PATHS TOWARD MODERNIZATION IN TRADITIONAL BRAZILIAN COMMUNITIES

Thesis for the Degree of Ph. D. MICHIGAN STATE UNIVERSITY JOHN A. WINTERTON 1969





This is to certify that the

thesis entitled

PATHS TOWARD MODERNIZATION IN TRADITIONAL

BRAZILIAN COMMUNITIES

presented by

John A. Winterton

has been accepted towards fulfillment of the requirements for

Ph.D. degree in <u>Communication</u>

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ABSTRACT

PATHS TOWARD MODERNIZATION IN TRADITIONAL BRAZILIAN COMMUNITIES

by John A. Winterton

<u>Traditionalism</u> is defined as a static style of life regardless of occupational endeavor or place of residence. It is often characterized by economic deprivation, attitudinal immobility, localiteness, fatalism, low empathy, mutual distrust in interpersonal relations, limited aspirations, low risk-orientation and many other socio-psychological and economic indicants. Two questions were asked in the present study: (1) do empirically-verifiable economic, attitudinal and behavioral dimensions exist in traditional life? and (2) can these characteristics serve as predictors of communication behavior?

Data for this study came from a part of the MSU/AID Brazil Phase II Diffusion Project. During July and August of 1966 1,307 household heads in 20 Minas Gerais (Brazil) subsistence farming communities were interviewed in a field survey of the diffusion of innovations. Respondents included those who owned at least part of their land, or made the major decisions for a particular farm and were not absentee landlords.

Factor analysis, both R- and P-types, were the major dataanalytic techniques employed in the present attempt to parsimoniously describe both traditionalism and traditional typologies of individuals.

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Three R-type factors were extracted from an R-factor analysis of 26 variables. These factors were named: (1) socioeconomic achievements, (2) modern attitudes and (3) community leadership.

A comparative analysis of six factor analytic studies of traditionalism, including the present study, was conducted. A total of 21 factors extracted from the six studies were examined in order to determine the similarity of traditional factor dimensions across diverse national settings. Four common dimensions of traditionalism were found among the studies of traditional life in Kenya, India, Colombia, Brazil and the United States. These factor clusters were named: (1) communication contact, (2) economic resources, (3) modern attitudes and (4) community leadership.

A random sample of 100 subjects from the original 1,307 respondents were subjected to a P-type factor analysis. In this case, correlations between individuals, serving as "variables," and 20 indices of traditionalism (previously isolated by the R-type factor analysis), serving as observations, were factor-analyzed in order to identify traditional typologies of people. Three P-type factors were extracted and named: (1) attitudinally moderns, (2) economic achievers and (3) community leaders. The three P-type factors and three R-type factors extracted in the two factor analyses were markedly similar.

The data indicated that in Brazil traditionalism was negatively related to mass media exposure, cosmopoliteness, change agent contact and the number of communication channels used for innovation information. It was also found that traditionalism was related to greater

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exposure to interpersonal, rather than mass media, channels in the communication of innovations. However, it was found that traditionalism was not related to higher credibility for interpersonal, rather than mass media, channels in the communication of innovations. Finally, it was found that traditional typologies did not differ in their communication behavior.

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BRAZILIAN COMMUNITIES

By

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John A. Winterton

A THESIS

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> Accepted by the faculty of the Department of Communication, College of Communication Arts, Michigan State University, in partial fulfillment of the requirements for the Doctor of Philosophy degree.

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CHAPTER I

INTRODUCTION

I am illiterate and so can understand nothing about life. Another thing that makes me unhappy is my inability to teach my only son, and I can't find the way how to do this.

(Lerner, 1958, p. 15)

Statement of the General Problem Area and Its Importance The bulk of the world's population is hungry, unskilled, often illiterate and unchanging. This vast category of people is faced with increasingly ominous survival problems such as the food/population ratio, and decreasing manual labor needs. On the positive side, the affluent, skilled sectors of the world are increasingly becoming aware of their less fortunate neighbors.

Little is known about these people, comprizing the largest portion of the world's population, of their motivations and personality characteristics, their perceptions of each other and of their external environment. One reason that traditionals are relatively "invisible"* is an inability to disseminate information about themselves. Only rarely do traditions communicate with anyone outside their immediate environment. The few autobiographical reports on traditional life

The reference term "invisible" is borrowed from Ellison (1947) who dealt with the problem of being "Black" in the United States. He notes that the majority of upper or middle class American society selectively limit their perceptions of poor Afro-Americans, especially of their economic and cultural plight.

have largely been written by individuals who have become more modern, acquired literacy and literary skills, and are reminiscing about past experiences which are perhaps inaccurately remembered. Therefore, as Lewis (1966, p. xxii) notes, Anthropologists and other social scientists "Have a new function in the modern world: to serve as students and reporters of the great mass of peasants and urban dwellers of the under developed countries who constitute almost 80 percent of the world's population."

The goal of the present analysis of field survey data is the study of certain socio-psychological and economic variables often considered important in describing traditional behavior. Two questions are asked: (1) do empirically-verifiable economic, attitudinal and behavioral commonalities exist in traditional life styles? and (2) can these characteristics (factors) serve as predictors of communication behavior?*

Traditionalism may be studied from a variety of perspectives with different units of analysis, including: (1) national aggregate analysis, as characterized by Lerner's (1958) study of 75 more and less developed nations, (2) community analysis of rural traditional villages, as conducted by Fliegel and others (1968) and Dube (1958), (3) analysis of family groupings in traditional settings, as conducted by Lewis (1962), (4) study of traditional behavior in natural or experimentally-

The two empirical questions broached in the present study are both communication inquiries. First, we seek insight into traditionals as an audience for messages of social and economic change. Also, we examine the process of modernization, individual movement from more to less traditional life styles, from a communication point of view.

manipulated groups, as characteristic of studies by Neurath (1960, 1962) and (5) analysis of individual traditionals. The present research design employs the individual as the unit of analysis in an attempt to empirically describe and analyze traditional life.* This focus on individuals as the principle targets of modernization is designed to provide change agencies with useful information about their clients. Change agencies need to know as much as possible about their audience in order effectively to disseminate and reinforce their programs of change.**

Traditionalism

<u>Traditionalism</u> is defined as a static life style, regardless of occupational endeavor or place of residence. It is contrasted with <u>modernization</u> which refers to individual progress from a more to a less traditional life.*** The notion of traditionalism is a

All 1,307 respondents interviewed in the present survey may be considered traditional in life style and outlook; however, they are all moving, at different rates, toward modernity.

^{**} The problem of traditionalism and economic development might include analysis of "which set of <u>messages</u>, transmitted under what conditions, by which <u>sources</u>, to which potential <u>receivers</u>, will have the greatest effect, <u>i.e.</u>, the most rapid adoption of new technology" (Herzog and others, 1968, p. 1). The present analysis concentrates on receivers or clients of change.

^{***} This definition shares certain elements with at least two previous attempts to clarify the meaning of modernization. Rogers with Svenning (1969, p. 14) defined modernization as "the process by which individuals change from a traditional way of life to a more complex, technologically-advanced, and rapidly-changing style of life." Lerner (1958, p. 89) defined the concept as ". . . a secular trend unilateral in direction from traditional to participant lifeways."

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comparative concept which refers to a relative quality.* In fact, Sen and Roy (1966) argue that modernity should be viewed as a state of non-traditionalism.

At the national or societal level the process of modernization is frequently termed <u>development</u>,** defined "as the process whereby a contemporary society continuously improves its control of the environment by means of an increasingly competent technology applied by increasingly complex organizations" (Caplow and Finsterbusch, 1964, p. 24).

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The Traditional Man

Traditionalism at the individual level is a multi-faceted phenomenon, encompassing both economic and socio-psychological elements. The traditional man is often identified as a peasant or a slum dweller. Yet, despite the obvious similarity of these classifications, there exist some important conceptual and operational differences.

Peasantry, as defined by Rogers with Svenning (1969, p. 20), refers to the "farmer who is oriented largely, but not necessarily entirely, to subsistence production. He consumes the major portion of the food and other products that he produces."*** Slum dwellers,**** like

Valentine (1968, p. 3) noted that "The state of poverty is . . . a continuum, rather than a point on an absolute scale. The condition is always defined in relation to a variety of quantitative and qualitative criteria which change as societies and cultures change."

^{**} Rogers with Svenning (1969, p. 18) defined individual progress toward modernity as modernization, and national progress toward modernity as development.

[&]quot;Subsistence-farmer" is a term commonly used to identify the rural agriculturally-oriented poor. Rogers with Svenning (1969, p. 20) noted that the terms "peasant" and "subsistence-farmer" may be used interchangeably.

[&]quot;Often the terms "ghetto" and "slum dweller" are used as

their rural cousins, live marginal, subsistence lives. They reside in crowded, depressed urban neighborhoods where they must devote most, if not all, of their time and energy to the acquisition of food, clothing, and shelter.

Definitional differences between peasant and slum life center around situational effects of urban or rural residence. The construct, includes urban and rural poverty under the same rubric in order to portray a more generalizable picture of economic deprivation. Figure I-l illustrates, via Venn diagrams, the relationship between poverty, peasantry and traditionalism.*

<u>Traditionalism</u> refers to a static life style, regardless of occupational endeavor or place of residence. The out-of-work coal miner from Southern Appalachia, the jobless tenement dweller in New York City, and the subsistence farmer in rural Brazil are all traditionals. Farmers, artisans, builders, businessmen or even small manufacturers may be traditional men. However, the traditional man is not likely to change his occupation. "The traditional system insists on a rigid and fixed occupational structure. Each man is virtually born to an occupation . . . and the traditional social structure is profoundly conservative and custom bound" (Ishwaran, 1966, p. 113).

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synonyms despite important differences. A <u>slum</u> is an overpopulated and economically depressed urban neighborhood. A <u>ghetto</u> is a racially homophilous neighborhood irrespective of the area's density or socioeconomic-status.

[&]quot;The present analysis of survey data collected from subsistence farmers in Brazil seeks to make reference to the broader phenomenon of traditionalism (see Figure I-1). Therefore, variable selection largely was based on indices representative of economic, social psychological and social structural characteristics of traditional life in both urban and rural settings. A number of the agricultural variables, of course, could not be studied in urban settings.



Figure I-1. Venn diagram illustrating traditionalism as characteristic of both peasantry and urban poverty.

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Also, relatively prosperous individuals may be classified as traditional even though the concept is often associated with poverty. For example, Jain (1965) analyzed the responses of 225 Mennonite farmers in Canada who are both agriculturally successful and very traditional. Traditionalism refers to a lack in progress toward more complex and modern life styles. Additionally, it must be remembered, traditionalism is a relative phenomenon.

Traditionalism as a Subculture

A <u>subculture</u> is composed of individuals who share enough elements of life style, environmental factors, and attitudinal dispositions to be distinguishable from their own larger cultural base. Valentine (1966, p. 111), from an ethnographic stance, expressed several reservations concerning social scientific identification of traditional peoples in subcultural terms. He argued that subcultural labeling should only be attempted with the "elucidation of part-whole structural relationships . . . combined with recognition of internal heterogeneity." Additionally, he noted "The content and distinctiveness of subcultures must be regarded as questions to be settled empirically." Gans (1962, p. 348) also suggested that

While occupation, education, income, and other factors help to distinguish subcultures, the exact role of these factors is thought to be an empirical question. The (social) strata are defined as subcultures on the assumption that relationships, behavior patterns, and attitudes are related parts of a social and cultural system.

The intricate relationship between culture and subculture was outlined by Rogers (1966, p. 9):

A subculture contains many elements of the broader culture (a culture consists of material and nonmaterial aspects of a way of life shared and transmitted among members of a society) of which it is a part, yet can be characterized by particulars which set it apart from other parts of the culture.

The present investigation attends closely to Valentine's (1966) concern for empirical investigation of subcultural distinctiveness and internal heterogeneity.* Additionally, it utilizes Rogers' definition of distinctiveness in subcultural identification.

Lewis (1961) was among the first behavioral scientists to make reference to a "culture of poverty." He suggested that poverty, across national and cultural boundries, includes: (1) a provincial orientation, (2) a lack of integration into national institutions, (3) low formal participation, and (4) a constant struggle for survival. Emphasizing the functional interrelationship of these elements, he noted (1961, p. xxvi-xxvii) that some of the psychological and ecological aspects of life in a poverty culture include:

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Living in crowded quarters . . . a high incidence of alcoholism, frequent resort to violence in the settlement of quarrels, . . . early initiation into sex, . . . a strong disposition to authoritarianism, and a greater emphasis upon family solidarity--an ideal only rarely achieved. Other traits include a strong present time orientation with relative little ability to defer gratification and plan for the future, a sense of resignation and fatalism based upon the realities of their difficult life situation . . . , and finally a high tolerance for psychological pathology of all sorts.

The present investigation utilizes a P (people)-type factor analysis in order to examine <u>typologies</u> of people who reside within the broad framework of traditional life.

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Rogers with Svenning (1969) described a subculture of peasantry based on studies of subsistence farming in rural areas of Brazil, India, Nigeria and Colombia. He postulated that despite the variability of cultures, "meaningful generalizations can be made about most peasants . . ., which hold true in most national settings" (1966, p. 8). The central elements of the peasantry subculture include: (1) mutual distrust in interpersonal relations, (2) lack of innovativeness, (3) low aspirational levels, (4) lack of deferred gratification, (5) limited time perspective, (6) fatalism, (7) localiteness, (8) familism, and (9) low empathy.

The present traditionalism subculture includes many of the elements of Lewis' poverty culture and Rogers' subculture of peasantry. In fact, in many ways it represents an attempt to house the two under a common rubric. Proposed is the submission of demographic, ecological, socio-psychological and economic measurements (obtained from a sample of 1,307 Minas Gerais subsistence farmers in Brazil) to factor analysis, in order to obtain a parsimonious, empirically-descriptive picture of traditional life. The obtained factors are then to be used to predict communication behavior, including: (1) receptiveness to mass media and interpersonal communication, (2) credibility of mass media and interpersonal communication channels, (3) exposure to change-oriented communication (in mass media and/or interpersonal channels), (4) change agent-client contact, (5) cosmopoliteness,* and other communication

Cosmopoliteness, the degree to which an individual is oriented outside his social system, is treated in the present analysis as a communication variable. It is conceptually related to mass media channels; for like the mass media, it offers exposure to the external environment.

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behavior.*

Traditionalism and Communication

A principal objective of the present research project is the investigation of communication behavior characteristic of traditional people. Attention is specifically directed at the communication of change-oriented ideas sponsored by sources external to the local community.

A number of modernization and diffusion theory generalizations concerning the communication process are examined in the present inquiry. Modernization research has rarely analyzed the relationship between select socio-psychological and economic characteristics of traditionals, and the relative attractiveness and/or credibility** of various mass media and interpersonal communication channels.***

[&]quot;The present investigation of traditionalism is based on data collected from 1,307 Brazilian subsistence farmers in Phase II of a three-nation (Brazil, India and Nigeria) research project conducted by the Department of Communication at Michigan State University and sponsored by the Agency for International Development. The MSU/AID research project, Diffusion of Innovations in Rural societies, followed a three phase research design: "Phase I concentrated on the community and its influence on adoption process with some additional data collection on change agent communication techniques; Phase II focused on personal differences among individual cultivators and related these to the adoption process. While Phase III is a field experiment aimed at assessing the effectiveness of different communication strategies in introducing agricultural innovations" (Whiting, 1967, p. 27).

^{**} Credibility refers to the degree to which a communication source or channel is perceived as trustworthy and competent by the receiver. ***

Traditionalism and communication behavior was the focus of studies by Lerner (1958) in six Middle Eastern countries, Deutschmann and Fals Borda (1962) in Colombia, Frey (1964) in Turkey, and Raju (1969) in India.
The Present Study

Objectives

The present investigation has two principal objectives: (1) empirical description of traditionalism via identification of its major dimensions, and (2) analysis of traditional communication behavior. Description of traditionalism is attempted via R-type factor analysis* of numerous socio-psychological and economic measures. Additionally, a P-type factor analysis** serves in identification of traditional typologies of individuals. The relationship between Rfactors of traditionalism and various communication indices is sought with zero-order correlation analysis. Finally, an analysis of variance of differences in communication behavior of traditional typologies of people is also conducted.

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Plan of the Thesis

Chapter I attempted to provide justification for the analysis of survey data that follows. This justification comments upon the uniqueness and importance of analyzing traditionalism as a subculture with distinguishable communication behavior. It was based on a review of the literature on modernization, peasantry, poverty, traditionalism, and traditional communication behavior. Chapter II provides a

^{*} R-type factor analysis is a statistical procedure which seeks to reduce a large number of <u>variables</u> to their underlying dimensions or groupings.

