281	.1670
2	253	.215
1	216	.263

*The independent variable was divided by 2 to display the slopes more effectively.

**Significantly greater at better than the .0005 level than the correlation of these variables without the consideration of levels. That correlation is .5933.

negative slope. An explanation of this pattern would be unusually unparsimonious, requiring several accelerations and decelerations of slope plus, apparently, a negative slope, somewhere toward the higher levels. The problem is shown in Figure 12.*

Summary

If we consider the improvement in goodness-of-fit brought about by cross-classifying the data just presented on the relationship of mass media to the individual's orientations and values, we can achieve a more compact notion of the value of the two aspects of empathy. A score can be derived for each of the 12 analyses just discussed by determining the improvement in predictiveness (the extra proportion of variance accounted for) attributable to the unrestricted solution resulting from cross-classification on a particular aspect of empathy.

Cross-classification on the aspect of imaginativeness added an average of 5.75 per cent to the variance accounted for; cross-

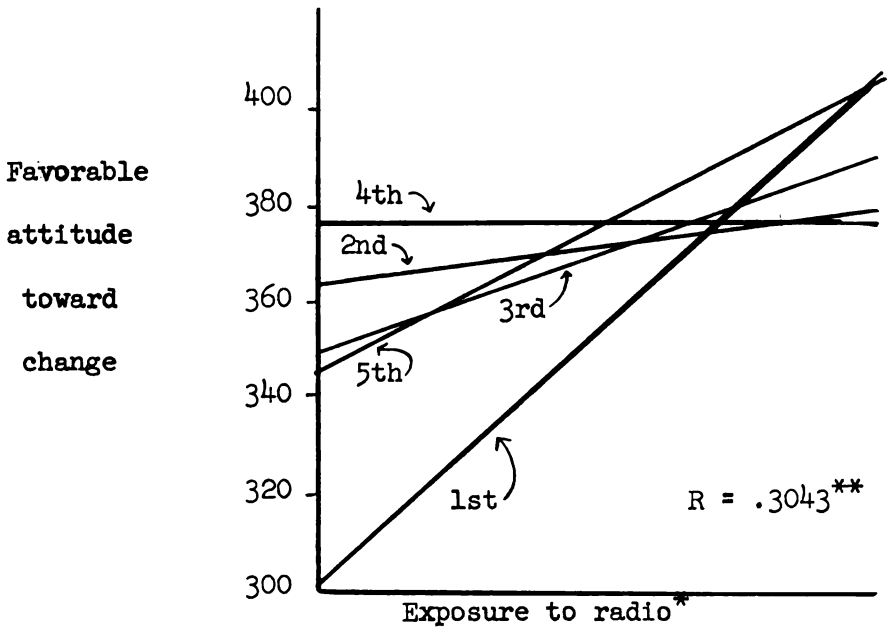
---

*If we entertain the restriction of a common slope set at .039 (which restriction is significant at the .035 level) the pattern of the intercepts is one of increase as we move up levels of hypotheticals. The lowest level has an intercept of 335 followed by 346, 347, 350, and 356. Clearly, if everyone increased the favorableness of his attitude toward change at the same rate per unit exposure to radio, those with more hypotheticals would start with a higher initial attitude.

Likewise if the restriction were allowed of a common origin of 345 (which restriction is significant at the .004 level) the pattern of slopes would be one of regular increase. The slope of the lowest level would be .026 followed by .041, .042, .046, and .054. In this instance, if everyone were to begin with the same level of attitude toward change but different levels of hypotheticals, those with more hypotheticals would increase the favorableness of their attitude more rapidly per unit exposure to radio.

As noted, either of these solutions would result in a significantly better prediction of attitude toward change from exposure to radio than the completely restricted solution which ignores hypotheticals.

Figure 12. Favorable attitude toward change predicted by exposure to radio: data classified on five levels of skill with hypotheticals



Regression analysis

Level of control	Intercept	Slope*
5	347	.0509
4	378	-.0002
3	350	.0343
2	364	.0123
1	301	.0903

*The independent variable was divided by 10 to display the slopes more effectively.

**Significantly greater at better than the .0005 level than the correlation of these variables without the consideration of levels. That correlation is .1789.

classification on the aspect of skill with hypotheticals added an average of 3.18 per cent. Six separate scores are involved in each average and the types of dependent variables and of mass media are confounded therein. Looking at the relationship another way, the predictive adequacy of exposure to radio was improved an average of 5.79 per cent while the predictive adequacy of exposure to general mass media rose an average of 3.14 per cent due to cross-classification on some variety of empathy. In these latter instances, the aspect of empathy and the three dependent variables were confounded.

Entering the twelve scores in two-way analysis of variance the significance of these differences plus the possibility of an interaction effect between the aspect of empathy utilized in cross-classification and the type of mass media can be investigated. Table 15 shows the resulting analysis of variance.

Table 15. Two-way analysis of variance of the degree to which cross-classification improves the predictive power of mass media variables for three modernization orientations, belief in work, political knowledge, and positive attitude toward change.*

Source of variance	df	Mean-square	F
Type of mass media	1	.00222	6.19**
Aspect of empathy	1	.00207	5.78**
Mass media--empathy interaction	1	.00045	1.26
Within	8	.00036	
Total	11		

*The three dependent variables are, of necessity, confounded in the analysis.

**Significant at the .05 level of confidence. The F value for 1 and 8 degrees of freedom at this level is 5.32.

We can be somewhat confident that, as the variables were measured in this study, cross-classification on imaginativeness leads to a greater improvement in prediction of these three dependent variables than cross-classification on skill with hypotheticals. Likewise, we may conclude that such cross-classification helps increase the strength of the relationship between exposure to radio and the dependent variables more than it helps increase the strength of the relationship between general exposure to mass media and these same dependent variables.* The interaction of mass media type and the aspect of empathy utilized in cross-classification is not significant.

Turning now to the regression estimates for these variables, we found, generally, that when we restricted all the slopes of the five levels to equality, in other words, when we accept the hypothesis of a common slope,** the intercepts of the five levels show a definite pattern of increase as we move up levels of a particular aspect of empathy. With the data cross-classified on imaginativeness there were only four reversals in this progression for the six comparisons.*** With the data cross-classified on skill with hypotheticals, only three reversals in the pattern of rising intercepts occurred. In none of the

---

*This might be a function of the lower initial relationship between radio and the dependent variables, i.e., there was more room for improvement with radio.

**This restriction was statistically acceptable with the first two dependent variables, belief in work and political knowledge, but not with the third, favorable attitude toward change.