[&]quot;P-type factor analysis is a statistical procedure which seeks to reduce a large number of <u>people</u> to their underlying typologies or groupings. In other words, P-analysis clusters people of similar characteristics.

literature review in conjunction with presentation of the theoretical background of the proposed research. Also, a series of hypotheses are offered. Chapter III concentrates on the methodological background of the present analysis; while, Chapter IV presents the results of the data-analysis. Chapter V compares findings from the present study with those culled from studies of traditionalism in other national settings. Finally, Chapter VI presents a discussion of the relationship between our expected and obtained results of traditionalism and communication behavior.

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CHAPTER II

REVIEW OF LITERATURE

The first element in our definition of the modern man is his readiness for new experience and his openness to innovation and change. We consider the traditional man to be less disposed to accept new ideas, new ways of feeling and acting. We are speaking, therefore, of something that is itself a state of mind, a psychological disposition, an inner readiness . . .

(Inkeles, 1966, p. 141)

Traditionalism in Rural Brazil

Traditionalism, as conceptualized in the present investigation, is based on past ethnographic reports, survey investigations and theoretical formulations of peasant and urban poverty life. The most easily discernible linkage between these subcultural configurations is the economic deprivation they share. They are also characterized by static outlooks and approaches to their life situation. Clearly, the poor reside in quite diverse settings, in both more and less developed countries, as well as in urban and rural environments. The geographic breadth of traditionalism is illustrated in Table II-1. However, an important premise upon which the present research is based is the assumption that distinguishable socio-psychological, attitudinal and economic elements accompany impoverished life styles wherever found, and that the sum of these elements may best be categorized under the rubric of traditionalism.

Theories of peasant, poverty and traditional subcultures often refer to select elements as distinguishing individual subcultural membership. The present analysis is no exception to this pattern.

	Tradi	ionals		
	Urban Poor	Rural Poor		
More	Example: Slum dwellers	Example: Southorn		
Developed	of New York and Boston*	Appalachian welfam		
Nations		recipients***		
Less	Example: Residents of	Example: Subsistence		
Developed	barrios (slums) in San	farmers of Demirciler.		
Nations	Paulo, Brazil**	Turkey or Vasilika,		
		Greece****		
4				

Table	Ι	I-1.	Incational				
				Diversity	of	Traditional	Life

"See X with Haley (1965) and Gans (1962). *** See De Jesus (1963). **** See Weller (1965). **** See Pierce (1964) and Friedl (1962).

It initially attempts to describe traditionalism with the responses of 1,307 rural Brazilians on 39 variables (see Table II-2).*

The present analysis proceeds through several stages, and at each juncture one or more variables may be eliminated. These deletions will be based on such criteria as: (1) insufficiency of correlation with other variables, (2) high refusal (no answer) rate, (3) establishment of a superior measurement of the concept with an alternative variable, or various other deletion criteria such as extreme skewness of distribution. This procedure is discussed at length in the methodology chapter of the

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Serial Number	Name of Variable		Mean	Standard Deviation
Ч	Age	(099 years old)*	44.39	13.40
7	Education	(04, less to more education, gross categories)	. 84	++ .
с	Education of eldest son	(04, less to more education, gross categories)	.70	• 53
ŧ	Educational aspirations for eldest son	(02, aspirations for less, some or more education than father)	1.91	.37
വ	Occupational aspirations for eldest son	(04, gross categories, low to high status)	2.31	1.11
9	Innovativeness	(012, adoption of up to 12 innovations)	3.83	3.03
7	Risk orientation	(02, low to high risk orientation)	16.	66 .
ω	Satisfaction with status quo	(02, less to more satisfaction)	1.48	• 88
თ	Attitude toward future	(06, negative to positive attitudes)	4.58	1.60
10	Functional literacy	(050 number of correctly read words)	28.82	22.64
11	Use of credit	(03, less to more use of credit)	1.04	1.00
12	Economic knowledge	(06, low to high knowledge)	2.74	1.55
13	Use of agricultural facilities	<pre>(l3, use of agricultural post-1, cooperative-2 or store-3)</pre>	2.16	• 58
14	Political knowledge	(05, low to high political knowledge)	1 . 48	1.67
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Responses of the 1,307 respondents across the 39 variables were standardized prior to submission to factor analyses.

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Table I	I-2 (contd)			
Serial Number	Name of Variable		Mean	Standard Deviation
15	Family income	(0-8, less to more income)	3.06	2.13
16	Connercialization	(0-4, less to more income invested in property or production)	1.73	1. 48
17	Cash or subsistence crops	(0-2, from subsistence to cash, crop orientation)	1.07	1 6.
18	Farm size	(0-999, less to more land area in hectares)	68°91	129.17
19	Source of income	(0-2, from rent to land ownership)	1.51	.85
20	Mention as a best friend	(0-3, less to more mention by others as a best friend)	1.26	2.15
21	Counterfactuality	(0-24, less to more counter factuality ranking)	16.26	5.06
22	Number of years of schooling	(0-9, less to more years of schooling completed)	1.11	. 80
23	Innovativeness	(0-99, less to more normalized years of adoptions)	49.93	9.77
24	Adoption percentage	(0-99, low to high percent of innovations adopted divided by those promoted)	33.24	26.17
25	Discontinuance	(0-99, low to high percent of innovations discontinued)	8.69	16 . 92
26	Socioeconomic status	(0-26, low to high number of home and farm equipment and improvements)	31.15	6.58
27	Agricultural influence	(0-10, less to more influence)	1. 29	3.64
28	Opinion leadership for cooperative	(0-10, less to more opinion leadership)	.47	2.12

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Table I	[-2 (contd)			
Serial Number	Name of Variable		Mean	Standard Deviation
29	Interpersonal trust	(0-2, less to more trust)	.73	.95
30	Status inconsistency	(0-99, less to more inconsistency)	49.98	8.24
31	Need-for-achievement	(0-10, less to more need for achievement)	2.86	1.45
32	Attitude toward credit	(0-9, negative to positive attitude)	3.30	1.07
33	Risk orientation	(0-7, low to high risk orientation)	1.63	1.44
34	Social participation	(0-16, low to high participation)	1.38	1.63
35	Partriarcalism	(0-10, high to low partriarcalism)	3.07	1.33
36	Credit orientation for productivity	(0-9, credit orientation for productivity)	2.61	1 . 46
37	Opinion leadership	(0-297, less to more leadership)	50.17	9°95
38	Empathy	(0-12, less to more empathy)	4.86	2.54
39	Opinionatedness	(0-9, less to more opinionatedness)	8.58	h 6 .

The present analysis of traditionalism attempts neither isolated nor initial study of urban and rural poverty; but rather to build on the theoretical and empirical works which have preceded it. Therefore, nearly all of the variables posited by Lerner (1958), Lewis (1961, 1966), Foster (1962, McClelland (1961), and Rogers with Svenning (1969) with respect to their investigations of peasantry, poverty and traditionalism are found in the present research project.

In addition, a number of variables which may be considered novel in empirical description of traditional life have been included for one of two reasons: (1) either they conceptually appear to be linked to traditional life styles as in the case of opinionatedness, or (2) they represent situational measures, relevant to traditionalism as found in rural agricultural Brazil, such as the indices which relate to farm orientation and agricultural success.

Traditionalism and Communication Behavior*

The traditional communication system is characterized by dependence on oral communication channels. This amounts to less contact with the external environment than if mass media channels were used. Alteration of this strategy of information transmission in the form of participation in a mass media audience often seems to signal movement toward modernity. Lerner (1958, pp. 52-65) refers to the mass media as

present report. Also, the analytical procedures to be employed at each stage in the research project are presented in the methodology chapter.

Traditionals in rural and urban environments are distinguished by different patterns of communication behavior. For example, urban traditionals are heavy users of such mass media channels as television which receive little use in rural traditional settings. The present analysis focused on rural traditional communication behavior.



the "mobility multiplier." Mass media open a world of vicarious experience to large numbers of people. Schramm (1964) and Rao (1966) suggested that the mass media aid modernization by widening the distribution of information.

In the present study numerous indices of communication behavior serve as dependent and independent variables. This research strategy is adopted in order to empirically examine the relationship between traditionalism and communication behavior. Attention is directed at such categories of communication measures as exposure and credibility of mass media and interpersonal channels, cosmopoliteness, and changeoriented information seeking, see Table II-3.

BUILD OF THE PROPERTY AND

Hypotheses

The findings of Deutschmann (1962), Stycos (1952), Rogers (1965), Rogers with Svenning (1969), and Lerner (1958) all support the generalization of a negative relationship between traditionalism and mass media exposure or high mass media credibility. Traditionals characteristically shun mass media channels, even where readily available, in preference to interpersonal channels. For example, Caplovitz (1963, p. 129) cites the importance of door-to-door peddlers as trusted marketers of goods in urban slums where "individuals exclude themselves from the larger market because they do not feel comfortable in it." The interpersonal interaction of these peddlers with their urban poor customers seem to be the key to the trust placed in them; it certainly is not derived from the quality of their goods or the prices they charge.

Turte 11-3. Initially Selected Communication Variables* Serial

TOTOT		Intraction Agrightes.		
Serial Number	Name of Variable		Mean	Standard Deviation
40	Newspaper readership	(099, less to more monthly readership)	3.31	7.67
L4	Radio listening	(03, less to more listening, gross categories)	2.19	с б
42	Television viewing	(02, less to more viewing, gross categories)	.50	•58
с 1	Cinema viewing	(099, less to more yearly cinema attendance)	2.74	10.35
t t	letter writing	(04, less to more writing, gross categories)	1.38	1.18
t+5	Channel of agricultural news: radio	(02, no, don't know or yes response)	1.29	.96
94	Channel of agricultural news: newsprint	(02, no, don't know or yes response)	.61	.92
47	Channel of agricultural news: magazines	(02, no, don't know or yes response)	.65	1 6°
t 8	Channel of agricultural news: ACAR bulletin**	(02, no, don't know or yes response)	. 83	66 .
6 1	Channel of agricultural news: extension agent	(00-2, no, don't know or yes response)	.71	96

Initially Selected Communication Variables* Table II-3. *See Appendix A, Operational Definitions of Traditionalism and Communication Variables.

** The Agency for Credit and Rural Assistance (ACAR) is one of the oldest continuously-functioning agencies of rural change and extension effort in South America.

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Table I	I-3 (contd)			
Serial Number	Name of Variable		Mean	Standard Deviation
50	Channel of agricultural news: neighbor	(02, no, don't know or yes response)	1.20	86.
51	Number of channels of agricultural news	(02, fewer to more channels)	2.70	10.1
52	Credibility of radio	(03, fewer to more times chosen from four channels as most credible)	1.01	. 86
53	Credibility of newspapers	(03, fewer to more times chosen from four channels as most credible)	.75	.82
54	Credibility of extension agent	(03, fewer to more times chosen from four channels as most credible)	2.22	1.07
55	Credibility of neighbor	(03, fewer to more times chosen from four channels as most credible)	1.11	1.10
56	Media with the highest source credibility	(l4, fewer to more rank ordering of four channels as most credible)	1.97	. 55
57	Media with the second high- est source credibility	(l4, fewer to more rank ordering of four channels as second most credible)	2.17	1.14
58	Channel for first knowledge of innovations	(04, frequency of channel use of four channels)	1.86	1.15
59	Channel during awareness stage for innovations	(04, frequency of channel use of four channels)	1.82	1.03
60	Most influential channel in the adoption of innova- tions	(04, frequency of channel use of four channels)	1. 86	.92

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(contd)
II-3
Table

	Standard Deviation	17.05	1.32	1.23 11.59	2.41
	Mean	7.86	1.21 777	L.// 6.33	2.20
		(099, fewer to more yearly contacts) (03, no contact, credit. social on	technical contact) technical contact) (05, less to more credibility)	(0205, less to more exposure)	VUT-202, less to more cosmopoliteness
Name of Viritian.	Change agent-client	Topic of conversation With change arout	Mass media credibility	Mass media exposure Cosmopoliteness)
Serial Number	61	62	63	05 65	

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Lerner (1958, p. 56) in his analysis of aggregate data collected in several traditional nations notes that as societies move from traditional through transitional to more modern life styles that "the direction of change is always from oral to media system (no known case exhibiting change in the reverse direction)." In accordance with the findings of these and other modernization and communication theorists, the following hypotheses are postulated for our sample of 1,307 Minas Gerais (Brazil) rural agricultural traditionalists:

GH 1: Exposure to mass media communication channels is negatively related to traditionalism.

A number of studies support a negative relationship between mass media exposure and traditionalism. For example, Rogers with Svenning (1969, p. 115), on the basis of data collected in Colombia, note that "When one compares the mass media in less developed countries with their counterparts in more developed nations, it is seen that the former reach much smaller audiences." They found (1969, p. 97) "a considerable disparity in mass media penetration" in traditional versus relatively more modern Colombian communities. A national sample of India conducted by Sen and Roy (1966) and a national sample of Turkey conducted by Frey (1966) yielded comparable mass media exposure findings. Pye (1963) reports that communication in traditional settings is usually dependent upon a word-of-mouth process resulting in countless ineffective communication subsystems based upon personal contacts.

GH 2: Cosmopoliteness is negatively related to traditionalism.

<u>Cosmopoliteness</u>, an orientation outside of one's immediate social system, is contrasted with localiteness or concentration of one's interest in the immediate environment to the exclusion of the outside world. Traditional men are characteristically localite, and cosmopoliteness seems to play a key role in the modernization process. For example, Donohew and Singh (1967) in a factor analytic study of poor Kentucky farmers found cosmopoliteness to be the most important single variable in distinguishing modern from traditional respondents. Rogers with Svenning (1969, p. 161) found strong correlations between measures of cosmopoliteness and numerous indices of modernization among Colombian peasants. In a comparison of traditional and relatively more modern Colombian villages they noted that about 31 per cent of the variance of socioeconomic antecedents to modernization was explained by cosmopoliteness in the modern villages while only about 16 per cent of the variance was explained by the traditional villages in a multiple correlational analysis.

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GH 3: Change agent contact is negatively related to traditionalism.*

<u>Change agents</u> are professionals who influence the adoption or rejection of innovations by their clients. Although their greatest service is to their more traditional clients, they tend to interact most frequently with the most modern of their traditional clients. For example, Rogers with Svenning (1969, p. 176) reported that in Colombia,

In addition to the two hypothesized relationships between traditionalism and general communication behavior, four hypotheses are offered relating traditionalism and change-oriented communication behavior. The communication variable in each of these hypotheses measured either change agent contact or reception and credibility of agricultural news.

India and Kenya "most change agents have higher contact with clients who are characterized by greater innovativeness, higher social status and more education than their counterparts."

GH 4: The number of communication channels used for innovation information is negatively related to traditionalism.

Attendance to numerous communication channels is a sign of modernity. Lerner (1964) and Frey (1966) reported that the most modern of their Turkish respondents attended to numerous mass media channels. They found that exposure to one mass media channel was positively related to exposure to other media. On the other hand, the most traditional of their respondents were found to exclude themselves entirely from the mass media audience. Rogers with Svenning (1969) and Deutschmann (1963) found the same "centripetal effect"* or overlapping exposure to numerous communication channels in the communication of change among the most modern of their Colombian respondents. On the other hand, the most traditional of their peasant respondents exposed themselves to very few change-oriented communication channels. Thus, even though traditionals are the principal clients of change, they receive little information which is innovative.

GH 5: Greater exposure to interpersonal, rather than mass media, channels in the communication of innovations is positively related to traditionalism.

<u>Innovations</u> are ideas or practices which are perceived as new. Traditionalists are not often exposed to new ideas, nor are they seekers

Lerner (1963, p. 341) operationalized the "centripetal effect," overlapping exposure to numerous communication channels, as high correlations among exposure to five mass media, including: newspapers, radio, magazines, films and television.

of information about change. Therefore, when they are confronted with innovations it is likely via communication channels which are most used, that is interpersonal rather than mass media. Rogers with Svenning (1969) reported that in less developed, as opposed to more developed, nations interpersonal communication channels were far more important than mass media channels throughout the innovation-decision-making process, from initial awareness through final adoption.

GH 6: Higher channel credibility for interpersonal, rather than mass media, channels in the communication of innovations is positively related to traditionalism.*

Rogers with Svenning (1969, p. 98) pointed out that mass media programming often ignores the informational needs of traditionals. "Mass media messages in less developed countries are of low interest and relevancy to villagers because of the strong urban orientation of the mass media." In fact, the mass media of highly developed nations often ignore informational needs of the urban poor audience. The combination of limited exposure and low salience of mass media channels mitigates against high credibility for mass media channels. Ramos (1967) and Herzog (1967) found in studies of Ecuadorian and Brazilian peasants, respectively, that mass media exposure precede mass media credibility. They noted that the relative positions of various communication channels on a continuum of credibility in diffusing agricultural innovations (ranging from least to most credible) were: newspaper, commercial salesman, neighbor, radio, school teacher and extension agent. The two most credible channels were interpersonal, while the least credible was a mass media channel.