***Under the hypothesis of random patterns, 30 such reversals would have been expected for the six comparisons. With more than five reversals per comparison, the opposite pattern of decreasing intercepts as levels increased would be a better fit to the data. Thus, the most random assortment possible is that involving five reversals for each of six analyses. One example would be a pattern like 5,1,2,4,3.

12 comparisons did more than one reversal occur. The reversals were mostly slight and happened at the extremes, i.e., between levels one and two or levels four and five.

It seems safe to conclude, then, that if the rate of increase per unit of exposure is made constant for all levels of empathy, the more empathic will start at a somewhat higher point on the dependent variable. In other words, if everyone learned at the same rate from exposure then the more empathic persons began at somewhat higher levels on these three variables.

If we impose the stronger restriction of a common intercept for all levels of empathy,* i.e., if we accept the hypothesis of a common origin for each of the five groups, the pattern of slopes is generally one of increase as we move up levels of empathy. Cross-classifying on imaginativeness there were only four reversals of this pattern and cross-classifying on hypotheticals only three. In a random situation 30 would have been expected in each instance. In none of the 12 comparisons did more than one reversal occur. The reversals were mostly slight with no particular pattern in their location.

It seems safe to conclude, then, that if all individuals started at the same point those in the groups higher on aspects of empathy would increase on the dependent variable at a somewhat faster rate than those in the less empathic groups, i.e., the more empathic became more modern on these three dependent variables somewhat more rapidly per

---

*This restriction was statistically acceptable with the dependent variable of belief in work, acceptable with a single exception (imaginativeness cross-classifying the relationship with mass media) for political knowledge, and unacceptable for the four comparisons involving favorable attitude toward change.

unit of media exposure.

If we impose no restrictions on the data, the pattern for intercepts generally remains one of increase whereas the pattern of slopes generally reverses and becomes one of decrease as we move up levels of empathy. With the data cross-classified on imaginativeness there are 11 reversals of this pattern of intercepts and 16 reversals of this pattern of slopes. In no instance would the opposite patterns provide a better fit. For one of the comparisons we come close, however, with four reversals in both the slopes and the intercepts.* In another we have a perfect fit with no reversals in either slopes or intercepts.** Cross-classifying on skill with hypotheticals we find 17 reversals of the intercept pattern and 19 reversals of the slope pattern.

In general, if we stay with a linear model, the best approximate description of the typical unrestricted situation consists of the more empathic groups starting at higher levels on the dependent variables and increasing somewhat more slowly than the less empathic as they receive more units of exposure. However, the linear model is frequently a poor fit to the data and at least occasionally a model postulating a take-off phenomenon would fit better.

It may be noted that the regression coefficients in these analyses are typically small. While this is artifactual with the variable of political knowledge, the artifact there can be largely

---

*This is for political knowledge predicted from general exposure to mass media.

**This is for favorable attitude toward change predicted from general exposure to mass media.

removed by multiplying the coefficients by 1000. After doing this the coefficients are still quite small. Since both dependent and independent variables are standardized in the analysis this indicates that rates of increase per unit of media exposure are very low. We may have confidence that they exist, but we are looking at a long range phenomenon involving cumulative, reinforcing effects rather than a one-shot change in modernity of attitudes and knowledge resulting from a single experience with the media. At least, this is likely in the vast majority of instances.

If we consider only the unrestricted situation, the general hypothesis that levels of empathy differentially facilitate the decoding of the modernization import of the mass media is not supported if we attend to the slopes (rate of increase per unit of exposure), but is supported if we attend to the intercepts (points of origin). Since we have attempted to stop a process by slicing through it at one point in time, a plausible explanation for this outcome can be devised which allows us to retain, with modification the hypothesis that levels of empathy contribute differentially to the decoding of the mass media. This modification will be discussed in the next chapter.

VII. REGRESSION ON TRIPS TO THE CITY OF PREFERENCE FOR THE CITY, WITH AND WITHOUT CROSS-CLASSIFICATION ON ASPECTS OF EMPATHY

The same aspects of empathy are considered in this section as in the previous section. However, the independent and dependent variables are different. From a factor analysis of modernization orientations two factors were selected, one having to do with a

preference for living in the city or the attractiveness of the city to the individual and the other composed of travel to the city and a negative pole of fatalism or distrust of modern sources of ideas. These factors were named "preference for city" and "urban exposure" respectively. The items composing them and the factor weights utilized in obtaining scores are shown below:

Preference for living in the city

1. Under the same conditions would you prefer to live here or in the city?
   1a. Would you like to visit the city (country) from time to time? (2.457)
2. If you made twice as much in the city (half as much in the city) would you still prefer to stay here (stay there)? (2.903)

Urban exposure

1. What do you trust when it comes to new agricultural ideas, education (2) or practical experience (0)? (-.354)
2. Do you think persons' actions and character are determined mostly by what they get from their parents or by themselves? (-.520)
3. In the last year, how often did you go to a large city? (.837)
4. Have you visited a friend or relative in the city during the past month? (1.051)
5. What's the most distant point you've ever visited? (.420)

The correlation of preference for living in the city and urban exposure was .24. Cross-classifying on skill with hypotheticals raised the correlation to .25. The increase is not significant (a type V outcome) and hence it is not useful to examine the pattern of relationship for various levels of skill with hypotheticals.

Cross-classifying on imaginativeness the correlation was raised to .27. This increase approaches significance at the .066 level. Strictly speaking, a common regression line may be accepted for this relationship. Since the patterns of intercepts and slopes in the unrestricted solution show no interpretable relationship we will accept

the verdict of no significant improvement through consideration of levels of imaginativeness.

VIII. EVIDENCE ON THE PREDICTIVE UTILITY OF TWO ASPECTS OF EMPATHY

In order to get another kind of evidence about the value of the aspects of empathy which have been under scrutiny in the last two sections, skill-with-hypotheticals and imaginativeness, these aspects, as defined by their factor scores, were included with six other predictors in a series of least squares routines predicting eight modernization variables, viz. aspirations for children, value for dissatisfaction, belief in the efficacy of work as opposed to luck, favorable attitude toward change, urban exposure, preference for the city, degree to which the individual ponders problems affecting his community, and political knowledge. The other six predictors were claimed use of radio for agricultural information, claimed use of other mass media, involvement in ACAR programs, trust of the ACAR extension agent, level of literacy, and intelligence. Each of these variables was a factor score derived by appropriate procedures.