[&]quot;These six general hypotheses are also tested in similar form with traditional typologies replacing traditionalism.

All of the previously-mentioned hypotheses make reference to communication behavior characteristic of traditional people. The dominant theme of each hypothesis is the overriding assumption that traditionals tend most frequently to attend to interpersonal communication channels for their informational needs. This tendency appears to be at the expense of the reception of messages through mass media or cosmopolite communication channels. Finally, progress toward modernity appears to be closely linked to increased exposure to mass media, cosmopolite and change-oriented communication channels.

Justification of the Present Study

The present approach to the study of traditional life and communication behavior is innovative in several instances:

1. A large sample of Brazilian subsistence farmers (1,307 from 18 rural communities) provides the opportunity to utilize R-type factor analysis in the study of responses to a wide variety of socio-psychological and economic indices. This statistical methodology allows for identification of factors central to traditional life. This approach has been employed by Deutschmann and Fals Borda (1962) in Colombia, Jain (1965) in Canada and Donohew (1967) in the United States.

2. Submission of 100 randomly-selected respondents from the population of 1,307 to P-type factor analysis allows (a) description of "people" factors in traditional settings and (b) comparisons of traditional people typologies with variable configurations of traditionalism. Ascroft (1969) commented on the rarity of this factor analytic technique in the study of traditional life. Farace (1966) used P-type factor analysis at the aggregate level in a study of 109 modern and traditional nations. Also, Raju (1969) and Donohew (1967) used P-type factors in descriptions of traditional typologies in India and the United States.

3. Finally, the obtained R- and P-type factors provided independent and dependent variables with which to test hypotheses concerning traditional communication behavior. Two statistical techniques, correlation analysis and analysis of variance, were used to test the relationship between traditionalism and communication behavior. Raju (1969) used similar statistical manipulations in describing the communication behavior of his sample of Indian peasants.

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CHAPTER III

METHODOLOGY

Data analysis needs to be both exploratory and confirmatory. In exploratory data analysis there can be no substitute for flexibility, for adapting what is calculated . . . both to the needs of the situation and the clues that the data have already provided.

(Tukey, 1969, p. 90)

Methodological considerations important in the present analysis of survey data on traditionalism and communication behavior are examined in the present chapter. Attention is directed at instrument construction, sampling, data-collection and data analysis.

The data utilized in the present analyses were drawn from a field survey of Brazilian subsistence farmers. This survey was Phase II in a three-phase, three nation study of the "Diffusion of Innovations in Rural Societies."* India, Nigeria and Brazil were selected for inclusion in the investigation as being somewhat representative of the range in level of development of less developed nations.**

[&]quot;A research project funded by the United States Agency for International development and conducted in conjunction with the Department of Communication, Michigan State University, and the Agency for Credit and Rural Assistance (ACAR), Minas Gerais, Brazil, under the direction of Dr. Everett M. Rogers.

The criteria for selection also included favorable logistic possibilities, significance and representativeness of the country, interest and approval by the host government and by appropriate host institutions, as well as local AID support.

Phase I was a field survey conducted over a representative sample of communities in an effort to determine the influence of select <u>community</u> characteristics, such as modernization levels, social structural characteristics, community leadership (formal and informal) and degree of interaction with change agents, on the adoption process. In Phase II of the Project a second field survey concentrated on the characteristics of <u>individual</u> farm decision-makers. During this juncture of the investigation attention was directed at the relationship of individual characteristics (social, economic and attitudinal) to both (1) innovativeness, and (2) opinion leadership. Phase III represented a set of field experiments designed to investigate, under controlled conditions, the relative efficiency of various communication strategies. The diffusion of specified innovations was experimentally studied. The treatments were combined media and interpersonal channels during the final phase of the research project.

The methodology of Phase II of the Brazilian Project is best understood in the context of the total research program for Brazil and in comparison with comparable research being conducted at the same time in India and Nigeria. The research decisions made during each phase of the investigation had an impact on succeeding phases. Also, the overall research objectives tended to shape the research in each country toward similar ends in order to provide for comparability of findings.

Sampling

A purposive sample of 76 Minas Gerais (Brazil) communities was selected during Phase I of the research project. These communities were chosen by 40 randomly-selected ACAR change agents. Each agent was asked to pick the most successful and least successful community in his jurisdiction. Through attrition, sampling and other problems this sample of 80 communities was reduced to 76, with 38 corresponding change agents.

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Selection of Communities

At Phase II of the research project 18 ACAR change agents were purposively selected from the original Phase I sample of 38. This selection was completed with the aid of ACAR specialists working in conjunction with research personnel. Their decisions were based on criteria such as: nearness of a community to a single radio broadcasting station, clustering of houses or nuclear center of community interaction and relative accessibility.

Since, as indicated in the Phase I methodology, each ACAR agent represented two communities, it was possible to randomly designate the selection of either the successful or unsuccessful community. Only one community per change agent was chosen; and, the final purposive judgmental sample included nine successful and nine unsuccessful communities.

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Selection of Respondents

Subjects were selected from within the 18 communities on the basis of the following criteria: (1) the major decision-maker for a particular farm, (2) at least part owner of the land they tilled and (3) absentee landowners were excluded from the sample. Research assistants were sent to each of the sampled communities in order to both map them and obtain a list of all farm land owners. These lists of names were interviewer guides in selecting respondents. All those listed were interviewed unless they were unavailable during the nine or ten days the interviewing team was working in the community. Occasionally an important farmer was absent during this period and, where possible, interviewing teams returned to the community at a later time to interview such individuals. In other words, a virtual census was completed of farm land owners who were household heads in the 18 selected communities.

Once the original 18 communities had been selected, ACAR notified the Project that they were planning a special program of "coordinated communication" in several local offices outside the Phase II sample. Included in their sample were several communities which had been represented in the Phase I research effort. Two of these, a "successful" and "non-successful" community were subsequently added to the Phase II research design and respondents were sampled from them in the same manner as in the original 18 communities. Thus, the number of sampled communities was increased to 20, in which 1,307 respondents were interviewed.

Respondent Profile

An introductory respondent profile is constructed in Table III-1 with typical or modal responses elicited from the large Brazilian sample to a number of indices selected from a lengthy survey questionnaire. This profile, based exclusively on frequency counts, provides a beginning point of reference in orienting the sampled population in terms of traditionality or progress toward modernity.

The "average" respondent is approximately 44 years old, has not lived outside of his present community, earns less than \$500 (U.S.) a year, and owns less than 30 <u>hectares</u>* of land. He does own a radio, stove, house with a wood or tile floor, a water filter and some kind of farm machinery. He does not own a refrigerator, television set or motorized vehicle. He does not have indoor plumbing, electricity or an inside toilet.

Instrument Construction and Data-Gathering

Construction of the Phase II personal interview schedule was greatly influenced by a working paper on modernization authored by Keith and Rogers (1966), which outlined variables in 17 conceptual areas and suggested appropriate items for their measurement. Their operational and conceptual definitions were culled from an extensive survey of the literature on modernization and development.** Attention was directed at such variables as: empathy, occupational achievement

"One hectare equals 2.47 acres.

^{**} _____ The MSU/AID Brazilian project was the focal point for a number of investigations and working papers, including: Herzog and others (1968), Whiting (1967) and Whiting and Winterton (1968).

Respondent Stereotype		Percentage of Respondents
Age	 43 years old or younger	50%
Localiteness	 never lived outside of present community	64%
	communities	25%
	have lived in a large (40,000 or more) city	10%
Income	 earns from \$0 to \$500 (U.S.) a yea	r 51%
	earns from \$500 to \$1,000 (U.S.) a year earns from \$1,000 to \$3,000 (U.S.)	18%
	a year	26%
	earns in excess of %4,000 a year	5%
Land Ownership	 owns less than 10 <u>hectares</u>	32%
	owns less than 30 but more than 10 <u>hectares</u> owns more than 100 <u>hectares</u>	53% 18%
Ownership of Commodities	 owns a radio	62%
	owns a stove with chimney	83%
	owns house with wood or tile floor	67%
	owns a water filter	59%
	owns some kind of farm machinery	50%
	does not own a refrigerator	92%
	does not own a television set	95%
	does not own a motorized vehicle	85%
	does not have indoor plumbing	60%
	does not have electricity or an inside toilet	69%

Table III-1. General Respondent Profile

motivation, political knowledge, opinionatedness, fatalism, interpersonal trust and many others.

A preliminary interview schedule was developed, in Portuguese, and pretested with a small group of farmers. The results of this pretest were incorporated into a revised schedule which was utilized in a pilot study of 55 peasants, sampled from a community similar but outside of the 20 communities sample. From the results of this pilot study scale analyses were conducted and the final instrument was considerably shortened and tightened up.*

Data-Analytic Strategy

The present research project has two major objectives: (1) investigation of traditionalism, as a variable composed of an interrelated set of socio-psychological, attitudinal and economic elements, and (2) examination of the relationship between traditionalism and changeoriented communication behavior. These two objectives were further subdivided into a number of research steps, each requiring a different method of data-analysis. An outline of the present project's research objectives and sequential data-analysis methods is seen in Table III-2.**

[&]quot;In their conceptual and operational definitions of 17 interrelated modernization variables Keith and Rogers (1966) cited numerous theoretical and empirical references, including: Lerner (1958), Rogers (1966), Rogers and Herzog (1966), McClelland (1961), Deutschmann (1963), Almond and Verba (1963), Doob (1964, 1965), Arensberg and Niehoff (1964), Sen (1962), Banfield (1958), Pye (1963), Lewis (1951) and many others.

A comparison of findings culled via R-type factor analysis in the present research project with empirical results of similar research in other countries (India, Colombia, Kenya and the United States) is presented in Chapter V. A number of methodological data-analysis decisions, described in the present chapter, have been influenced by our desire for comparability of findings.

Table III-2. Data-Analysis Design

Research Objectives			Method of Data-Analysis		
<u>_</u> 1.	Descriptive analysis of variables	1.	Zero-order correlation		
	central to traditionalism		analysis, and		
		2.	Regression analysis		
la.	Evaluation of factors important	1.	Factor analysis (R-type)		
	in describing traditional life				
Ъ.	Evaluation of factors important	1.	Factor analysis (P-type)		
	in describing traditional				
	typologies of people				
2.	Evaluation of the relationship	1.	Zero-order correlation		
	between traditionalism (both		analysis, and		
	R- and P-type factors) and	2.	Analysis of variance		
	communication behavior				

The first analytic stage relied on both zero-order correlation and regression statistical techniques in descriptively analyzing traditionalism. The inter-correlational matrix aided decisions on retention or deletion of variables for factor analysis. The regression analysis provided rank-order importance of variables in describing traditionalism. The second data-analysis juncture was concerned with determination, via R-type factor analysis, of socio-psychological and economic dimensions important in describing traditional life. The third stage of the dataanalysis concerned construction of traditional typologies of people. These typologies were extracted through the use of P-type factor analysis

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of a random sample of 100 of the 1,307 respondents. Characteristics of each typology were determined by a WRAP computer program that analyzed typology scores of 20 variables (selected for their participation in describing R-type factors of traditionalism). Finally, the last stage of the data-analysis dealt with examination of relationships between traditionalism and communication behavior. At this point, zero-order correlation analysis was employed in testing hypotheses relating R-type factors of traditionalism and indices of communication behavior. Additionally, analysis of variance was used to test differences in communication behavior among traditional P-factor typologies. A comparison was also made of factors obtained in the P-type and R-type factor analysis.

Data-Analysis: Stage I

The initial data analytic stage included two separate processes. First, variables were selected on the basis of their suspected utility in empirically describing traditional life and communication behavior. Sixty-five such measures were tentatively chosen.* Second, these variables were submitted to both a zero-order correlation and a regression analysis.

A careful scrutiny of these statistical manipulations provided a basis for deleting a number of variables from further study. This

Appendix B contains a list of all 65 variables in the initial Stage of the present analysis including their scores on each of the four retention-deletion criteria.

screening of variables was based on four criteria, any of which, if not passed, justify the exclusion of a measure:

1. A variable was deleted if it had a "no answer" rate exceeding ten per cent, or 131 of the 1,307 respondents.

2. A variable was deleted if it did not correlate significantly with at least three other of the 65 variables tentatively chosen.*

3. A variable was dropped if it proved redundant with another variable which offered a satisfactory measure of the concept.

4. Finally, a variable was excluded if its correlation with at least one other variable did not explain at least five per cent of its variance.**

Each of the retention-deletion criteria represent arbitrary stipulations designed to provide a point of reference for the inclusion or rejection of variables. Their utility lies in the development of a parsimonious list of measures, descriptive of traditional life, which may be submitted to factor analysis.

Data-Analysis: Stage II

The second data-analytic operations sought to determine, via factor analysis, whether a relatively large collection of variables were reducable to a few identifiable clusters of measures which "go together."

Non-significant correlation, at the ordinal level of measurement, is any correlation of less than .134 (a correlation of .134 or above is significantly different from zero at the .01 level of confidence for an N of 1,307).

^{**} One effect of arbitrarily setting the criteria as 5 per cent of variance explained (which is a more conservative level of acceptance than significance at the 5 per cent level was to remove most of the variables having lower communalities (h²) to lower and more complex factor loadings. <u>Communality</u> refers to the proportion of variance of each variable accounted for in a factor solution.

:: Ţ£ i. ΥE ÷ . . Sü -: --Ŧ. : 1 70 đ 15.1 . Д С S. 2 -0 Ç 2. 0. 1. 1. 0. s Factor analysis is a statistical data reduction technique. It is a method of analyzing the correlation matrix of a large number of variables in order to describe basic dimensions of a phenomenon under investigation. These dimensions or variable clusters are called factors. A factor may be considered a hypothetical construct which is defined by those variables sharing common variance with it. Variables which survived Stage I screening, and excluding those related to communication behavior, were submitted to an R-type factor analysis.* This analysis was designed to illuminate those factors most descriptive of traditionalism within both an economic and socio-psychological framework. At this juncture 26 variables were submitted to R-type factor analysis.

Data-Analysis: Stage III

This stage of the data-analysis also depended on factor analysis procedures in order to reduce a large number of individuals to clusters which "band together" as typologies.** At this juncture 100 subjects (7.6 per cent), randomly selected from the 1,307 respondents, comprised the sample.*** These 100 respondents served in a P-type

[&]quot;R-type factor analysis refers to the correlation and factoring of responses or tests of a sample of individuals.

^{**} P-type factor analysis refers to the correlation and factoring of people for a sample of responses or tests.

Only 100 subjects were submitted to P-type factor analysis due to limitations in the number of variables FACT AN, a computer program available at Michigan State University Computer Center and utilized in the present analysis, could factor analyze. This program had a parameter limitation of 100 variables. Hence, when people replace variables, as in a P-type factor analysis, it had a 100 person limitation. There was no such limitation on observations.

33 ::: 74 30 Ŵ ^ S. 73 7 15.1 ć . 11 3 ć ã 0 Ŷ. 2 factor analysis as variables, while, 20 measures of traditionalism, selected on the basis of their high loading on three R-type traditionalism factors, served as observations. Factors culled from this analysis represented groupings of individuals around a common syndrome of characteristics (in this case the 20 traditionalism measures). Thus, a factor represented a type of person. A WRAP computer program assigned weighted scores for each of the 20 variables for each subject assigned with a given typology (factor). The higher the factor loading of a subject the greater was the assigned weighted score. These weighted values were summed across each variable separately, and, the arrays of weighted values were converted to Z-scores.

Data-Analysis: Stage IV

At Stage IV attention was directed at the relationship between dimensions of traditionalism and communication behavior, as well as the relationship between traditional "people" typologies and communication behavior. At this juncture a zero-order correlation analysis was conducted between R-type factors and a number of communication variables, such as mass media exposure and credibility, cosmopoliteness and change agent contact. Analysis of variance was also employed in order to measure differences in communication behavior among typologies of traditionals identified by the P-factors. In each of these analyses R- and P-type factors served as variables.

Data-Analysis: Stage V

Stage V attended to the relationship between factors culled from R-type and P-type factor analysis. Attention was also directed at

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comparisons in the relationships that R-type and P-type factors ex-

hibited with indices of communication behavior.

Figure III-l provides a diagrammatic illustration of the different stages involved in the present data analysis.



Figure III-1. Flow chart of the data analysis methodology.

CHAPTER IV

FINDINGS AND DISCUSSION: PART ONE

It is futile to attempt to treat this interaction between communication and economic development as a causal relationship and isolate the chicken from the egg. The interaction is constant and cumulative.

(Rao, 1963, p. 35)

Data-Analysis: Traditionalism and Communication in Brazil

Data-Analysis: Stage I

Sixty-five traditionalism and communication variables were used in the computation of such basic statistics as the mean, standard deviation, skewness and kurtosis. A zero-order correlation matrix and a regression analysis (mass media exposure served as the dependent variable) was also obtained for all of these variables. On the basis of these statistical procedures and four retention-deletion criteria, outlined in Chapter III, 26 traditionalism variables were submitted to R-type factor analysis and 20 communication variables were retained for use in later analysis.

Data-Analysis: Stage II

A three-factor solution was obtained on the third rotation of an R-type factor analysis utilizing principal axis varimax rotations*

* A factor rotation is a mathematical means of viewing data

and a Kiel-Wrigley criterion of three for termination.* The selection of the third rotation was based on three criteria: (1) maximization of variance explained, (2) purity of factor loading and (3) conceptual clarity.

The strongest factor, accounting for 19.81 per cent of the explained variance and entitled "socioeconomic-achievements," included 11 variables: Functional literacy, use of agricultural facilities, political knowledge, farm income, commercialization, farm size, innovativeness, adoption percentage, socioeconomic status, attitude toward credit and status inconsistency. A second factor, accounting for 10.96 per cent of the explained variance and entitled "modern attitudes," contained 8 variables: Occupational aspiration for son, economic knowledge, counterfactuality, opinionatedness, need achievement, risk orientation, social participation and empathy. The last factor, accounting for 10.13 per cent of the explained variance and entitled "community leadership," included only three variables: Mention as a best friend, agricultural influence, and opinion leadership. Table IV-1 lists each variable, its factor loading and the proportion of total variance explained by each factor.

from a variety of perspectives with the ultimate goal of reducing the data to its simplest factor structures. The present analysis utilized orthogonal rotations which require independence between any two factors. Thus, the correlation between any two factors was zero.

[&]quot;The Kiel-Wrigley criterion terminates the rotation of factors when the last factor is comprised of only three variables. The criterion of at least three variables in each factor helped to insure factor stability.

—	Item Corr	relation with	Factors
Traditionalism Scale	Socio-	11	III
Number* (Abbreviated)	economic Achievements	Modern Attitudes	Community Leadership
 Occupational aspiration for son Functional literacy Economic knowledge Use of agricultural facilities Political knowledge Farm income Commercialization Farm size Mention as best friend Counterfactuality Opinionatedness Innovativeness Adoption percentage Socioeconomic status Agricultural influence Status inconsistency Need achievement Risk orientation Social participation Attitude toward credit Opinion leadership Empathy 	.2441 .4313 .2916 .5808 .7806 .2753 .7184 .1916 .2863 0330 .5125 .6269 .8013 .2572 .9346 0007 .0530 .0654 .6684 .2394 .2488	$\begin{array}{r} .4242 \\ .2835 \\ .5081 \\ .0079 \\ .2753 \\ .1832 \\ .0670 \\1079 \\ .0852 \\ .7242 \\ .5440 \\ .1303 \\ .2649 \\ .1454 \\ .0549 \\ .0913 \\ .4992 \\ .3952 \\ .2990 \\ .0796 \\ .0694 \\ .7080 \end{array}$.0216 .0357 .0702 .0838 .1100 .1717 .0239 .1211 .7966 .0524 0234 .2473 .1215 .0492 .9148 .1387 .0126 .0138 .1420 .1751 .9080 .0704
	ΤΑ•ΩΤ2	TO'86%	10.13%

Table IV-1. R-Factor Loadings on Traditionalism

* Three variables (age, attitude toward future, and source of income) failed to load highly on any factor and thus were dropped from further analysis.

Figures IV-1, IV-2, and IV-3 present three traditionalism factors obtained from the R-factor analysis of Brazilian farmers. The factor in each figure was diagrammed in weblike fashion in order to illustrate the interdependent relatedness of variables within the



Percentage of total variance explained = 19.8%

Figure IV-1. Factor I: Socioeconomic achievements.



Percentage of total variance explained = 11.0%

Figure IV-2. Factor II: Modern attitudes.



Percentage of total variance explained = 10.2%

Figure IV-3. Factor III: Community leadership.

factor. Thus, alteration of any variable is likely to result in changes throughout the factor until a state of equilibrium is established. The illustrative technique of presenting factors as "webs" was borrowed from Ascroft's (1969, p. 334) study of the process of modernization in traditional settings.* He noted:

> Each system of variables within a factor is diagrammatically analogous to a spider web with the zeroorder correlations representing juncture points in the web, and the factor loadings representing the distance of any juncture point from the center of the web. One can envisage changes in the stresses on all other strands that would be caused by altering the stress on any one strand.

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In the three traditionalism factor webs, (socioeconomic achievements, modern attitudes and community leadership), variables with the highest factor loadings were placed in the center of the web with variables arranged around them in order of diminishing correlations with their respective factors. The loading of each variable with its factor was shown in parentheses. Also, zero-order correlation coefficients between many of the measures were presented.

Data-Analysis: Stage III

This juncture of the data-analysis focused on empirical identification of traditional typologies of individuals. A random sample of 100 subjects was drawn from the 1,307 respondents originally sampled. These subjects, in terms of their scores on 20 to 22 measures** which

^{*}Ascroft (1969) used factorial webs to diagrammatically compare and contrast modernization variables in traditional and in modern Colombian villages.

[&]quot;Two of the 22 measures utilized in the construction of three Rtype traditionalism factors were deleted from the P-type factor analysis

comprise the core of the three previously-discussed R-type traditionalism factors, were submitted to P-type factor analysis.

A three factor orthogonal solution was obtained on the second of nine varimax rotations. In this principal axis solution a Kiel-Wrigley termination criterion of three was employed to insure factor stability. Selection of the second rotation was based both on amount of variance explained and purity of factor loadings. Tables IV-2, IV-3, and IV-4 give the assignments of subjects to each of the three factorial typologies of traditionals.

Allocation of respondents to typologies was guided by two arbitrarily set criteria. A subject was assigned to a factor if his loading or factor coefficient, which may be viewed as a measure of correlation with the typology score, exceeded .40 and was less than .40 on all other factors. A subject was also assigned to a factor if his squared factor loading approached his communality (h^2) on all factors. Respondents were allocated to specific factorial typologies if they met one or both of these criteria. Respondents who did not meet one of these criteria were considered indeterminant and are listed along with their factorial loadings on each factor in Table IV-5.

due to their peripheral loadings. The two variables deleted were (1) use of agricultural facilities, and (2) commercialization with factor loadings of -.1475 and .2753, respectively, in Factor I, socioeconomic achievements.

Subject Identifi- cation	Factor Loadings on Type I	Highest Other Loading	Highest Other Type	Commun-2 ality h
2	.5881	1570	TT	37
3	.3956	- 0449	TTT	16
6	.5766	-,4126	TTT	67
8	- 4000	0851	ÎÎÎ	17
12	. 4460	.1231	TT	22
14	.6327	3817	ĪT	56
22	6387	.4061	III	61
24	.6377	- 4789	TTT	64
29	4437	.3367	III	31
32	.4649	3071	III	31
34	5747	.3165	TIT	45
35	- 4276	2709	II	32
43	4304	1689	III	23
45	4350	.0884	III	20
46	6700	.3836	III	61
47	7555	.2427	III	64
50	4619	3534	II	35
51	7917*	.2214	II	70
53	6301	.1897	III	43
57	5225	.2182	II	33
60	3550	.0984	III	14
64	3040	0508	II	11
67	6983	.1565	III	43
73	.4608	.2874	III	30
78	.4113	0141	III	17
79	4927	2341	II	31
80	.3053	 1677	III	14
83	.5255	.1223	III	29
87	.7744	.1719	II	63
90	7512	2059	III	63
91	6392	.3133	III	54
92	6133	.3286	II	49
93	6889	3441	II	64
98	.3308	0508	III	12
99	.5147	.2905	III	37

Table IV-2. Highest Loading on Factor I in P-Type Three-Factor Solution

N = 35

Percentage of total variance explained = 14.8%

^{*}Highest loading on Factor I.

Subject Identifi- cation	Factor Loadings on Type II	Highest Other Loading	Highest Other Type	Commun-2 ality h ²
	h.000		-	
1	.4969	.1/11		28
4 F	.4359	2574		30
5	.7152	5356	111	80
y	5389	2526	1	40
13	5877	.0757		36
15	.3721	1905		20
20	.3566	2028	I	21
36	.3182	1555	III	13
41	•5836	.2428	III	45
42	.6387	.2100	III	46
48	6399	.2296	I	48
55	4988	 2235	III	30
56	.4890	.3431	I	38
58	.4168	.1164	I	19
66	.6183	.4175	III	58
68	3618	.1188	I	15
69	6087	0959	I	38
76	.6389	.4649	I	63
81	2922	.0949	I	14
82	.4422	.1307	I	22
84	.3023	1762	I	13
85	.3977	1000	I	17
86	6792	2275	I	52
89	.4314	.2554	III	25
94	.5442	.2719	I	4]
95	7872*	1932	Ī	66

Table IV-3. Highest Loading on Factor II in P-Type Three-Factor Solution

N = 26

Percentage of total variance explained = 11.6%

^{*}Highest loading on Factor II.

Subject Identifi- cation	Factor Loadings on Type III	Highest Other Loading	Highest Other Type	Commun-2 ality h
18 19 23 25 27 31 38 40 49 63 65 70 71 72 74 72 74 75 77 88 97 100	7380 .6065 5843 6881 4576 5654 4394 .3061 .6111 .5111 5809 .4547 .6080 .6539 .6194 .7547* .5633 .3403 6814 5662	$\begin{array}{c} .2114 \\4532 \\3964 \\ .1030 \\2951 \\ .1755 \\3315 \\ .1715 \\ .1999 \\ .4090 \\ .2710 \\3625 \\5187 \\4826 \\4354 \\ .1174 \\4366 \\ .1667 \\1785 \\ .0716 \end{array}$	I I I I I I I I I I I I I I I I I I I	60 58 54 49 31 36 31 13 43 51 43 34 65 82 69 59 66 17 50 33

Table IV-4. Highest Loading on Factor III in P-Type Three-Factor Solution

N = 20

Percentage of total variance explained = 11.5%

* Highest loading on Factor III.

On the basis of the two subject placement criteria, 19 out of the 100 randomly-selected subjects failed to load exclusively on any one of the three factors. Table IV-5 lists these indeterminant subjects, their loadings on each of the three typologies and their communality (h^2 score) across all factors.

Subject Identifi-				
cation	Туре І	Type II	Type III	Commun - 2
_				airty (n)
7	.2528	2332	-,2019	16
10	.2502	0131	2156	10
	2867	.3412	2629	27
ТР	- .4579	2244	3735	μn
17	.1283	.2466	0088	8
21	.2691	.2729	2455	21
26	.0481	1582	1877	6
28	1519	4438	4233	40
30	.0993	2447	1200	8
33	2227	3353	3263	27
37	.1837	3121	2453	19
39	.5650	4658	.0882	55
44	4087	.2631	.4760	46
52	0531	4688*	.4639	44
54	3606	4536	.4911*	58
59	- .6565 *	3136	.4866	77
61	3037	2997	.0742	19
62	0566	.4543	.4635	43
96	.3016	0883	3639	23

Table IV-5. Indeterminant Subject Loading in P-Type Three-Factor Solution

N = 19

Highest factor loading, on each typology, for indeterminant subjects.

Interpretation of P-Factor Typologies

A computer program (WRAP) was utilized in ascribing characteristics to those individuals defining each of the three P-factor typologies. The WRAP program computed weighted scores for each of the 20 variables, or observations used in assigning individuals to typologies, for each subject associated with a given factor. The higher the factor loading of a respondent, the greater was his weighted score. These weighted values were summed across each variable separately, and these arrays of weighted values were converted to Z-scores. Table IV-6 provided arrays of Z-scores for each of the P-factor typologies for the 20 variables.

	Name of Variable	T	pe I	Ту	pe II	Ty	pe III
1. 2. 3. 4.	Occupational aspira- tion for son Functional literacy Economic knowledge Political knowledge	1.11 0.88 -0.17 -0.20	(high) (high) (low) (high)	-0.45 -2.12 2.12 -0.52	(low) (low) (high) (low)	0.56 -0.66 0.58 -0.30	(medium) (medium) (medium) (medium)
5. 6. 7	Family income Commercialization Mention as best	-1.20 -0.99	(low) (low)	-0.60 -0.22	(high) (medium)	-0.91 -0.01	(medium) (high)
8. 9. 10. 11. 12. 13.	friend Counterfactuality Opinionatedness Innovativeness Adoption percentage Socioeconomic status Agricultural	-0.33 1.04 1.11 -0.93 -0.76 -1.38	(low) (high) (low) (low) (medium) (low)	-0.05 0.76 1.18 -0.25 0.86 -0.59	(medium) (medium) (medium) (high) (high) (high)	0.72 -0.72 1.33 -0.66 -1.27 -1.35	(high) (low) (high) (medium) (low) (medium)
14.	influence Status inconsistency Need achievement	-0.41 -1.45 1.49	(low) (low) (high)	0.21 -0.55 -0.89	(medium) (high) (low)	0.62 -1.05 0.03	(high) (medium) (medium)
17. 18. 19. 20.	credit Rish orientation Social participation Opinion leadership Empathy	1.45 0.31 -0.67 -0.43 1.54	(medium) (medium) (medium) (low) (high)	1.99 -0.70 -0.97 0.14 0.66	(high) (low) (low) (medium) (medium)	0.22 3.00 -0.60 0.62 -0.15	(low) (high) (high) (high) (low)

Table IV-6. WRAP Interpretation of P-Factor Typologies

On the basis of WRAP interpretations of P-type factors three traditional typologies emerged. Typology labels refer to the area in which individuals defining each typology have progressed the farthest toward modernity.

Type I: Attitudinally Moderns

Individuals defining this type were characterized by high occupational aspirations for their eldest son, extensive political knowledge, and a high degree of empathy. They received the highest functional literacy scores, and were high in need achievement and counterfactuality. On the other hand, they were low on economic knowledge, family income and commercialization. They were the least mentioned as a best friend, and were low in socioeconomic status, agricultural influence and opinion leadership. They were also low in opinionatedness, innovativeness and status inconsistency. They received medium scores in adoption percentage, attitude toward credit, risk orientation, and opinion leadership.

Type II: Economic Achievers

Traditionals defining this type were distinguished by high socioeconomic status, family income, adoption percentage and innovativeness. They were high in attitude toward credit, economic knowledge and status inconsistency. However, they had low scores on functional literacy and political knowledge. They were also low in risk orientation, need for achievement, social participation and occupational aspirations for eldest son. Their scores ranked medium on mention as a best friend, agricultural influence, opinion leadership and empathy. They were medium on degree of commercialization, ability to hold contrary-to-fact inquiry, and opinion holdership.

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Type III: Community Leaders

Individuals describing this type were distinguished by high agricultural influence, opinion leadership, social participation, and mention as a best friend. They were also high on commercialization, opinionatedness, and risk orientation. Yet, they were low on adoption percentage, attitude toward credit, empathy and counterfactuality. Type III individuals were found in the middle range of the twenty variables more often than either of the other two types. They were ranked medium in functional literacy, economic knowledge, and political knowledge. They were also medium on indices of socioeconomic status, family income, need for achievement, occupational aspirations for eldest son, innovativeness, and status inconsistency.

The three P-factor typologies closely parallel the three descriptive traditionalism dimensions arrived at by R-type factor analysis. Table IV-7 illustrates the close relationship between the R-factors of traditionalism and P-factor typologies of traditionals.

Type I individuals were relatively high in modern attitudes, especially in regard to measures of empathy and need for achievement, but quite low in leadership. They were moderately low in socioeconomic achievements. Type II individuals were moderately high on socioeconomic achievements, moderately low on modern attitudes and quite low on the leadership dimension. Type III individuals were quite high on the leadership dimension, moderately high on characteristics indexing modern attitudes, especially risk orientation, and moderately low on socioeconomic achievements. The three typologies seemed to represent about the same degree of traditionalism. However, they were character-

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Table IV-7. Dimension Tradition R-Type Factors	mal Typologies R-Type Variables and Factor Loadings Wei (in parentheses)	and Weigh ighted Sta Type I	ted Standary ndardized P. Type II	dized Scores of -Factor Scores Type III
I. Socioeconomic Achievements	 Socioeconomic status (.80) Farm income (.78) Commercialization (.28) Scatus inconsistency (.94) Adoption percentage (.63) Attitude toward credit (.67) Innovativeness (.51) Political knowledge (.58) Functional literacy (.43) 	-1.38 -1.38 -1.20 -1.45 -0.76 -1.45 -0.76 -0.20 -1.45 -0.20	-0.59 -0.55 -0.55 -0.55 -0.55 -0.25 -0.25 -0.25	-1.35 -0.91 -1.05 -1.27 -0.66 -0.66 -0.66
II. Modern Attitudes	<pre>10. Counterfactuality (.73) 11. Empathy (.71) 12. Economic knowledge (.51) 13. Opinionatedness (.55) 14. Occupational aspiration 14. Occupational aspiration 16. Social participation (.30) 17. Risk orientation (.40)</pre>		0.76 0.66 2.12 1.18 -0.45 -0.97 -0.70	-0.72 -0.15 0.58 1.13 0.56 0.03 3.00

0.62 0.62 0.72

0.21 0.14 -0.05

18. Agricultural influence (.92) -0.41
19. Opinion leadership (.91) -0.43
20. Mention as a best friend (.80)-0.33

III. Community Leadership

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ized by different modernization skills. Type I individuals were distinguished by modern attitudes, Type II individuals were high in socioeconomic achievements, while Type III individuals excelled in community leadership. Type I individuals were handicapped on leadership, Type II individuals suffered the restraints of traditional attitudes and Type III individuals were characterized by low socioeconomic achievements.