The data are shown in Table 16. Predictors retained longest have higher ranks in Table 16. The sum of these ranks appears on the right-hand side of the Table. We see quite clearly that the three strongest predictors are mass media exposure, literacy, and intelligence, each of which has a sum of ranks across the eight dependent variables of 45. These variables are retained in the final prediction equations five, three, and two times respectively. They are also predominant in those multiple correlations which reach the most satisfactory levels. In contrast, imaginativeness is retained twice, once where

Table 16. Relative adequacy of two aspects of empathy -- skill with hypotheticals and imaginativeness -- in competition with other predictors of eight modernization orientations*

PREDICTOR VARIABLES	MODERNIZATION VARIABLES								
	Aspirations	Values dissatisfaction	Belief in work	Favors change	Urban exposure	Likes city	Thinks about problems	Political knowledge	Sum of Ranks
Skill with hypotheticals	8*	6	1	4	1	2	7	1	30
Imaginativeness	2	5	8*	5	3	6	1	5*	30
Radio use	1	4	2	2	5	1	2	3	20
Other media use	4	1	7*	8*	8*	8*	3	6*	45
Involvement in ACAR programs	7	3	3	6*	4	3	4	4*	34
Trust of ACAR	3	8*	5	1	2	7	6	2	34
Literacy	6	2	6*	3	7*	5	8	8*	45
Intelligence	5	7	4	7*	6	4	5	7*	45
Multiple correlation after deletion	.12	.08	.28	.68	.30	.10	.00	.55	

*Numbers in the Table indicate the rank order of deletion of predictors; larger numbers mean the predictor was retained longer. Asterisked numbers were retained in the final solution.

it is the best predictor of belief in work, and once where it aids in predicting political knowledge. Skill with hypotheticals, which is based on the role-taking items, is retained only once. It is the lone surviving predictor of aspirations with a correlation of .12. The only predictor in the group which is inferior to the two aspects of empathy for prediction of these dependent variables is the use of radio for agricultural information. This variable has a sum of ranks of only 20 and never survives the deletion process.

Skill with hypotheticals performs best (in the deletion sense) where the multiple correlation is low. If the eight modernization variables are dichotomized into those which have high multiple correlations and those which have low multiple correlations, skill with hypotheticals obtains 77 per cent of its sum of ranks on the lower half. In contrast the best predictor, exposure to mass media (exclusive of radio), has 64 per cent of its larger sum of ranks on the upper half.

CHAPTER IV

SUMMARY, DISCUSSION, AND CONCLUSIONS

I. SUMMARY OF RATIONALE AND PROCEDURES

This study focused on the modernization of the traditional (and particularly, the rural) individual in developing nations. It further focused on the contribution of empathy in the modernization process. Empathy was viewed as a capacity for discriminating subtle cues in the environment and utilizing these cues in a flexible, imaginative fashion together with other information to optimize the attainment of goals. The traditional meanings of empathy were examined and criticized, viz. empathy as insight into the feelings of others, as interpersonal perceptiveness, and as capacity to place oneself in others' roles. Two newer approaches were presented which tied empathy more closely to the modernization process. The first approach, an extension of Mead's theory of symbolic interaction, suggests that the more empathic individual develops a more adequate and differentiated generalized impersonal other which helps him learn from and interact with strangers, particularly in an urban milieu. The second approach suggests empathy as an instance of hypothetical thought or general cognitive flexibility. The more empathic individual is seen as more capable of examining the components of the decision process, incorporating relevant new information into the decision matrix, and working through the consequences of departures from the usual way of doing things.

Other links were discussed between empathy and modernization,

and a model was presented of empathy's development and contribution to the transformation of the traditional individual. We noted that empathy was only one variable of potential importance in the process and that other variables, such as literacy (with its presumed impact on facility with abstract, symbolic manipulation), might make more direct contributions to the process than did empathy.

Since the discussion of empathy uncovered many more implications than could be tested in a single study, we narrowed our focus by specifying three general areas of concern: (1) the nature of empathy as a variable, i.e. its dimensionality, stability over time, the possibility of a new system for measuring empathy, and its relative importance as a predictor; (2) the place of the more empathic individual in communities of greater or lesser traditionalism; (3) the relations between mass media or urban contact and empathy, e.g., whether aspects of empathy play mediating roles in the impact of messages coming through these channels.

To investigate these concerns data were gathered in two waves of interviewing during 1966 in the rural sector of the State of Minas Gerais, Brazil. From the first wave 775 usable schedules resulted; from the second wave 1302 resulted. Many indices of variables were developed through factor-score procedures; some were developed through Guttman scaling. The tests of the hypotheses involved primarily comparisons of appropriate correlations and/or regression coefficients. The dimensionality of items tapping aspects of empathy was investigated through factor analysis. Other factor analyses were run to investigate empathy's relationship with other variables of interest. Multiple regression equations were utilized

to evaluate empathy's value as a predictor of modern orientations.

II. RESULTS: THE NATURE OF EMPATHY

Factor Analysis

The results of the factor analysis of 18 items intended to tap empathy generally indicated that aspects of empathy can and should be distinguished. The first principal axis factor accounted for only 16 per cent of the variance, indicating that more than one factor was necessary to explain the correlation matrix. The behavior of two of the aspects distinguished subsequently indicated that there may be some utility in making the distinction.

The Lerner-type role-taking items tended to be more impurely loaded and to have somewhat lower loadings than those items which asked about the individual's role knowledge, his interaction with strangers, or his imaginativeness. The mere fact of counterfactual format in the Lerner-type item (i.e., "What would you do if you were____?") did not assure that all items with this format would load together on a factor. For instance, when the blank was filled by "the poorest person around here" or "the ACAR agent" the items did not reliably appear with others calling on the individual to play the role of President or Prefect. This would appear to discourage the notion that it is the hypothesizing character of the role-taking question which is paramount. Rather, what is paramount may be the substance of the question (e.g., the social distance from the respondent of the role in which he is to place himself).

This consideration would appear to cast doubt on the uni-dimensionality of the role-taking type of question or its utility

as a measure of an important dimension of modernization. They consequently discourage the interpretation of these particular role-taking questions as one major form of hypothetical thought and tend to suggest that the role-content specified makes most of the difference, not the counterfactual format.

This conclusion is bolstered by the fact that the person's ability to imagine others believing differently about something he strongly believes to be true shows no relationship to any of the empathy items. Indeed, it has no strong relationship to any other item in the study.* While the item was badly skewed in the positive direction (78 per cent said they could imagine someone believing differently), its lack of relationship to other empathy items seems to indicate that the area of empathy so measured may not be subsumed so easily under the rubric of "skill with hypotheticals."

On the other hand, the emergence of self-professed imagination (or "thinking" dimension) as an important variable may represent a useful extension of our understanding of mentality of the rural populace in Brazil. This dimension appears to be somewhat independent of formal education and measures of intelligence. We will later examine its relationship to the prediction of other modern orientations. It will be remembered that imaginativeness generally was more useful as a classifying variable in the regression analysis than was skill with hypotheticals.

There is one contradictory piece of evidence which should be introduced in defense of the role-taking or hypothetical skills

---

*Its highest correlation was with political knowledge ($r = .16$).

variable. When the Lerner-type empathy items were summed for each individual, and these sums were aggregated for the community in the form of a mean, and this score was submitted to factor analysis together with other scores similarly aggregated to describe the characteristics of the community's leaders, empathy emerged as an important variable in the second factor. This factor appeared to involve other variables indicating skill in interpersonal relations at the community level. It should be emphasized that this analysis is of community rather than individual characteristics. This evidence would appear to encourage the notion that empathy as measured with the typical role-taking question is more relevant to interpersonal perceptiveness and group harmony than to skill with hypotheticals.

Reliability

Over a six-month period the test-retest reliability of an index of empathy composed of three role-taking items was 29.* In traditional testing and measurement circles, studies based on this level of reliability would be discarded. An examination of the other indices indicated that this aspect of empathy was not the worst in terms of test-retest reliability and that among the more subjective measures

*There is a possibility that certain individuals were mistakenly paired in this analysis. The pairing process was accomplished by coders who could read the handwriting of the interviewers and was only indirectly supervised and checked by the author. Some outright coder error could have occurred, or two persons with the same name, perhaps junior and senior, might have been paired. This latter possibility was considered in examining the absolute discrepancies between ages of the respondents over the six months and eight individuals who "became" more than nine years older or younger during this period were excluded from the analysis. This exclusion did nothing for the reliability of the empathy measure. The higher reliability coefficients reached by the mass media exposure indices, which are likewise somewhat subjective, tend to discourage the explanation of low reliability of empathy as a function of coder error.

it fared rather well. This, of course, does not say much for the other subjective measures.

It is interesting to note that the reliability of the three-item index (.29) is not greater than the reliability of the highest item in that index -- taking the role of the Prefect (.34). The test-retest correlations for the other two items were .17 for the President and .29 for the ACAR agent. If we accept the dictum that additional items improve the reliability of an index only if the items tap the same underlying dimension and thus contribute a small portion of true measurement which is retained in their summation with other similar items while the error or unique variance is randomly cancelled out, this appears as evidence that these three items do not necessarily lie on the same dimension.

To the extent that role-taking ability amounts to a projective test, the rationale used by devotees of projective testing to explain the typically low reliability of projective tests over time might apply. Low reliability over time is to be expected when the phenomena under study fluctuate wildly. If people with manic-depressive tendencies, for example, happen to be tested for depression with a projective test on a day when they are manic, there will be no necessary correlation a few months later when some have passed into a depressive state and others have not. If a person's tendency to take a role adequately when called on is highly dependent upon his breakfast that morning or his latest visit to the movies or some other idiosyncratic event, then the score may be quite valid for the moment in which it is taken, without there being any sizable correlation with a score on the same measure at a later time.

However, to the extent this posture is assumed, the ability to make predictions about trends for types of individuals on the basis of empathy is undermined. Unless an individual, clinical approach is utilized and the person is studied over time with repeated measures of his empathy to gain a notion of its periodicity or the events to which it is reacting, the variable has little to recommend it. And neither our measurement devices nor our research resources were at a level to justify such intensive study of a single variable.

It is also possible that the differences introduced in coding empathy between time one and time two made for a lower correlation. Certainly, had the system finally utilized in Phase II been used with the Phase I data as well, a somewhat higher test-retest correlation would be expected. Even if we use the upper confidence limit of the obtained correlation (.40) as the measure that would possibly have been obtained if the second, superior coding system had been utilized each time, the correlation would still not satisfy measurement and testing specialists.

Thus, we may conclude that empathy, as measured by the survey techniques here used, is not a very reliable attribute, and it finds itself in company with even less reliable measures of other important subjective attributes. The reliability ceiling in these two surveys would appear to be about 75 per cent common variance. This level was attained by reports of age. If the reliability of age is taken as a criterion of excellence, then empathy indices composed of three items are about one-eighth as reliable as age in these surveys. The reliability of empathy could undoubtedly be increased through the utilization of more items if these were drawn from the same under-

lying dimension. If the hints contained in the relative reliabilities of the individual items are not misleading, it would appear that estimates on the adequacy of role-taking for roles in closer contact with the individual (the ACAR agent and the Prefect of the Municipality) are more reliable than estimates based on high-status roles such as that of the president.

The Adequacy of a New Measure Using Interviewers' Judgments

We found evidence that two new measures of empathy which utilized interviewer judgments of the degree to which individuals took the roles called for in 13 items in the Phase II instrument were equal or superior to the measure utilizing the sum of the empathy items as coded in the office. One of the new measures correlated .70 with the traditional coder-derived scores on empathy, the other .38. They were at least as effective as the traditional measure in predicting modernization behaviors. Indeed, if the two new scales were utilized together, they outperformed the traditional measure on some variables.

The two new scales were composed of different kinds of items. The first scale was composed of interviewer-estimates primarily for role-playing items. The second scale took interviewer-estimates primarily for items having to do with economic eventualities and situations. Thus neither one provided a content-free measure of skill with hypotheticals. However, the ease with which they can be collected, their apparent utility, and the possibility that they will demonstrate considerably greater reliability, if only because more items can easily be included in them, leads to a glimmer of hope about the measurement problem.

What may we conclude? It is usually less effort to ask the interviewers to judge the degree to which subjects placed themselves into the role-playing questions than to train coders in the reliable coding of the portion of the response preserved in the questionnaire, and it is much less time consuming. The scale based on interviewer estimates of Lerner-type role-taking items correlates .70 with the empathy index based on coder judgments. This would seem to be a quick way of getting a good measure of empathy.* At the same time, a somewhat independent estimate of hypothetical thinking can be derived from interviewer judgments of the degree to which the respondents placed themselves in the roles or situations called for in other items in the questionnaire. This scale or index apparently would make an important contribution to predicting behaviors like the adoption of agricultural practices. However, such a scale might become confounded with the variables the items from which it is derived were originally intended to measure. Thus, a better approach would seem to lie along the following lines:

1. If interested in empathy, ask the traditional role-taking empathy questions.
2. Ask the interviewers to judge whether or not the respondents placed themselves in the roles called for (2 if "yes," 1 if "not sure," and 0 if "no").
3. Sum these interviewer judgments as a measure of empathy.
4. If there is energy and time available, scale them for greater precision.

---

*This will be particularly true if the judgments of the interviewers are submitted to Guttman scaling procedures; but very probably the trichotomous scoring system used would correlate highly with the Guttman scale which refines it, and it may not be worth the extra effort of scaling.