Data-Analysis: Stage IV

This stage of the data-analysis attended to the relationship between communication behavior and both (1) traditionalism, and (2) traditional typologies of individuals. In each case six general and numerous empirical hypotheses were tested. Correlational analysis provides measures of relationship between two or more variables. Table IV-8 provides the results of a zero-order correlational analysis in which the three traditionalism factor scores (socioeconomic achievements, modern attitudes and community leadership) were considered as independent variables. In this analysis 19 communication measures served as dependent variables.

GH	1:	Exposure to mass media communication channels	5
		is negatively related to traditionalism.*	
		EH 1-1a: Newspaper readership is positively	

related to socioeconomic achievements factor-weighted scores.

Table IV-8 shows that newspaper readership is correlated .295 with the socioeconomic achievements R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

^{*} Support for a general hypothesis depends on acceptance of a majority of the empirical hypotheses which test it.

Number of Empirical Hypothesis Tested	Communication Variables***	Socio- economic Achieve- ments	Modern Attitudes	Com- munity Leader- ship
EH 1-la-C	Newspaper readership	295**	.262**	.105*
EH 1-2a-c	Radio listening	309**	196**	.146**
EH 1-3a-c	Cinema viewing	.159**	.154 **	.083
EH 1-4a-c	Television viewing	.319**	268**	.125*
EH 1-5a-c	Mass media exposure scores	.222**	.187**	.116*
EH 2-la-c	Cosmopoliteness scores	·210**	.132*	.074
EH 3-la-c	Change agent contact	. 293 **	. 157 **	.182**
EH 4-la-c	Total number of agricultural			
	news channels	.506**	. 278 **	•285**
EH 5-la-c	Channels of agricultural news:			
	radio	.312**	. 178**	.156**
EH 5-2a-c	Channels of agricultural news:			
	newspapers	•346 **	.210**	.144**
ЕН 5-3а-с	Channels of agricultural news:			• •
	magazines	. 367**	•253 **	•251**
EH 5-4a-c	Channels of agricultural news:	295**	112 %	2011**
FH 5-53-0	Chappels of amigultural news:	• 000	• 110	•204***
шт 5-5 а- С	ortongion agent	211 8**	107**	120**
FH 5-62-0	Channels of agricultural news:	.340	• 19 /	.230
m. 0-04-C	neighbor	156**	068	Лап
EH 6-la-C	Credibility of radio	080	.000	.034
EH 6-2a-c	Credibility of newspaper	.004 .137**	.019	.081
EH 6-3a-C	Credibility of extension agent	.375**	185**	200**
	Credibility of neighbors	- <u>04</u> 9	- 018	- 057
EH 6-5a-c	Crediblity scores of mass	• • • • •		• 007
	media	.155**	.030	.121*

Table IV-8. Zero-Order Correlations Among Dimensions of Traditionalism and Communication Variables

Significantly greater than zero at the 5 per cent level (a correlation of .095 is significantly different from zero).

** Significantly greater than zero at the 1 per cent level.

*

*** Each of the dimensions of traditionalism is measured in terms of its degree of progress toward modernity, from less to more modern. Hence, positive correlations between communication variables and R-type factor scores of tradionalism, lends support to the posited hypotheses.

EH 1-1b: Newspaper readership is positively related to modern attitudes factor-weighted scores.

Table IV-8 shows that newspaper readership is correlated .262 with the modern attitudes R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 1-1c: Newspaper readership is positively related to community leadership factor-weighted scores.

Table IV-8 shows that newspaper readership is correlated .105 with the community leadership R-type factorial dimension of traditionalism. This correlation is greater than the .095 required for significance at the 5 per cent level. The empirical hypothesis is accepted.

EH 1-2a: Radio listening is positively related to socioeconomic achievements factor-weighted scores.

Table IV-8 shows that radio listening is correlated .309 with the socioeconomic achievements R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 1-2b: Radio listening is positively related to modern attitudes factor-weighted scores.

Table IV-8 shows that radio listening is correlated .196 with the modern attitudes R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 1-2c: Radio listening is positively related to community leadership factor-weighted scores.

Table IV-8 shows that radio listening is correlated .146 with the community leadership R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 1-3a: Cinema attendance is positively related to socioeconomic achievements factorweighted scores.

Table IV-8 shows that cinema attendance is correlated .159 with the socioeconomic achievements R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 1-3b: <u>Cinema attendance is positively related</u> to modern attitudes factor-weighted scores.

Table IV-8 shows that cinema attendance is correlated .154 with the modern attitudes R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 1-3c: Cinema attendance is positively related to community leadership factor-weighted scores.

Table IV-8 shows that cinema attendance is correlated .083 with the community leadership R-type factorial dimension of traditionalism. This correlation is not greater than the .095 required for significance at the 5 per cent level. The empirical hypothesis is not accepted.

EH 1-4a: Television viewing is positively related to socioeconomic achievements factor-weighted scores.

Table IV-8 shows that television viewing is correlated .319 with the socioeconomic achievements R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 1-4b: Television viewing is positively related to modern attitudes factor-weighted scores.

Table IV-8 shows that television viewing is correlated .268 with the modern attitudes R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

Table IV-8 shows that television viewing is correlated .125 with the community leadership R-type factorial dimension of traditionalism. This correlation is greater than the .095 required for significance at the 5 per cent level. The empirical hypothesis is accepted.

EH 1-5a: Mass media exposure scores are positively related to socioeconomic achievements factor-weighted scores.

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Table IV-8 shows that mass media exposure scores are correlated .222 with the socioeconomic achievements R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 1-5b: Mass media exposure scores are positively related to modern attitudes factor-weighted scores.

Table IV-8 shows that mass media exposure scores are correlated .187 with the modern attitudes R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 1-5c: Mass media exposure scores are positively related to community leadership factorweighted scores.

Table IV-8 shows that mass media exposure scores are correlated .116 with the community leadership R-type factorial dimension of traditionalism. This correlation is greater than the .095 required for significance at the 5 per cent level. The empirical hypothesis is accepted.

Fourteen of the 15 empirical hypotheses were accepted, so General Hypothesis 1 is supported. Mass media exposure is negatively related to traditionalism.

- GH 2: Cosmopoliteness is negatively related to traditionalism.
 - EH 2-la: Cosmopoliteness scores are positively related to socioeconomic achievements factor-weighted scores.

Table IV-8 shows that cosmopoliteness scores are correlated .210 with the socioeconomic achievements R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 2-lb: Cosmopoliteness scores are positively related to modern attitudes factor-weighted scores.

Table IV-8 shows that cosmopoliteness scores are correlated .132 with the modern attitudes R-type factorial dimension of traditionalism. This correlation is greater than the .095 required for significance at the 5 per cent level. The empirical hypothesis is accepted.

EH 2-lc: <u>Cosmopoliteness scores are positively</u> related to community leadership factorweighted scores.

Table IV-8 shows that cosmopoliteness scores are correlated .074 with the community leadership R-type factorial dimension of traditionalism. This correlation is not greater than the .095 required for significance at the 5 per cent level. The empirical hypothesis is not accepted.

Two of the 3 empirical hypotheses were accepted, so General Hypothesis 2 is supported. Cosmopoliteness is negatively related to traditionalism.

GH 3: Change agent contact is negatively related to traditionalism.

EH 3-la: Change agent contact is positively related to socioeconomic achievements factor-weighted scores.

Table IV-8 shows that change agent contact is correlated .293 with the socioeconomic achievements R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 3-lb: Change agent contact is positively related to modern attitudes factorweighted scores.

Table IV-8 shows that change agent contact is correlated .152 with the modern attitudes R-type factorial dimension of traditionalism. The correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 3-lc: Change agent contact is positively related to community leadership factor-weighted scores.

Table IV-8 shows that change agent contact is correlated .182 with the community leadership R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted. • 3 :, â. ÷ . 2 3 All three empirical hypotheses were accepted, so General Hypothesis 3 is supported. Change agent contact is negatively related to traditionalism.

- GH 4: The number of communication channels used for innovation information is negatively related to traditionalism.
 - EH 4-la: The number of communication channels used for innovation information is positively related to socioeconomic achievements factor-weighted scores.

Table IV-8 shows that the number of communication channels used for innovation information is correlated .506 with the socioeconomic achievements R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

Table IV-8 shows that the number of communication channels used for innovation information is correlated .278 with the modern attitudes R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

Table IV-8 shows that the number of communication channels used for innovation information is correlated .285 with the community leadership R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

All three empirical hypotheses were accepted, so General Hypothesis 4 is supported. The number of communication channels used for innovation information is negatively related to traditionalism.

- GH 5: Greater exposure to interpersonal, rather than mass media, channels in the communication of innovations is positively related to traditionalism.
 - EH 5-la: Radio exposure in the communication of innovations is positively related to socioeconomic achievements factorweighted scores.

Table IV-8 shows that radio exposure in the communication of innovations is correlated .312 with the socioeconomic achievements R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

Table IV-8 shows that radio exposure in the communication of innovations is correlated .178 with the modern attitudes R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 5-lc: Radio exposure in the communication of innovations is positively related to community leadership factor-weighted scores.

Table IV-8 shows that radio exposure in the communication of innovations is correlated .156 with the community leadership R-type factorial dimension of traditionalism. The correlation is greater than

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the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

Table IV-8 shows that radio exposure in the communication of innovations is correlated .346 with the socioeconomic achievements R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 5-2b: Newspaper exposure in the communication of innovations is positively related to modern attitudes factor-weighted scores.

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Table IV-8 shows that newspaper exposure in the communication of innovations is correlated .210 with the modern attitudes R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 5-2c: Newspaper exposure in the communication of of innovations is positively related to community leadership factor-weighted scores.

Table IV-8 shows that newspaper exposure in the communication of innovations is correlated .144 with the community leadership dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 5-3a: Magazine exposure in the communication of innovations is positively related to socio-economic achievements factor-weighted scores.
Table IV-8 shows that magazine exposure in the communication of innovations is correlated .367 with the socioeconomic achievements R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 5-3b: Magazine exposure in the communication of innovations is positively related to modern attitudes factor-weighted scores.

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Table IV-8 shows that magazine exposure in the communication of innovations is correlated .253 with the modern attitudes R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 5-3c: Magazine exposure in the communication of innovations is positively related to community leadership factor-weighted scores.

Table IV-8 shows that magazine exposure in the communication of innovations is correlated .251 with the community leadership R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 5-4a: ACAR bulletin exposure in the communication of innovations is positively related to socioeconomic achievements factor-weighted scores.

Table IV-8 shows that magazine exposure in the communication of innovations is correlated .385 with the socioeconomic achievements R_{-} type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 5-4b: ACAR bulletin exposure in the communication of innovations is positively related to modern attitudes factor-weighted scores.

Table IV-8 shows that ACAR bulletin exposure in the communication of innovations is correlated .113 with the modern attitudes R-type factorial dimension of traditionalism. This correlation is greater than the .095 required for significance at the 5 per cent level. The empirical hypothesis is accepted.

EH 5-4c: ACAR bulletin exposure in the communication of innovations is positively related to community leadership factor-weighted scores.

Table IV-8 shows that ACAR bulletin exposure in the communication of innovations is correlated .204 with the community leadership R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 5-5a: Extension agent exposure in the communication of innovations is negatively related to socioeconomic achievements factorweighted scores.

Table IV-8 shows that extension agent exposure in the communication of innovations is correlated .348 with the socioeconomic achievements R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level; however, the correlation is not in the predicted direction. The empirical hypothesis is not accepted.

> EH 5-5b: Extension agent exposure in the communication of innovations is negatively related to modern attitudes factor-weighted scores.

Table IV-8 shows that extension agent exposure in the communication of innovations is correlated .197 with the R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level; however, the correlation is not in the predicted direction. The empirical hypothesis is not accepted.

EH 5-5c: Extension agent exposure in the communication of innovations is negatively related to community leadership factor-weighted scores.

Table IV-8 shows that extension agent exposure in the communication of innovations is correlated .238 with the P-type factorial dimension of traditionalism. The correlation is greater than the .134 required for significance at the 1 per cent level; however, the correlation is not in the predicted direction. The empirical hypothesis is not accepted.

EH 5-6a: Exposure to neighbors in the communication of innovations is negatively related socioeconomic achievements factor-weighted scores.

Table IV-8 shows that exposure to neighbors in the communication of innovations is correlated .156 with the socioeconomic achievements Rtype factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level; however, the correlation is not in the predicted direction. The empirical hypothesis is not accepted.

> EH 5-6b: Exposure to neighbors in the communicaof innovations is negatively related to modern attitudes factor-weighted scores.

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Table IV-8 shows that exposure to neighbors in the communication of innovations is correlated .068 with the modern attitudes R-type factorial dimension of traditionalism. This correlation is not greater than the .095 required for significance at the 5 per cent level. The empirical hypothesis is not accepted.

EH 5-6c: Exposure to neighbors in the communication of innovations is negatively related community leadership factor-weighted scores.

Table IV-8 shows that exposure to neighbors in the communication of innovations is correlated .094 with the community leadership R-type factorial dimension of traditionalism. This correlation is not greater than the .095 required for significance at the 5 per cent level. The empirical hypothesis is not accepted.

Our test of General Hypothesis 5 was indirect, i.e., no direct comparison was made between the sets of correlations. However, we found strong support for the predicted relationship between mass media exposure and the traditionalism factor-weighted scores. All 12 tests were significant in the predicted direction. In our examination of the relationship between interpersonal channel exposure and the traditionalism scores, none of the correlations were in the predicted direction. Thus, we must reject that part of the general hypothesis that exposure to interpersonal channels have higher correlates with traditionalism than exposure to mass media channels have with modernity.

GH 6: Higher credibility for interpersonal channels, rather than mass media channels, in the communication of innovations is positively related to traditionalism.

Table IV-8 shows that radio credibility in the communication of innovations is correlated .084 with the socioeconomic achievement R-type factorial dimension of traditionalism. This correlation is not greater than the .095 required for significance at the 5 per cent level. The empirical hypothesis is not accepted.

EH 6-la: Radio credibility in the communication of innovations is positively related to socioeconomic achievements factor-weighted scores.

EH 6-1D:	Radio credibility in the communica-
	tion of innovations is positively
	related to modern attitudes factor-
	weighted scores.

Table IV-8 shows that radio credibility in the communication of innovations is correlated .023 with the modern attitudes R-type factorial dimension of traditionalism. This correlation is not greater than the .095 required for significance at the 5 per cent level. The empirical hypothesis is not accepted.

EH 6-lc: Radio credibility in the communication of innovations is positively related to community leadership factor-weighted scores.

Table IV-8 shows that radio credibility in the communication of innovations is correlated .082 with the community leadership R-type factorial dimension of traditionalism. This correlation is not greater than the .095 required for significance at the 5 per cent level. The empirical hypothesis is not accepted.

EH 6-2a:	Newspaper credibility in the communica-
	tion of innovations is positively related
	to socioeconomic achievements factor-
	weighted scores.

Table IV-8 shows that newspaper credibility in the communication of innovations is correlated .137 with the socioeconomic achievements R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH 6-2b:	Newspaper credibility in the communica-
	tion of innovations is positively related
	to modern attitudes factor-weighted scores.

Table IV-8 shows that newspaper credibility in the communication of innovations is correlated .019 with the modern attitudes R-type factional dimension of traditionalism. This correlation is not greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is not accepted.

Table IV-8 shows that newspaper credibility in the communication of innovations is correlated .081 with the community leadership R-type factorial dimension of traditionalism. This correlation is not greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is not accepted.

Table IV-8 shows that extension agent credibility in the communication of innovations is correlated .375 with the socioeconomic achievements R-type factorial dimension of traditionalism. The correlation is greater than the .134 required for significance at the 1 per cent level; however, the correlation is not in the predicted direction. The empirical hypothesis is not accepted.

Table IV-8 shows that extension agent credibility in the communication of innovations is correlated .185 with the modern attitudes R- type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level; however, the correlation is not in the predicted direction. The empirical hypothesis is not accepted.

EH 6-3c: Extension agent credibility in the communication of innovations is negatively related to community leadership factorweighted scores.

Table IV-8 shows that extension agent credibility in the communication of innovations is correlated .200 with the modern attitudes Rtype factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level; however, the correlation is not in the predicted direction. The empirical hypothesis is not accepted.

Table IV-8 shows that the credibility of neighbors in the communication of innovations is correlated -.049 with the socioeconomic achievements R-type factorial dimension of traditionalism. This correlation is not greater than the .095 required for significance at the 5 per cent level. The empirical hypothesis is not accepted.

EH 6-4b: The credibility of neighbors in the communication of innovations is negatively related to modern attitudes factorweighted scores.

Table IV-8 shows that the credibility of neighbors in the communication of innovations is correlated -.018 with the modern attitudes Rtype factorial dimension of traditionalism. The correlation is not greater than the .095 required for significance at the 5 per cent level. The empirical hypothesis is not accepted.

Table IV-8 shows that the credibility of neighbors in the communication of innovations is correlated -.057 with the community leadership R-type factorial dimension of traditionalism. This correlation is not greater than the .095 required for significance at the 5 per cent level. The empirical hypothesis is not accepted.

Table IV-8 shows that mass media credibility scores in the communication of innovations are correlated .155 with the socioeconomic achievements R-type factorial dimension of traditionalism. This correlation is greater than the .134 required for significance at the 1 per cent level. The empirical hypothesis is accepted.

EH	6-5b:	The	crea	libilit	ry s	core	es of	mass	med	ia	in
		the	com	nunicat	tion	of	innc	vatio	ns i	s p	bosi-
		tive	ely i	related	l to	mod	lern	attit	udes	fa	ictor-
		weig	hte	lscore	es.						

Table IV-8 shows that mass media credibility scores in the communication of innovations are correlated .030 with the modern attitudes Rtype factorial dimension of traditionalism. This correlation is not greater than the .095 required for significance at the 5 per cent level. The empirical hypothesis is not accepted.

EH 6-5c The credibility scores of mass media in the communication of innovations is positively related to community leadership factor-weighted scores.

Table IV-8 shows that mass media credibility scores in the communication of innovations are correlated .121 with the community leadership R-type factorial dimension of traditionalism. This correlation is greater than the .095 required for significance at the 5 per cent level. The empirical hypothesis is accepted.

Our test of General Hypothesis 6 was indirect, i.e., no direct comparison was made between the sets of correlations (those for credibility scores of mass media and those for credibility scores for interpersonal communication channels). This was due to our lack of a single composite index of mass media channel credibility and of interpersonal channel credibility. However, 12 of the 15 empirical hypotheses were not accepted, so General Hypothesis 6 is not supported. It was not found that higher credibility for interpersonal, rather than mass media, channel in the communication of innovations is positively related to traditionalism.

Traditional Typologies (P-Factors) and Communication Behavior

Once traditional typologies are identified, attention may be directed at similarities or differences in their communication behavior. Toward this end, mean scores were computed for each of three categories of traditional people on 19 communication variables. The three traditional categories of individuals were: (1) attitudinally moderns, (2) economic achievers and (3) community leaders. A fourth group were indeterminant subjects.* These levels served to identify attributes most indicative of progress toward modernity in each typology. Table IV-9 presents the results of an analysis of variance performed to test

^{*}Type IV, indeterminant, is a mixed classification which contains those 19 subjects who failed to load clearly on one of the three traditional typologies.

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Number o. Empirica. Hypothes: Tested	f l is Communication Variable	F Ratio*	Tr Type I Attitudinally Moderns (N = 35)	aditional Typ Type II Economic Achievers (N = 26)	e Mean Score Type III Community Leaders (N = 20)	Type IV Indeterminant Mixed Type (N = 19)
EH 7-1 EH 7-2	Newspaper readership Radio listening	1.13 0.70	3.8 (medium) 2.4 (medium)	5.1 (high) 2.5 (medium)	3.4 (medium) 2.2 (medium)	0.6 (low) 2.4 (medium)
EH 7-3	Cinema attendance	1.17	5.2 (high)	3.4 (medium)	1.1 (law)	0.3 (Jow)
日日 7-4	Television exposure	1.12	0.4 (low)	0.6 (medium)	(<i>mol</i>) 4.0	0.3 (low)
EH 7-5	Mass media exposure scores	1. 30	8.6 (medium)	8.0 (medium)	4.3 (Jow)	3.6 (low)
EH 8-1	Cosmopoliteness	2.21	2.7 (high)	1.4 (low)	1.4 (low)	1.8 (medium)
EH 9-1	Change agent contact	1. 32	7.5 (medium)	10.5 (medium)	17.0 (high)	3.9 (low)
EH 10-1	Total number of agri- cultural news channels used	- 0.57	2.6 (medium)	3.1 (high)	2.5 (medium)	2.5 (medium)
EH 11-1	Radio exposure in the communication of in novation informatio	е 0.60	1.4 (high)	l.2 (medium)	1.1 (medium)	1.5 (high)
EH 11-2	Newspaper exposure i the communication o innovation informa- tion	п f 0.93	0.6 (law)	0.6 (low)	0.5 (low)	0.2 (low)

Mean Scores of Traditional Typologies on Selected Communication Variables Table IV-9. * The critical value of F at the 5 per cent level is 2.68 when the degrees of freedom are 3 and 93. Hence none of the empirical hypotheses are significant.

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Table

			Tra	ditional Tyr	e Mean	Score	
Number of Empirical Hypothesi Tested	E L S Communication	ני+ בא *0	Type I Attitudinally Moderns (N = 35)	Type II Economic Achievers (N = 26)	Typ. Comm Lea	e III unity ders	Type IV Indeterminant Mixed Type
			100 - 11	107 - 11		- 207	10T = N1
EH 11-3	Magazine exposure in the communication of innovation informa- tion	1.55	0.8 (medium)	0.9 (mediu	m) 0.6	(1aw)	0.3 (law)
EH 11-4	ACAR bulletin exposur in the communication of innovation infor- mation	е 0.94	0.7 (low)	1.1 (mediu	m) 0.7	(1 <i>cw</i>)	0.8 (medium
EH 11-5	Extension agent ex- posure in the com- munication of inno- vation information	0.12	0.9 (medium)	0.9 (medi	m 0.7	(10w)	0.9 (medium
EH 11-6	Exposure to neighbor the communication of innovation informati	in on 0.43	l.0 (medium)	1.3 (high) 1.3	(لنا (لما الم	1.3 (high)
EH 12-1	Radio credibility in communication of inr tion information	the lova- 0.59	0.9 (medium)	0.8 (medi	L.I (mu	(medium)	0.8 (medium
EH 12-2	Newspaper credibility in the communicatior of innovation infor tion	г га- 1.48	0.9 (medium)	(mol) 4.0	0.8	(medium)	0.6 (low)

*The critical value of F at the 5 per cent level is 2.68 when the degrees of freedom are 3 and 93. Hence none of the empirical hypotheses are significant.

Table IV-9 (contd)

	, IV minant Type	19)	(high)	(high)	(10w)
	Type ndeter Mixed	" Z	1. 8	1 . 6	т. Г
ore	iity irs	20)	(hi gh)	(medium)	(medium)
ean Sc	Type Sommur Leade	" Z	2.0	1•3	1. 9
al Type Me	II Mic Pers	26)	(high)	(mutban)	(10w)
tiona	Type Econd Achiev	" Z	2.2	л. н	1.2
Tradi	I nally ns A	35)	(high)	(muiton)	(medium)
	Type Attitudi Moder	" 2	2.1	1 . 3	1.8
		Katıo"	0.50	0.57	1.67
	Communication	Variable F	Extension agent credibility in the communica- tion of innova- tion information	Neighbor credibil- ity in the commun- ication of innova- tion information	Mass media cred- ibility in the communication of innovation infor- mation
	Number of Empirical Hypothesis	'l'ested	EH 12-3	EH 12-4	EH 12-5

* The critical value of F at the 5 per cent level is 2.68 when the degrees of freedom are 3 and 93. Hence none of the empirical hypotheses are significant.

significance of differences among the means on 19 communication variables for the three categories of traditionals, as well as the indeterminate typology.

GH 7: Traditional typologies of individuals vary in mass media exposure.

EH 7-1: Traditional typologies of individuals vary in newspaper readership.

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Table IV-9 shows that mean newspaper readership is 3.8 for type I, 5.1 for type II, 3.4 for type III and 0.6 for the indeterminant typology. The F-ratio of difference in mean newspaper readership among the typologies is 1.13. This F is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not accepted.

EH 7-2: Traditional typologies of individuals vary in radio listening.

Table IV-9 shows that mean radio listening is 2.4 for type I, 2.5 for type II, 2.2 for type II and 2.4 for the indeterminant typology. The F-ratio of difference in mean radio listening among the typologies is 0.70. This F is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not accepted.

EH 7-3: Traditional typologies of individuals vary in cinema attendance.

Table IV-9 show that mean cinema attendance is 5.2 for type I, 3.4 for type II, 1.1 for type III and 0.3 for the indeterminant typology. The F-ratio of difference in mean cinema attendance among the typologies is 1.17. This F is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not accepted.

EH 7-4: Traditional typologies of individuals vary in television exposure.

Table IV-9 shows that mean television exposure is 0.4 for type I, 0.6 for type II, 0.4 for type III and 0.3 for the indeterminant typology. The F-ratio of difference in mean television exposure among the typologies is 1.12. The F is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not accepted.

EH 7-5: Traditional typologies of individuals vary in mass media exposure scores.

Table IV-9 shows that mean mass media exposure scores are 8.6 for type I, 8.0 for type II, 4.3 for type III and 3.6 for the indeterminant typology. The F-ratio of difference in mean mass media exposure scores among the typologies is 1.30. This F is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not accepted.

None of the five empirical hypotheses were accepted, so General Hypothesis 7 is not supported. It is found that traditional typologies of individuals do not vary in mass media exposure.

GH	8:	Traditional	typologies	of	individuals	vary	in
		cosmopoliter	ness.				

EH 8-1: Traditional typologies of individuals vary in cosmopoliteness scores.

Table IV-9 shows that mean cosmopoliteness scores are 2.7 for type I, 1.4 for type II, 1.4 for type III and 1.8 for the indeterminant typology. The F-ratio of difference in mean cosmopoliteness scores among the typologies is 2.21. This F is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not accepted. The single empirical hypothesis was not accepted, so General Hypothesis 8 is not supported. It is found that traditional typologies of individuals do not vary in cosmopoliteness.

GH 9: Traditional typologies of individuals vary in change agent contact.

EH 9-1: Traditional typologies of individuals vary in change agent contact.

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Table IV-9 shows that mean change agent contact is 7.5 for type I, 10.5 for type II, 17.0 for type III and 3.9 for the indeterinant typology. The F-ratio of difference in mean change agent contact among the typologies is 1.32. This F is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not accepted.

The single empirical hypothesis was not accepted, so General Hypothesis 9 is not supported. It is found that traditional typologies of individuals do not vary in change agent contact.

- GH 10: Traditional typologies of individuals vary in the number of communication channels used for innovation information.
 - EH 10-1: Traditional typologies of individuals vary in the number of communication channels used for innovation information.

Table IV-9 shows that the mean number of communication channels used for innovation information is 2.6 for type I, 3.1 for type II, 2.5 for type III and 2.5 for the indeterminant typology. The F-ratio of difference in mean number of communication channels used for innovation information is 0.57. This F is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not accepted. The single empirical hypothesis was not accepted, so General Hypothesis 10 is not supported. It is found that traditional typologies of individuals do not vary in the number of communication channels used for innovation information.

- GH 11: Traditional typologies of individuals vary in exposure to interpersonal and mass media channels in the communication of innovation information.
 - EH 11-1: Traditional typologies of individuals vary in radio exposure in the communication of innovation information.

Table IV-9 shows that mean radio exposure in the communication of innovation information is 1.4 for type I, 1.2 for type II, 1.1 for type III and 1.5 for the indeterminant typology. The F-ratio of difference in mean radio exposure in the communication of innovation information among the typologies is 0.60. This F is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not supported.

EH 11-2: Traditional typologies of individuals vary in newspaper exposure in the communication of innovation information.

Table IV-9 shows that mean newspaper exposure in the communication of innovation information is 0.6 for type I, 0.6 for type II, 0.5 for type III and 0.2 for the indeterminant typology. The F-ratio is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not supported.

EH 11-3: Traditional typologies of individuals vary in magazine exposure in the communication of innovation information.

Table IV-9 shows that mean magazine exposure in the communication of innovation information is 0.8 for type I, 0.9 for type II, 0.6 for type III and 0.3 for the indeterminant typology. The F-ratio of difference in mean magazine exposure in the communication of innovation information among the typologies is 1.55. This F is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not supported.

EH 11-4: Traditional typologies of individuals vary in ACAR bulletin exposure in the communication of innovation information.

Table IV-9 shows that mean ACAR bulletin exposure in the communication of innovation information is 0.7 for type I, 1.1 for type II, 0.7 for type III and 0.8 for the indeterminant typology. The F-ratio of difference in mean ACAR bulletin exposure in the communication of innovation information among the typologies is 0.94. This F is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not supported.

EH 11-5: Traditional typologies of individuals vary in extension agent exposure in the communication of innovation information.

Table IV-9 shows that mean extension agent exposure in the communication of innovation information is 0.9 for type I, 0.9 for type II, 0.7 for type III and 0.9 for the indeterminant typology. The F-ratio of difference in mean extension agent exposure in the communication of innovation information among the typologies is 0.12. This F is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not supported.

> EH 11-6: Traditional typologies of individuals vary in exposure to neighbors in the communication of innovation information.

Table IV-9 shows that mean exposure to neighbors in the communication of innovation information is 1.0 for type I, 1.3 for type II, 1.3 for type III and 1.3 for the indeterminant typology. The F-ratio of difference in mean exposure to neighbors in the communication of innovation information among the typologies is 0.43. This F is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not supported.

None of the six empirical hypotheses were accepted, so General Hypothesis ll is not supported. It is found that traditional typologies of individuals do not vary in exposure to interpersonal and mass media channels in the communication of innovation information.

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- GH 12: Traditional typologies of individuals vary in their credibility for mass media and interpersonal channels in the communication of innovation information.
 - EH 12-1: Traditional typologies of individuals vary in their credibility for radio in the communication of innovation information.

Table IV-9 shows that mean credibility for radio in the communication of innovation information is 0.9 for type I, 0.8 for type II, 1.1 for type III and 0.8 for the indeterminant typology. The F-ratio of difference in mean credibility for radio in the communication of novation information among the typologies is 0.59. This F is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not supported.

> EH 12-2: Traditional typologies of individuals vary in their credibility for newspapers in the communication of innovation information.

Table IV-9 shows that mean credibility for newspapers in the communication of innovation information is 0.9 for type I, 0.4 for type II, 0.8 for type III and 0.6 for the indeterminant typology. The F-ratio of difference in mean credibility for radio in the communication of innovation information among the typologies is 1.48. This is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not supported.

EH 12-3: Traditional typologies of individuals vary in their perceived credibility for extension agents in the communication of innovations.

Table IV-9 shows that mean credibility for extension agents in the communication of innovation information is 2.1 for type I, 2.2 for type II, 2.0 for type III and 1.8 for the indeterminant typology. The F-ratio of difference in mean credibility for extension agents in the communication of innovation information among the typologies is 0.50. This F is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not supported.

EH 12-4: Traditional typologies of individuals vary in their credibility for neighbors in the communication of innovation information.

Table IV-9 shows that mean credibility for neighbors in the communication of innovation information is 1.3 for type I, 1.4 for type II, 1.3 for type III and 1.6 for the indeterminant typology. The F-ratio of difference in mean credibility for neighbors in the communication of innovation information among the typologies is 0.57. This F is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not supported.

EH 12-5: Traditional typologies of individuals vary in their credibility for the mass media in the communication of innovation information.

Table IV-9 shows that mean credibility for mass media in the communication of innovation information is 1.8 for type I, 1.2 for type II, 1.9 for type III and 1.4 for the indeterminant typology. The Fratio of difference in mean credibility for mass media in the communication of innovation information among the typologies is 1.67. This F is not greater than the 2.68 required for significance at the 5 per cent level. The empirical hypothesis is not supported.

None of the five empirical hypotheses were accepted, so General Hypothesis 12 is not supported. It is found that traditional typologies of individuals do not vary in their credibility for mass media and interpersonal channels in the communication of innovation information.

The overall similarity of the three traditional typologies, in terms of progress toward modernity, may account for the similarity in their communication behavior. Each typology excelled in some dimension of modernity, either as attitudinally moderns, economic achievers or community leaders. However, <u>none of the typologies were extremely more traditional or modern than the others</u>. Thus, perhaps it is not surprising that the communication behavior of these typologies did not differ. We return to this part in a later discussion.

CHAPTER V

FINDINGS AND DISCUSSION: PART TWO

For the first time in history, a universal pattern of modernity is emerging from the wide diversity of traditional values and institutions, and people of all nations are confronted with the challenge of defining their attitudes toward fundamental changes that are world-wide in scope.