If our experience is any guide, this should give an estimate which is as good as, if not better than, the original index derived from the training of coders in terms of predicting other modern behaviors. Since this approach puts less burden on the researcher at the point of the coding of data, more empathy items might be included to improve reliability and increase variance. Very possibly items of a non-political nature would make a better contribution than the political items which have come into greater currency in recent studies. This hunch will require more study before it can be said to have empirical support, however, since the results with the four items we used were based on an analysis suggested by the data rather than derived from a prior theoretical rationale and subjected to testing.

Empathy's Value as a Predictor

The measures of empathy derived from interviewer ratings and the empathy index produced a multiple correlation of .40 with average adoption levels from the Phase II data. When the individual items composing the empathy index were compared for predictive utility with the two Guttman scales formed from interviewer judgments we found that the non-political items from the index tended to survive longer. This suggests the possibility that the use of only political items in empathy indices subsequent to Lerner's initial presentation of empathy may lower empathy's predictive value. We would urge that future operationalizations include non-political roles. Other kinds of hypothetical items might also be considered.*

*It may be worth noting that the original index utilized by Lerner contained only three explicit role-taking items. The other

The aspects of empathy derived from Phase I data by factor analysis did not fare well in comparison to literacy, intelligence, and mass media exposure when all were placed in eight separate least-spares-deletion routines. Mass media exposure, literacy, and intelligence survived deletion longest and were prominent in solutions with more satisfactory levels of multiple correlation. Imaginativeness was retained twice and skill with hypotheticals only once in the eight tests. Apparently empathy is a less important consideration in the prediction of at least the eight variables we considered than intelligence, literacy, or mass media exposure.

We can tentatively draw a number of conclusions about the empirical nature of empathy as usually measured, about its utility as a predictor, and about substitute measures for the concept. These are summarized below:

1. Empathy as skill with hypotheticals or role-taking can be distinguished from other empathy type items as a separate factor in a factor analysis.

    a. Its loadings, stability and purity will not be as adequate as those for other factors.

    b. Not all items in the counter-factual role-taking format (i.e. "What would you do if you were___?") will load together.

2. Two other aspects of empathy may be distinguished:

---

six items were culled from a variety of areas, some of them involving estimates about mass media penetration, others imagination of oneself in another country, etc. Perhaps because the theoretic description of the index given by Lerner centered on the role-taking character of the index, or perhaps because the name "empathy" adopted for it led back to role-taking conceptualizations, the role-taking type of item was the only one to survive in subsequent uses of the empathy index (e.g., Frey, Eister, Rao, and Rogers and Herzog). The conceptualization of the index as involving skill with hypotheticals or capacity for imagination might have avoided this concentration on a single type of item.

(1) imaginativeness and (2) role knowledge plus facility in dealing with strangers.

   a. The latter aspect may be further subdivided into two components.

   b. The latter aspect emerges earlier in the factor analysis, and remains stable until it subdivides.

3. When empathy items are factor analyzed together with a large pool of items intended to measure other characteristics, they tend to cluster together around the imaginativeness items.

   a. The role-knowledge items are exceptions; they load with other knowledge indices.

   b. Role-taking items and facility with strangers have lower loadings than the imaginativeness items.

   c. Items on thinking about community problems and their solutions load in as important components of the factor.

4. If empathy is considered on a community level, with data aggregated to represent the characteristics of community leadership, then it loads together with indices of trust, exchanges of best-friend nominations, and utilization of radio. This appears to imply an interperson-perceptiveness utility among the role-taking items rather than a skill-with-hypotheticals dimension.

5. As a predictor of other modernization orientations and attitudes the measure of empathy focusing on imaginativeness is retained more often in the prediction equations than the measure focusing on skill with hypotheticals, but neither is as important as mass-media exposure, literacy, or intelligence.

6. Empathy as role-taking has low test-retest reliability.

7. A more adequate measure of empathic role-taking may well be obtained from interviewer ratings than from coder judgments, and the saving in coders' time might justify the inclusion of more interviewer-rated role-taking or hypothetical items, thereby possibly increasing reliability of the measure.

Critique of the Conclusions

There are a number of possible artifacts which may explain the relatively poor showing of the role-taking items. First, the coding of the items may not have focused on the adequacy of the role-taking represented by the responses preserved in the questionnaires. The

coding system was subsequently changed to record degrees of role-taking more adequately. The coding systems utilized the degree of specificity of the response as a criterion of more thorough role-taking. The respondent who said more (or whose interviewer bothered to record more) was almost certain to obtain a higher score.

Second, a factor analysis can produce factors only for the data that are put into it. The context of the analysis is highly important. We saw this when we ran the factor analysis with a larger pool of items or when we first aggregated the data to the community level. Perhaps more careful thinking-out of the items to include in the factor analysis of empathy would have resulted in a more powerful role-taking factor.

In the process of trying to cover many variables and yet keep the research instrument brief, we were led to include, in some cases, only a single item or two items to measure a particular area. Instead of cursory measures of many areas, the result was a series of inadequate measures which were of no value whatsoever. Rather than eliminate items because they showed correlation with other items, we should have eliminated variables of less central concern and interest and included more correlated items tapping the same conceptual areas.

Despite all this, there appears to be sufficient evidence to make us reconsider the value of the usual role-taking items. Their unidimensionality is not secure, they are troublesome to code, and they are of less utility, apparently, than other variables for predicting orientations and characteristics at the individual level. At an aggregate, community level, where they may function to indicate some kind of interpersonal skill, they may have more value. We will

examine them further as we continue.

III. EMPATHY AND DEGREE OF COMMUNITY TRADITIONALISM

Our results here are a washout. We have no evidence to show that the more empathic individual is any more or less integrated, befriended, respected, or sought for information in the less traditional community than he is in the more traditional community. This may be because of contradictory forces working to nullify any difference. It may be an artifact of poor measurement, or of inadequate variance in degrees of traditionality. It may have resulted from the crude dichotomization of the sample and from comparisons of correlations where results for the extremely less traditional or more traditional communities were obliterated by the large middle range of communities.

A more probable explanation may be sought in terms of an inadequate conceptualization and thinking-through of the links among community development, degrees of modernization and individual characteristics. Young and Young have proposed that scales of institutional development and of community articulation with the national life may be useful indicators of modernity. (Young and Young, 1962) And we were able to generate Guttman scales for the Brazilian communities represented in the sample by following their procedures. Despite this, we have not succeeded in relating these scales to anything of interest.* The possibility exists that we have measured as much the institutions of tradition as the institutions of modernity. In other words, the presence of a bar, barber shop,

---

*For more details, see Whiting et. al., 1967.

or rural school may not be an indication that the forces of modernity are invading the community. The supposition that institutional development in the community means more modern development should be re-examined.