(Black, 1966, p. 17)

Traditionalism: A Comparative Analysis

In Chapter IV we saw that an R-type factor analysis of traditionalism produced three factors: (1) socioeconomic achievements, (2) modern attitudes and (3) community leadership. A P-type factor analysis (based upon the 20 variables utilized to extract the three traditional R-type factors) yielded three typologies of traditional individuals: (1) Attitudinally moderns, (2) Economic achievers and (3) Community leaders. Additionally, a number of hypotheses regarding traditionalism and communication behavior were tested. It was found that traditionalism was negatively related to mass media exposure, cosmopoliteness, change agent contact and the number of communication channels used for innovation information. Traditionalism was related to greater exposure to interpersonal, rather than mass media, channels in the communication of innovations. However, it was found that traditionalism was not related to higher credibility for interpersonal, rather than mass media, channels in the communication

of innovations. Additionally, it was found that the communication behavior of traditional typologies did not vary among the P-typologies.

The present chapter seeks to compare these findings from Brazilian respondents with those culled from a number of behavioral investigations of traditionalism and communication behavior conducted in other nations. Emphasis will be placed upon research which utilized both field survey data and factor analytic statistical techniques, in order to enhance the comparability of findings with the present research project.

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Six R-Type Factor Analytic Studies of Traditionalism Variables

Factor analysis, a statistical technique for data-reduction, is very utilitarian in exploratory research. It provides a parsimonious means of describing a phenomenon on the basis of the interrelated variable clusters that constitute it, rather than from undifferentiated, lengthy lists of descriptive measures.

Statistical tests of significance to determine similarities or dissimilarities in traditionalism in Brazil, Colombia, Kenya, India and the United States will not be used. Distinctive interview schedules, data-collection and data-analysis techniques make such comparisons difficult. However, the principal factors and their component variables extracted in each study are reviewed in search of communalities, Table V-1 outlines each of the investigations in terms of its author, site, R-type factor analytic technique, number and nature of variables, and main findings. Table V-2 provides a composite listing of all Rtype factors extracted in the six surveys along with their highest loading variables. These factors are categorically arranged in terms

Author and Research Site	Number and Nature of Variables	Main Variable of Interest; Findings	Nature of Factors Extracted
1. Rogers (1969) in Colombian "modern" peasant villages	72 variables, including communication behavior, family structure, agri- cultural productivity, health, education and demographic characteris- tics	Modernization: three factors extracted	 External com- munication Orientation to change Innovative leadership
2. Rogers (1969) in Colombian "tradi- tional" peasant villages	60 variables, including most of the above	Modernization: three factors extracted	 External communication Orientation to change Innovative leadership
3. Ascroft (1966) in Kenya	43 variables, including many of the above	Modernization: five factors extracted	 Communication comprehension Family structure Receptiveness to change Aspirations Agricultural productivity
4. Donohew (1967) in the United States	27 variables, including mass media exposure, re- ceptiveness to change, social participation, physical mobility, age, education, sex and income	Communication and change: four factors extracted	 Projectiveness Social participation Housewife Education

Table V-1. Six R-Type Factor Analyses of Traditionalism

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Author and Research Site	Number and Nature of Variables	Main Variable of Interest; Findings	Nature of Factors Extracted
5. Raju (1969 in India	32 variables, including education, cosmopolite- ness, status, empathy, commercialization and taxes paid	Traditionalism and com- munication behavior: three factors extracted	 Change orientation Farm resources Social activity
6. The present study in Brazil	26 variables, including: innovativeness, status, social participation, opinion leadership, empathy, economic and political knowledge and literacy	Traditionalism and com- munication behavior: three factors extracted	 Soceioeconomic achievements Modern attitudes Commnity leadership



Table V-2. Compari	son of R-Type Traditionalism Factors Drawn from Six Studies
General R-Type Factor Groupings	Factor Title; Author and Country; and Variables and Factor Loadings
I. <u>Comunication</u> <u>Contact</u> *	"External Communication Contact"; Rogers with Svenning (1969) in modern Colombian villages; newspaper exposure (.81), magazine exposure (.74), cosmopoliteness (.70) and others. "External Communication Contact"; Rogers with Svenning (1969) in traditional Colombian villages; newspaper exposure (.79), cosmopoliteness (.69), education (.67) and others. "Ability to Understand Communication"; Ascroft (1966) in Kenya; literacy (.75), education (.69), print media (.64) and others. "External Communication Contact"; Raju (1969) in India; knowledge of change agents (.76), political knowledge (.74), newspaper exposure (.67) and others.
II. Economic Resources	"Agricultural Productivity"; Ascroft (1966) in Kenya; inherited crop index (.68), cash crop index (.58), fruit crop index (.49) and others. (.68), cash crop index (.58), in the United States; sex of respondent (.86), level of employment (67), vocational aspirations (51) and others. "Economic Resources"; Raju (1969) in India; farm labor employed (.84), value of agricultural produce (.81), consumption of fertilizers (.74) and others. "Socioeconomic Achievements"; in the present Brazilian study; socioeconomic status (.80), farm income (.78), area of respondent's property (.72)
The present invest author preferred had been consider in the Communication wise affected by th	tigation excluded all communication measures from the factor analysis. The to utilize these measures as dependent variables. It is possible that if they ed in the factor analysis, a factor from the present study might be included on Contact factorial cluster. Other factorial clusters in Table V-2 are like-he exclusion or inclusion of certain measures in the six studies.

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s Factor Title; Author and Country; and Variables and Factor Loadings	 "Orientation to Change"; Rogers with Svenning (1969) in modern Colombian villages, attitude toward innovations (.47), age (47), negative cohesion with the village-desire to migrate (.32) and others. "Orientation to Change"; Rogers with Svenning (1969) in traditional Colombian villages; attitude toward innovations (.50), negative cohesion with the village-desire to migrate (.49), family size (.41) and others. "Aspirational Orientation"; Ascroft (1966) in Kenya; educational aspiration for son (.74), educational aspiration for daughter (.72), achievement motivation (.55) and others. "Isolation"; Donohew (1967) in the United States; cosmpoliteness (49), age (.81), powerlessness-social isolation (.34) and others. "Modern Attitudes"; in the present Brazilian study; counterfactuality (.72), ennethors. 	"Leadership Status"; Rogers with Svenning (1969) in modern Colombian villages, opinion leadership (.76), change agent contact (.46), formal participation (.39) and others. "Leadership Status"; Ascroft (1966) in Kenya; agricultural innovativeness (.71), change agent contact (.66), formal participation (.62) and others. "Neighborhood Exposure"; Donohew (1967) in the United States; number of persons visited (.82), frequency of visits (.90), church participation (.44) and others. "Social Activity"; Raju (1969) in India, social participation (.53), ritual caste status (.48), opinion leadership (.34) and others. "Community Leadership"; in the present Brazilian study; mention as best friend (.80). oninion leadership (.91) and agricultural influence (.92).	"Family Structure"; Ascroft (1966) in Kenya; household size (.82), structural complexity of family (.73), age (.57) and others.	
General R-Type	III. <u>Modern</u>	IV. <u>Community</u>	V. <u>Non-Categor-</u>	
Factor Groupings	<u>Attitudes</u>	<u>Leadership</u>	ized Factors	

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of similarity in their included variables and overall orientation. In other words, a large number of factors extracted in widespread field surveys of traditionalism are examined in search of common factorial clusterings.

The data used in this comparison (Tables V-1 and V-2) are drawn from six survey investigations of modernizing traditional communities.

1. Rogers with Svenning (1969) factor-analyzed the personal interview responses of 160 household heads in three relatively modern peasant villages in Colombia. The three villages were all within an hour's bus ride from Bogota, the country's capital.

2. Rogers with Svenning (1969) factor-analyzed the personal interview responses of 95 household heads in two relatively traditional peasant villages in Colombia. The two villages were geographically remote.

3. Ascroft (1966) analyzed data collected in personal interviews from 624 villagers in Kenya. He sampled the village areas of Samia, Kabonda and Bomet, all located about 300 miles from Nairobi. He randomly selected his subjects from heads of households in the three agricultural village areas.

4. Donohew (1967) factor-analyzed the responses of 238 Appalachian household heads in Knox County, Kentucky. This county has a per capita income of \$680, which is about one-fourth of the U.S. average. Personal interviews were conducted with heads of households and homemakers randomly selected from two small remote communities: New Bethel and Middle Fork. 5. Raju (1969) gathered data from 559 traditional farmers purposively selected from six Indian villages from the states of Andra Pradesh, Maharashtra and West Bengal. Subjects were less than 50 years old and operated farms of 2.5 acres or more.

 The present study was based on personal interviews with 1,307 traditionals sampled from rural villages in Minas Gerais, Brazil.

Data collected in each of the six field surveys were subjected to factor analysis utilizing principal axis varimax rotations. However, numerous distinctions among the surveys are readily apparent. For example, the number of variables submitted to factor analysis in each study varied greatly from the 72 analyzed by Rogers with Svenning (1969) in their study of modern Colombian peasant villages, to the 26 examined in the present analysis of traditionalism in Brazil. Although many variables, such as education, appeared throughout the studies in a similar form, the nature of others, such as family structure, were unique to specific investigations. Sample size also varied greatly among the six investigations, from the 1,307 Brazilian traditionals sampled to the 95 subjects surveyed in the Colombian analysis of two traditional peasant villages. Additionally, a number of other aspects were unique to each of the surveys despite their common interest in the modernizing of traditional life.

In Table V-2 four cross-national factor clusters are described from the categorization of 21 factors drawn from six field surveys of traditional life. These factor groupings are named: (1) communication contact, (2) economic resources, (3) modern attitudes

and (4) community leadership. Only one factor, Ascroft's (1966) "family structure," failed to fit in one of the four factor groupings. Additionally, none of the 21 factors (isolated in the six studies) appeared suitable for placement in more than one of the factor groupings.

The results of the six studies, taken both individually and collectively, led to several generalizations concerning traditional life. First, <u>traditionalism was repeatedly found to be a multi-</u> <u>dimensional phenomenon</u>. Second, <u>a series of fairly homogeneous and</u> <u>repetitive dimensions characterized traditionalism</u>, wherever found. Traditional styles of life were found in both more and less developed countries.

Empirical evidence of the multi-dimensional nature of traditionalism was found in each of the six factor analyses reviewed in this chapter. None of the studies extracted less than three distinctive dimensions; one investigation revealed five. A composite analysis of all factors extracted in the studies suggested four basic components of traditionalism. Unfortunately, the interrelationships and relative importance of these dimensions remains somewhat unclear. Similar factors explained different amounts of variance from study to study.

The degree to which the findings of several separate factor analytic studies of traditionalism, conducted in widely different settings, could be melded into a descriptive set of four relatively stable factor groupings, supports the generalizability of certain dimensions of traditional life. These distinguishing elements of traditionalism are communication contact, economic resources, modern

attitudes and community leadership.

Communication contact refers to both communication skills and exposure. Measures of literacy, education and other variables indexed attributes of communication skill, while numerous items indexed exposure to various mass media and interpersonal channels. Economic resources described occupational success in terms of size and value of agricultural operation or level of employment. Modern attitudes, the broadest of the factor clusters, indexed orientation toward change in terms of a number of attitudinal items such as empathy, achievement motivation, self-reliance and others. Finally, community leadership described communication contact were the most consistent of the four factor groupings in terms of similarity in factor composition across the six field surveys. The other two dimensions, modern attitudes and economic resources, exhibited somewhat more variability in the items defining the factors (which comprise their factor clusters).

The present general conclusions are tentative. They are based solely on a comparative examination of data drawn from six independent studies of traditional life in which different sampled populations were interrogated with different personal interview schedules. Additionally, different variables were analyzed and different datacollection techniques were employed. The six field surveys all sought to empirically describe traditionalism, and to this end, all of the studies utilized factor analytic techniques.

The factors drawn from six surveys to define four traditional factor clusters must be considered a function of the variables inputed

in each factor analysis. In other words, investigative interest in communication, economic, attitudinal and social psychological variables, was at least a partial explanation for the findings of these factor analyses. Different data inputs would yield different factors. Future descriptive research on traditionalism should seek to confirm dimensions already identified and to discover additional relevant elements. Accomplishment of the later goal will be enhanced when new variables are introduced in the analyses.

Three P-Type Factor Analytic Studies of Traditional Typologies

P-type factor analysis is a method of analyzing the correlational matrix of a large number of <u>people</u> in order to describe basic typologies of people. Table V-3 provides a composite listing of nine P-type factors extracted in three surveys of traditional respondents in Brazil, India and the United States.

In the present study P-type factor analysis of 100 respondents yielded three traditional typologies: attitudinally moderns, economic achievers and community leaders. These typologies represented about the same <u>degree</u> of traditionalism; however, each of them represented movement toward modernity <u>along a different path</u>. Additionally, it was found, via analysis of variance, that the communication behavior of the traditional typologies did not vary significantly among the Ptypologies.

Raju (1969, p. 79) extracted three typologies of peasants in a P-type factor analysis of 96 Indian respondents. He found a modern, transitional and traditional typology on the basis of 17 socio-

Author ar Country	id P-Type	Traditional Traditional Typology Description Based on Z-Scores
I. Pres Bra Stu	sent izilian Idy	"Attitudinally Moderns," a typology characterized by empathy, functional literacy and need for achievements, as well as, limited economic knowledge, low socioeconomic status, and low opinion leadership.
		"Economic Achievers," a typology characterized by socioeconomic status, positive attitude toward credit and high income, as well as, limited risk orientation, low need for achievement and
		Limited social participation. "Community leaders," a typology characterized by opinion leadership, social participation and mention as a friend, as well as low innovativeness, negative attitude toward credit and low empathy.
II. Raju in	1 (1969) India	"Traditional," a typology characterized by low placement on all but two of 17 orientation to change, farm resources and social
		"Transitional," a typology characterized by medium placement on all but 1 of 17 orientation to change, farm resources and social
		"Moderns," a typology characterized by high placement on all but two of 17 orientation to change, farm resources and social activities indices.
III. Donc in Sta	hew (1967) the United tes	"Outgoing," a typology characterized by high education, empathy, and cosmopoliteness, as well as, by dogmatism and a lack in innovativeness.
)		"Isolated," a typology characterized by innovativeness and low dogmatism, as well as, geographic isolation, limited mass media ex-
		posure and limited empathy. "Mass Media," a typology characterized by high mass media exposure and high aspirations, as well as, by dogmatism, limited empathy and a lack in innovativeness.

Table V-3. Comparison of Traditional P-Type Factors Drawn from Three Studies

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psychological and economic variables. These typologies represented different degrees of progress from traditional toward more modern life styles along a common path. He utilized analysis of variance to study the communication behavior of each P-type, and found that levels of extension agent contact and urban exposure were similar among both the modern and traditional peasant types, but lower in the case of the transitional peasant typology. No significant differences were found among the three peasant types in mass media exposure.

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Donohew (1967) found three traditional typologies in a P-type factor analysis of 163 Appalachian respondents. He found an outgoing, isolated and mass media typology. These typologies represented both different levels of advancement from traditional to more modern life styles, as well as, movement along different modernization paths. For example, the mass media type, which he considered the most modern, was characterized by traditional attitudes, while, the isolated type, which he considered the most traditional, was characterized by modern attitudes.

Discrepancies in the composition of the three P-type factors extracted in each study may be a function of the variables inputed. For example, it was not surprising to find that Raju (1969) did not extract a typology similar to the one found in the present study entitled attitudinally moderns because none of his 17 variables were attitudinal. Also, Raju (1969) and Donohew (1967) utilized communication variables in both their R-type and P-type factor analyses, while communication variables were withheld from the R- and P-type factor analyses in the present investigation. Thus, the present study did

not disclose a communication typology similar to Donohew's (1967) mass media type.

It is also possible that a number of patterns of movement along the modernization process distinguish different traditional populations. Data called from six factor analytic studies of traditionalism, including the present investigation, suggest that similarities exist in the basic dimensions of traditional life. However, individual mastery of the many skills required as one proceeds toward modernity may be uniform across all dimensions, or, the mastery of these skills may occur haphazardly, one at a time, as individuals put into play such specialized talents as community leaders, attitudinally moderns, economic achievers, mass media users or outgoing individuals.

CHAPTER VI

SUMMARY AND DISCUSSION

Let us now praise famous men. . . . There be some of them, that have left a name behind them, that their praise might be reported. And some there be which have no memorial; who perished, as though they had never been, and are become as though they had never been born; and their children after them. But these were menoiful men, whose nighteousness

But these were merciful men, whose righteousness hath not been forgotten. . .

Their bodies are buried in peace; but their name liveth forevermore.

(Agee and Evans, 1936, p. 405)

Summary

The main objectives of the present thesis were to (1) empirically describe both the basic dimensions of traditionalism as well as the most prevalent typologies of traditional peoples in terms of socio-psychological and economic elements and to (2) study the relationship between traditionalism and communication behavior. Measures of communication behavior included mass media and interpersonal communication channel exposure and credibility, cosmopoliteness and changeoriented communication behavior.