Since three bases for dichotomization were obtained, and since such ostensible indicators of modernity as health situation, level of farm power-supply, and isolation were included in these indices, some more clear-cut results should have emerged if any strong relationship existed, in the manner hypothesized, between empathy and traditionality. Tentatively, the general hypothesis that a more empathic individual has a somewhat different position and role in a more modern community must be judged to be without support.

IV. EMPATHY AND THE MASS MEDIA

Correlations with Imaginativeness

Our finding here represents a complete reversal of our hypothesis. It is surprising in view of the factor analysis results where exposure to radio tended to load more highly with imaginativeness than with print exposure. Apparently even though radio exposure relates somewhat more to imaginativeness than to anything else, print exposure relates to imaginativeness even more strongly. We cannot attempt to sort out the possible causal nexus of this relationship here. The outcome does require a reworking of our thinking about the two types of media exposure and imaginativeness.

In preparation for the next section, and as a possible explanation of the reversal of the hypothesis found in this section, it may be worth noting that not much of what is available in most broadcast media has

much direct utility for the rural dweller. Music, most of it of the rock-and-roll variety, pervades most of the airways. News is available periodically and a government-controlled review of current and forthcoming decrees occupies two hours of prime evening time. A farm program of one half hour is available just before this review. Unfortunately, we have no direct evidence of farmer preferences in radio programs, but if the farmers in our study are like others studied in Brazil, the farm programs available are among the least popular programs on the radio. (See Whiting and Guimaraes, 1967, Chapter VII for details.)

The print media present a greater variety of contents, even in rural areas. There is no reason to believe that the slick illustrated magazines and sensational daily press could not stimulate and fire the imaginations of their readers. However, we have no data on the actual types of print materials reaching the farmers. Most available cinema is, of course, unadulterated entertainment and escapism, with less value for modernization than for instilling tendencies to reverie.

Empathy as a Mediating Variable of Mass Media Effects

We eliminated, first off, three of the dependent variables -- aspirations, value for dissatisfaction, and tendency to think about problems -- because mass media exposure did not have any significant correlation with these variables, even when we cross-classified on aspects of empathy. Three dependent variables remained: belief in work, political knowledge, and attitude toward change. Two varieties of mass media exposure were used as independent variables and two aspects of empathy were used as a basis for cross-classifying the

independent variable into five levels.

Let us first consider the strength of the relationships between the dependent and independent variables. Without classification on any aspect of empathy, the correlations between radio exposure and the dependent variables were generally lower than the correlations between mass media exposure and the dependent variables. The average correlation with mass media exposure was .41 while the average correlation with radio exposure was .15.* When we classified on aspects of empathy and allowed both intercepts and slopes to vary freely, a moderate improvement occurred in the size of the correlations. This improvement was significantly larger for radio than for mass media and significantly more attributable to cross-classification on imaginativeness than on skill with hypotheticals. The interaction of type of cross-classification with type of media was not significant.

We may conclude that, as these variables were measured in this study, cross-classification on imagination is more valuable than cross-classification on skill with hypotheticals. We may also conclude that such cross-classification will help increase the strength of the relationship between radio exposure and the dependent variables more than it will help increase the strength of the relationship between print exposure and the dependent variables.

If we consider only the unrestricted situation, the general hypothesis that empathy facilitates the decoding of the modernization import of the media is not supported if we attend to the slopes but

---

*For print the correlations were .59, .37, and .21 while for radio they were .18, .18, and .07. The averages were calculated using a Fisher z transformation.

is supported if we attend to the intercepts. We may modify our hypothesis by suggesting that the more empathic do indeed decode the modernization import of the media more effectively, that is how they became more modern on these variables. But that at the point in time at which we are considering them their rate of increase has slowed down, simply because they have hit the top of our scales or because more units of exposure no longer make much difference to them. Those of lesser empathy, on the other hand, are still increasing somewhat more rapidly the modernity of their knowledge and orientations per unit of mass media exposure, but they start from a lower level because they have been less exposed in the past. This interpretation makes sense in a take-off model, where initially the slope for the least empathic is low (perhaps they are still learning the conventions of the media, including the convention of empathy) and then, after their skills with these conventions reach a certain point, the modernity of their attitudes accelerates as they receive more messages through these media. Their empathy also increases but after a time the effects on the attitudes from increases in media exposure slow down.

Thus, the fault with the earlier hypothesis was oversimplification with respect to its time-dimension. When the assumption of a common starting point at the moment in time when the data were collected is made, the hypothesis is upheld -- the more empathic do appear to increase the modernity of their orientations more rapidly. But this obscures the relationship, for the less and the more empathic do <u>not</u> all start from the same post at the moment we study them. Since the more empathic have already been exposed to mass media when we arrive to measure them, they are already at the top of the measure and their

slope accelerates less than that of their less empathic neighbors; they are more similar to the unempathic who are being influenced very little more for each additional unit of media exposure.

A note of caution is necessary here. We have not actually been able to manipulate the same individuals' characteristics and note the changes explicit in the hypothesis. Instead, we have, in effect, been pairing individuals who are alike on two variables and different on the third so as to infer the causal effects. Clearly there is danger in this and we are on different grounds when we shift scores around among people by mathematical operations than when we set out to change the actual values of the hypothesized determinants. Blalock gives an instructive example of this difference but it is too lengthy to be repeated here. (See Blalock, 1964, pp. 40-42.)

There are two possible objections to this interpretation. First, the whole analysis of the patterns of regression slopes and intercepts may be attacked on the basis that we are interpreting a regression artifact, similar to the familiar artifact of regression toward the mean which is a danger in experimental studies utilizing change scores and constructing groups on the basis of scores on an imperfectly correlated variable (see Campbell and Stanley, 1963, pp. 10-12 for a lucid discussion). Some of the unrestricted relationships graphed in the last chapter do look strikingly as if they are regressing toward a grand mean, and it is also the case that the individuals were classified according to the levels of their scores on a variable which is known to be very imperfectly correlated. However, we are not dealing with an experimental situation, a fact which we just bemoaned but now can console ourselves with, and we

are not utilizing change scores. Instead we have a more complex relational measure which is being compared, not among the extremes only but across the entire range of the data. The circumstances under which the patterns of relationships found here could be generated by a regression artifact are very complex, so much so that they are not worth the effort of trying to work out mathematically. They could be obtained only by Monte Carlo methods. An explanation of these results as artifacts of regression toward the mean is highly unparsimonous.*

Another objection may be that the results presented do not constitute evidence that empathy aids in the decoding processes, for the same kinds of results would have been obtained had any variable having positive correlations with both the independent and dependent variable been used to cross-classify the data. If the latter statement is true, we may cheerfully note that there has been no intent to imply that empathy was the only variable which mediated the decoding process or even the most important one; more importantly, the validation process in science works on the principle of proposing a relationship and seeing whether the data lead to a rejection of the proposal. Models of relationships can only be discarded by empirical test, not definitively adopted. When they are adopted it is only because superior models have not yet been found. Whether or not empathy is really mediating the decoding process is certainly not ascertainable from these data or any data. All we can say is that the results still

---

*This is a summary of the opinions expressed by Dr. Dennis Gilliland of the Department of Statistics and Probability, Michigan State University, with whom I consulted on this point.

admit that possibility.

The relationship between travel to the city and attraction to the city was significant, though small, but was not improved by cross-classification on either aspect of empathy. Hence it is of little interest in the discussion of empathy's role in the modernization process.

To the list of conclusions offered on pages 147 and 148 we can now add the following:

1. Empathy shows no differential relationship to the social roles, integration, or function of individuals in communities of greater and lesser traditionalism.

2. The relationship between the "imaginativeness" aspect of empathy and exposure to print is significantly stronger than the relationship of this aspect with exposure to radio.

3. Mass media exposure is significantly more related to three dependent variables: (1) high valuation of belief in work, (2) political knowledge, and (3) a favorable attitude toward change, than is radio exposure.

4. In relationships involving both types of media exposure, the improvement obtained by cross-classifying on the imaginativeness aspect of empathy is significantly greater than the improvement obtained by cross-classifying on the skill with hypotheticals aspect.

5. With few exceptions, the pattern of intercepts of the regression of modern orientations on exposure to media rises as we move up levels of empathy, when a common slope is employed.

6. With few exceptions, the pattern of slopes of the regression of modern orientations on exposure to media rises as we move up levels of empathy, when a common intercept is employed.

7. With numerous exceptions, the pattern of intercepts rises and the pattern of slopes falls for the regression of modern orientations on exposure to media as we move up levels of empathy, when both intercepts and slopes vary freely. Frequently a curvilinear model employing a take-off effect might more adequately represent some of the data.

8. Such a take-off pattern would involve a modification of the hypothesis of empathy's mediation of the decoding of the

modernization import of the media to include (1) an initial learning of the conventions of the media, including the inculcation of empathy, (2) a somewhat more rapid growth in modernity of orientations as units of media exposure are added in the context of moderate levels of empathy, and (3) a leveling out when, with higher empathy, rates of additional growth in modernity of orientation become slower.

V. CONCLUDING COMMENTS

These findings require much more research before any confidence can be placed in them. Some of the lines of research possible on the data collected already have been intimated. It appears there might be profit in investigating the possibilities of a take-off phenomenon; in investigating, through partial regression coefficients, the relative importance of the empathy variables to the total set of variables that may assist in the decoding process; and, possibly, in abandoning equal sizes of groups, classifying individuals according to the extremity of their empathy scores and looking for discontinuities in the scale scores to make cutting points, taking into consideration the normality of the distribution. In a separate area, further analyses with the new measure of empathy could give indications of its predictive adequacy in its unscaled form and with a wider variety of dependent variables.

It would seem wise in the future to pay attention to the aspect of empathy here called imaginativeness, since this was stronger, more stable, and more effective than the aspect we dubbed skill with hypotheticals. However, a new measure of empathy involving interviewer ratings might tap the latter more than the former, and with improvement in measurement stronger relationships with hypothetical skills might be found.

The inadequacies of the data gathered for this study point to the need for another round of empirical evidence to re-test and amplify these findings. The lack of positive results for the relationship between empathy and the respondent's roles in communities of varying traditionalism is particularly challenging.

Perhaps the empirical outcomes of the study appears to fall far short of expectations. Certainly they do not confirm every hypothesis advanced, and the hypotheses tested were only a small selection from the broader concerns with the linkages of empathy to modernization that were outlined in the first chapter. In rationalizing these meager results, the words of Campbell and Stanley relative to disappointment with experimental designs are apropos:

> We must instill in our students the expectation of tedium and disappointment and the duty of thorough persistence, by now so well achieved in the biological and physical sciences. We must expand our students' vow of poverty to include not only the willingness to accept poverty of finances, but also a poverty of experimental results. (Campbell and Stanley, 1963, p. 3)

BIBLIOGRAPHY

Berlo, David K., The Process of Communication, New York, Holt, Rinehart and Winston, 1960.

Blalock, Hurbert M. Jr., Causal Inferences in Nonexperimental Research, Chapel Hill, North Carolina, University of North Carolina Press, 1964.

Bordenave, Juan Diaz, "The Search for Instrumental Information among Farmers of the Brazilian Northeast," Ph.D. Dissertation, Department of Communication, Michigan State University, 1966.

Bostian, Lloyd R., and Fernando C. Oliveira, "Relationships of Literacy and Education to Communication and to Social and Economic Conditions on Small Farms in Two Municipios of Southern Brazil," Paper read at the 1965 meeting of the Rural Sociological Society, Chicago, Ill.

Campbell, Donald T., and Julian C. Stanley, Experimental and Quasi-Experimental Designs for Research, Chicago, Rand McNally & Co., 1963.

Cline, Victor B. and J. M. Richards, Variables Related to Accuracy in Interpersonal Perception, Group Psychology Branch, Office of Naval Research, University of Utah, 1958.

Coutu, Walter, Emergent Human Nature, a Symbolic Field Interpretation, New York, A.A. Knopf, 1949.

Cronbach, Lee, "Processes Affecting Scores on 'Understanding of Others' and 'Assumed Similarity'," Psychological Bulletin, 52 (1955), pp. 177-193.

_____, "Proposals Leading to Analytic Treatment of Social Perception Scores," in Person Perception and Interpersonal Behavior, Renato Tagiuri and Luigi Petrullo (eds.), Stanford, California, Stanford University Press, 1958, pp. 353-379.

Department of Communication, "Annual Progress Report for Research Project on Diffusion of Innovations in Rural Societies," July 1, 1967, Mimeo.

Deutsch, Karl W., The Nerves of Government: Models of Political Communication and Control, New York, The Free Press of Glencoe, 1964.

Eister, Allan Wardell, "Critical Factors in the Modernization Process in West Pakistan," Year Book of the American Philosophical Society, 1962, pp. 362-365.

Foa, U.G., "Empathy or Behavioral Transparency?" Journal of Abnormal and Social Psychology, 56 (1958), pp. 62-66.

Frey, Frederick W., "The Mass Media and Rural Development in Turkey," Report No. 3, Rural Development Research Project, Cambridge Massachusetts, Massachusetts Institute of Technology, 1966.

Hagen, Everett E., On the Theory of Social Change, Homewood, Ill., Dorsey Press, 1962.

Hastori, A. H. and I. E. Bender, "A Caution Respecting the Measurement of Empathic Ability," Journal of Abnormal and Social Psychology, 47 (1952), pp. 574-576.

Herzog, A. William, "Selection of the Sample for Phase One," Mimeo, September 4, 1965.

Hobart, Charles W., and Nancy Fahlberg, "The Measurement of Empathy," American Journal of Sociology, 70 (1965), pp. 595-603.

Hurley, Neil P., "The Role of Communications Technology in Democracy," in Communications Explosion, Paper Number 9, Program of Policy Studies in Science and Technology, George Washington University, 1965.

Katz, Robert L., Empathy: Its Nature and Uses, New York, The Free Press of Glencoe, 1963.

Keith, Robert F., and Everett M. Rogers, "Phase II Concepts: Definitions and Suggested Measurement," February, 1966.

Langfield, Herbert S., The Aesthetic Attitude, New York, Harcort, Brace and Co., 1920.

Lassey, William R., Alfredo Mendez, and F.B. Waisanen, "The Consequences and Meaning of Literacy for Attitudes and Social Behavior," preliminary draft, no date.

Lerner, Daniel, "Enlightenment and Communication," in Comparative Theories of Social Change, Hollis W. Peter, ed., Ann Arbor, Michigan, Foundation for Research on Human Behavior, 1966.

_____, The Passing of Traditional Society: Modernizing the Middle East, New York, The Free Press of Glencoe, 1958.

Mead, Margaret, Continuities in Cultural Evolution, New Haven, Yale University Press, 1964.

Rao, Y.V. Lakshmana, "Communication and Development, A Study of Two Indian Villages," Ph.D. dissertation, Department of Journalism, University of Minnesota, 1963.

Rogers, Everett M., "Diffusion of Innovations in Rural Societies: Resume of a Research Project Conducted by Michigan State University Under Contract with the U.S. Agency for International Development," 1965, Mimeo.

_____, "Motivations, Values, and Attitudes of Subsistence Farmers: Toward a Subculture of Peasantry," Paper presented at the Agricultural Development Council's Conference on Subsistence and Peasant Economics, East-West Center, University of Hawaii, Honolulu, Hawaii, February 28-March 6, 1965.

Rogers, Everett M. and William A. Herzog, "Functional Literacy among Colombian Peasants," Economic Development and Cultural Change, 14 (1966), pp. 190-203.

Schramm, Wilbur and W. Lee Ruggels, "How Mass Media Systems Grow," in Communication and Change in the Developing Countries, Daniel Lerner and Wilbur Schramm (eds.), pp. 57-75.

Smith, David, and Alex Inkeles, "The OM Scale: A Comparative Socio-Psychological Measure of Individual Modernity," Sociometry, 29 (1966), pp. 353-377.

Smith, Henry Clay, Sensitivity to People, New York, McGraw-Hill, 1966.

Spector, Paul, et. al., "Communication and Motivation in Community Development: An Experiment," Washington D.C., Institute for International Services, 1963.

Steward, Don, and Thomas Hoult, "A Social Psychological Theory of the Authoritarian Personality," American Journal of Sociology, 65 (1959), pp. 274-279.

Whiting, Gordon C., "A Summary of Data Collection on Phase One of the Project on Diffusion of Innovations in Rural Societies: Brazil Operations," Mimeo, March, 1966.

Whiting, Gordon C. and Lytton Guimaraes (eds.), Communicação de Inovações: Pesquisas Aplicáves ao Brasil, Rio de Janeiro, USAID, forthcoming in 1968.

Whiting, Gordon C., William A. Herzog, Gustavo M. Quesada, and David H. Stanfield, Innovation in Brazil: Success and Failure of Agricultural Programs in 76 Minas Gerais Communities, Department of Communication, Michigan State University, East Lansing, Michigan, November, 1967.

Young, Frank W. and Ruth C. Young, "The Sequence and Direction of Community Growth: A Cross-cultural Generalization," Rural Sociology, 27 (1962), pp. 374-386.

APPENDIX A

ITEMS USED IN THE FACTOR ANALYSIS OF EMPATHY

"If you could change things around here in _____(COMMUNITY) would you change a few things or leave things as they are?

1. "Let's suppose, for instance, that cows gave 40 liters of milk at each milking; what would you do if the world were like this?

   (CODES: 0 = Don't know, doesn't respond, responds negatively saying he wouldn't like it or think it good.
   1 = Be satisfied, continue as usual, use the extra money for luxuries, travel, or other consumatory activities.
   2 = Buy more cattle, improve the farm, try to make progress and other responses indicating an instrumental orientation but lacking in originality or specificity.
   3 = Original and useful reactions such as modernizing the dairy operation, reduce the number of cows to more effectively utilize pasture, turning former pasture lands to cropping, etc.

2. "Have you ever thought what it would be like to live in your great-grandfather's time?"
   0. No
   1. Don't know
   Yes
   How often?
   1. Seldom
   2. Often

3. "Have you ever imagined yourself being a great hero?"
   (Same codes as 2 above)

4. "Have you ever imagined yourself being the President of Brazil?"
   (same codes as 2 above)

5. "If you were the President of Brazil, what would you do?"

6. "If you were the Prefect of this county, what would you do?"

7. "If you were the poorest person around here, what would you do?"

8. "Have you ever thought of questions like these?"
   (same codes as 2 above)

9. "Do you know what the duties of the President of Brazil are?"
   0. Nothing 1. A little 2. A good deal

10. "Do you know what the duties of the prefect of this county are?"
    0. Nothing 1. A little 2. A good deal

11. "Let's suppose that you met a foreigner for the first time. If he looked friendly...do you think that you would feel at ease with this stranger?
0. No 2. Yes (1. Don't know)

12. "Would you know what to say to him?"
0. No 2. Yes (1. Don't know)

13. "Would you be very interested in getting to know him better?"
0. No Yes Don't know
"Do you believe that, given sufficient time, you would understand why this foreigner thought and acted differently from you?"
1. No 2. Maybe 3. Yes

14. "Now think of something which you strongly believe. (PAUSE) Have you ever thought that someone could believe about it differently?
0. No 1. Maybe or don't know 2. Yes

15. "If you were the ACAR supervisor, what would you do to improve the work?"

16. "How cooperative was he?" (Asked of the interviewer)
(Code: a rating from 0 to 6)

17. Number of times the respondent had opinions on 13 opinion items concerning issues.

18. Number of times the respondent had opinions (did not say "don't know" on items 5,6,7,11,12,13,14) on hypotheticals.