<u>Traditionalism</u> is defined as a statis life style, regardless of occupational endeavor or place of residence. It is often characterized by economic deprivation and such socio-psychological elements as low innovativeness, low risk orientation, localiteness, limited aspirations, low empathy, mutual distrust in interpersonal relations and fatalism.
A virtual census of household heads in 20 Minas Gerais (Brazil) subsistence farming communities participated in a field survey of the diffusion of innovations in rural societies. A total of 1,307 individuals who owned at least part of their land or made the major decisions for a particular farm and who were not absentee landlords were interviewed. Their responses were analyzed in the present investigation of traditionalism and communication behavior.

The present exploratory analysis of traditionalism generated two distinctive views of the phenomenon, one from the perspective of descriptive clusters of elements indicative of static life styles, and the other from the perspective of traditional typologies of individuals. In each case, the data yielded three (R-type and P-type) factors. These two sets of three factors were remarkably similar in nature, though derived from divergent factor analysis techniques.

Traditionalism

R-type factor analysis of the responses of 1,307 Brazilian farmers to 26 personal interview items produced three factors descriptive of traditionalism: socioeconomic achievements, modern attitudes and community leadership.

Socioeconomic Achievements

Factor I, socioeconomic achievements, accounted for 19.8 per cent of the total variance explained, was characterized by relative purity of factor loadings and internal conceptual consistency among the 11 variables describing it. The factor was defined by such variables as socioeconomic status, farm size, farm income, adoption percentage, status inconsistency, attitudes toward credit and others. Similar economic resources factors have been indexed in studies of traditionalism by Raju (1969) in India, Ascroft (1966) in Kenya and Donohew (1967) in the United States. The factor described traditional economic marginality in terms of agricultural achievement. It covered traditional disposition toward the use of credit, agricultural success and innovativeness. The factor was similar to interpretations of traditionalism characteristic of economic theorists who often determine progress toward modernity on scales of commercialization.

Modern Attitudes

Factor II, modern attitudes, accounted for 11 per cent of the total variance explained, was distinguished by relative conceptual consistency among the eight variables describing it. The factor was defined by such variables as counterfactuality, empathy, opinonatedness, economic knowledge, need achievement and others. Similar factors have been extracted in studies of traditionalism by Ascroft (1966) in Kenya, Donohew (1967) in the United States, Rogers with Svenning (1969) in Colombia and Raju (1969) in India. The factor described traditional psychological and attitudinal dispositions. It focused on individual psychological readiness for change.

Community Leadership

Factor III, community leadership, accounted for 10.2 of the total variance explained, was characterized by extremely pure factor loadings and internal conceptual consistency among the three variables describing it, agricultural influence, opinion leadership and mention as a best friend. Similar leadership factors have been identified by Rogers with Svenning (1969) in Colombia and Raju (1969) in India. The factor described traditional sociometric friendship and opinion leadership patterns

These factors served to empirically describe three major dimensions of traditionalism in rural Brazil. Similar economic, attitudinal and leadership factors have been extracted in widely different traditional settings. However, the interrelationship of these dimensions remains unclear.

Traditional Typologies

P-type factor analysis of 100 subjects randomly selected from 1,307 respondents produced three typologies of traditional individuals. Characteristics of each typology were determined with scores derived from 20 variables (observations in the P-type Factor analysis) selected on the basis of their inclusion in three R-type traditionalism factors. The three typologies were labeled, on the basis of their most modern characteristics: attitudinally moderns, economic achievers, and community leaders.

Attitudinally Moderns

Factor I, attitudinally moderns, accounted for 14.8 per cent of the total variance explained and was the largest typology, including 35 respondents. It described individuals with limited farm and economic resources who were high in such modern attitudes as empathy, need for achievement, counterfactuality and others. They lacked leadership potential and were not socially participative.

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Economic Achievers

Factor II, economic achievers, accounted for 11.6 per cent of the total variance explained and contained 26 subjects. This typology described individuals relatively successful as farmers with moderately high economic resources. However, they were distinguished by very traditional attitudes. They ranked between Factors I and III on all variables which indexed leadership, and were lowest on social participation.

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Community Leaders

Factor III, community leaders, accounted for 11.5 per cent of the total variance explained and contained 20 respondents. It described people who were socially participative and opinion leaders. They were also relatively high on certain economic and attitudinal measures, such as commercialization, opinionatedness and risk orientation. However, they were low on adoption percentage, attitude toward credit, empathy and counterfactuality. They ranked between the other two factors on all other indices. This factor was considered the most modern of the three typologies.

The P-type factors described three typologies of traditional individuals. The typologies were markedly similar to the dimensions of traditionalism extracted in R-type factor analysis. In each case economic, attitudinal and leadership dimensions were extracted.

Traditionalism and Communication Behavior

The communication process of information transmission between source and receiver is a focal point in the modernization process.

Communication linkages join those who would direct social and economic change with potential clients. Successful transmission and reinforcement of new ideas is tied to accurate audience analysis such that appropriate sources, messages and communication channels are employed. The present investigation, viewing traditionals as the world's most populous audience for messages about social and economic change, focused on traditional communication behavior.

CARLES AND DESCRIPTION AND ADDRESS

The data indicated that traditionalism was negatively related to mass media exposure, cosmopoliteness, change agent contact and the number of communication channels used for innovation information. The data also disclosed that traditionalism was related to greater exposure to interpersonal, rather than mass media, channels in the communication of innovation information. However, it was found that traditionalism was not related to higher credibility for interpersonal, rather than mass media, channels in the communication of innovations. Additionally, it was found that the communication behavior (in terms of mass media exposure, cosmopoliteness, change agent contact, total number of communication channels used for innovation information, exposure to interpersonal and mass media channels in the communication of innovations and interpersonal and mass media channel credibility in the communication of innovations) did not vary among the P-typologies.

Discussion: Paths Toward Modernization in Traditional Brazil Traditionalism

On the basis of an R-type factor analysis of 26 variables the data yielded three distinct dimensions of traditionalism, socioeconomic

achievements, modern attitudes and community leadership. Each dimension represented a different pathway along which traditional people in Brazil progress toward modernity. The three R-type factors suggest that traditionalism is a multi-dimensional phenamenon. This assumption is supported in factor analytic studies of traditional life by Rogers with Svenning (1969) in Colombia, Ascroft (1966) in Kenya, Raju (1969) in India and Donohew (1967) in the United States.

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The socioeconomic achievements path of traditional movement toward modernity is defined in terms of higher incomes, larger farms, more favorable attitudes toward credit, greater innovativeness, more commercialization, higher socioeconomic status and other indices. The core of this large factor, composed of 11 variables, revolved around socioeconomic achievements, while the periphery was composed of skills associated with modernity such as political knowledge and functional literacy. Of the three dimensions of traditionalism this R-type factor was associated with the heaviest interpersonal and mass media communication channel use. It was also associated with the highest credibility for both interpersonal and mass media communication channels. These findings suggest that increased communication inputs of directed change messages are likely to first affect traditional progress along the socioeconomic dimensions rather than either the modern attitudes or community leadership dimensions, which are characterized by less communication channel usage and less credibility for either interpersonal or mass media channels.

The modern attitudes path of traditional movement toward modernity is defined in terms of greater empathy, more opinionatedness,

greater need for achievement, more counterfactuality skills, greater economic knowledge, higher occupational aspirations for son, greater risk orientation and more social participation. The dimension of modern attitudes indexed positive attitudes toward change. This Rtype factor was associated with moderate interpersonal and mass media channel use. However, it was also associated with the lowest credibility for either interpersonal or mass media communication channels of the three traditional dimensions. In fact, it showed a positive significant correlation with credibility for only one of five channels, extension agents.

The community leadership dimension of traditionalism described greater opinion leadership, agricultural influence and sociometric friendship choice. The R-type factor indexed community influence; however, it was not associated with any socioeconomic achievements or modern attitudes. Traditional community leadership may well act as a force in opposition to change. This R-type factor was associated with the lowest levels of interpersonal and mass media channel use. It was also associated with low positive credibility with but two of five communication channels, mass media credibility scores and extension agents. These findings suggest that community leadership in a traditional setting is the last dimension likely to be affected by directed change messages even though the dimension is not isolated from interpersonal and mass media communication channel linkages.

Five of six general hypotheses testing relationships between R- · type factor scores and indices of communication behavior were supported by zero-order correlation analysis. In regards to the unsupported

general hypothesis as well as several unsupported empirical hypotheses it may be useful to speculate as to why they were not confirmed.

It is possible that General Hypothesis 6 was unsupported in its assumption of higher credibility for interpersonal, rather than mass media, channels in the communication of innovations due to poor or inappropriate communication measures as dependent variables in the testing of numerous empirical hypotheses. This may have been especially true in regards to measurement of exposure and credibility for interpersonal communication channels. For example, three empirical hypotheses predicted a negative relationship between each of three traditional paths toward modernity and extension agent credibility because of the interpersonal nature of the communication channel. However, three positive significant relationships were found. Yet, it should be noted that extension agent contact is a communication channel associated with modern communication behavior; therefore, perhaps it is not surprising that positive significant correlations were found between credibility for this channel and three R-type traditional paths toward modernity.* A negative relationship was also predicted for neighbor credibility and the three R-type factors. It is interesting that in this case correlations, though non-significant, were negative in the predicted direction.

The modern nature of extension agent contact may also account for the failure to support three empirical hypotheses which predicted a negative relationship between exposure to the channel and the three traditional paths toward modernity. Thus, perhaps it is not surprising that positive significant relations were found between exposure to extension agents and three traditional paths toward modernity.

Traditional Typologies

The Brazilian data produced three distinct traditional typologies in movement toward modernity. They were attitudinally moderns, economic achievers and community leaders.* The three typologies represented about the same degree of progress toward modernity; however, they appeared to be traveling different paths toward more dynamic styles. <u>These findings support the assumption that traditionalism is a multidimensional phenomenon</u>. This assumption is also supported in a P-type factor analysis of traditional typologies by Donohew (1967) in the United States.

Traditional individuals characterized by modern attitudes were similar to Lerner's (1958) informant (the grocer) in Balgat, Turkëy. They lack friends and economic success though distinguished by modern mentalities. This typology was restrained in their progress toward modernity by limited economic leverage and an inability to influence others with their progressive ideas. These individuals were the highest of the three typologies in mass media usage, especially in terms of cinema viewing. They were also the most cosmopolite typology; however, they exhibited the least contact with change agents, which may account in part for their lack of agricultural success and economic plight.

Regardless of their modern labels each of the three P-type factors extracted in the present analysis represents a traditional typology. First, it must be remembered that these typologies are considered relatively modern or relatively traditional only in terms of comparison with other traditional peoples. For example, they are compared with rural Brazilians who are generally characterized by economic deprivation and static life styles. Second, the modern labels apply only to the one attribute of each typology in which the greatest progress toward modernity has been made. In the case of all three typologies relative progress in one dimension is coupled with relative lack of progress in two others.

On the other hand, contact with the world outside the local community, via mass media and cosmopolite channels, may account for their progressive attitudes.

Traditional individuals characterized by economic achievement, though high in agricultural skills and innovativeness, were often illiterate, politically uninformed and attitudinally traditional. The typology exhibited moderate social participation and community leadership. It was characterized by fairly frequent mass media use, especially in terms of television viewing and radio listening. However, the typology was also associated with the lowest credibility ratings of the three typologies for all mass media channels. The typology exhibited moderate contact with change agents and low cosmopoliteness. Economic achievers utilized the largest number of communication channels for innovation information. This suggests that, as in the case of R-type factors of traditionalism and communication behavior, inputs of directed change information via either mass media or interpersonal channels are likely to have their greatest affect in the economic path toward modernity. It is possible that movement of this typology toward modernity would have been enhanced if they had been characterized by greater credibility for the mass media channels they use.

Traditional individuals characterized by heavy social participation and community leadership mirrored most traditional community norms. The people described on this typology were close to the center position on almost all of the 20 traditionalism measures used to describe the three typologies. They were very high on only the leadership, risk orientation and social participation indices. This typology was dis-

distinguished by the least mass media usage of the three typologies in terms of newspaper readership, radio listening, TV viewing and cinema attendance. They were also the least heavy users of mass media channels for innovation information. However, their credibility for most mass media channels, particularly radio, was not low. The typology was low in cosmopoliteness but quite high in change agent contact. The data suggest that messages of directed change for community leaders is best sent via change agent channels.

All six of the general hypotheses testing relationships between P-type traditional typologies and numerous indices of communication behavior, were not supported. In regards to these unsupported general hypotheses, and the numerous unsupported empirical hypotheses used to test them, it may be useful to speculate as to why they were not confirmed.

First, we note that it was impossible to test hypotheses comparing communication behavior of traditionals with the communication behavior of non-traditionals (relatively more modern individuals), which was our original intent, due to the similarity of the three, extracted, P-type traditional typologies in terms of overall position on a traditional-modernity continuum. The author had initially hoped that a relatively traditional and relatively more modern typology would emerge from the P-type factor analysis of 100 Brazilians. Instead, three typologies were extracted which were similar in progress toward modernity though distinguished by their movement along different paths. The Ptype traditional typologies extracted by Raju (1969) from 94 Indian respondents might have offered superior measures for testing the communication behavior of individuals at different levels of advancement

along a traditional-modernity continuum. However, Raju (1969) did not find differences in communication behavior between his traditional and modern typologies for mass media exposure, extension agent contact or urban contact.*

Second, it was possible that the six general hypotheses were unconfirmed due to the extent to which the Brazilian sample had progressed toward modern life styles, and hence did not demonstrate a wide range in the variables of study. The two descriptive factor analyses (R-type and P- type) offer some evidence that the modernization process has begun to affect the sample population in terms of the acquisition of goods (water filters, stoves with chimneys, radios, etc. were commonly owned commodities), agricultural productivity (including the reinvestment of surplus resources in property or production) and especially the increased communication with the world outside the local community environment via such communication channels as urban contact, mass media exposure or contact with change agents.

Third, the six general hypotheses may have failed to receive empirical support due to inadequately measured communication variables. For example, both interpersonal channel exposure and interpersonal channel credibility were slighted in favor of more comprehensive measures of mass media exposure and credibility. The affect of inadequately measuring interpersonal communication behavior was to impede the testing of hypotheses comparing the mass media and interpersonal communication behavior of traditionals. Also, a number of the communication indices

^{*}Raju (1969) conducted an exploratory investigation of traditionalism and communication in India. No hypothesis were presented or tested.

used as dependent variables in analysis of variance of the communication behavior of traditional typologies had non-normal distributions. For example, mean change agent contact was 7.9 while its standard deviation was 17.1. This violation of a basic assumption of analysis of variance may have accounted for several of the low F-ratio scores despite seemingly great differences among the typologies in communication behavior scores. A final communication indice measurement problem may reside in the mass media exposure and credibility indexes. Low intercorrelations among the items making up these indexes may have masked much higher or lower correlations between the individual items and the traditional typologies.

The statistical manipulations of R- and P-type traditional factors and numerous communication variables, while confirming but 5 of 12 general hypotheses, did provide descriptive information on traditional communication behavior. For example, the data indicated that Brazilian traditionals utilized both mass media and interpersonal channels in satisfaction of their informational needs. However, they did not credit either mass media or most interpersonal channels with very high credibility. Also, the data indicated that Brazilian traditionals make regular use of cosmopolite and change agent channels.

Implications for Research

The outcome of the present study, while perhaps disappointing from the standpoint of unconfirmed hypotheses, provided empirical descriptions of traditionalism from the vantage points of two perspectives, one descriptive of dimensions of traditionalism and the other descriptive of traditional typologies. The results of the investigation also suggested a number of important leads for future research.

1. Does repeated use of "standard" modernization variables such as literacy, family income, cosmopoliteness, empathy, communication behavior and others in multi-variate descriptive factor analysis of traditionalism produce a <u>complete</u> profile of the phenomenon? Additional factor analytic research on traditionalism should seek the inclusion of novel economic, socio-psychological and other measures such as employment selection, social system mobility, level of aggression or other variables in order to determine whether the major dimensions of traditionalism have all been empirically identified.

2. Does the communication behavior of individuals change as they proceed from traditional through transitional to modern life styles? Comparative analysis of the communication behavior of two sets of respondents, purposively selected on the basis of their relative tradition alism, should yield clearer distinctions between traditional and modern communication behavior than was possible in the present analysis. The Brazilian typologies of traditionals were not clearly split along traditional-modernity lines, which clouded the analysis of communication behavior.

3. What is the time-order of alterations of various components in a traditional communication system which is proceeding through the modernization process? For example, Lerner (1958) notes that traditionals depend solely on oral communication channels, transitionals on both oral and mass media and modern individuals rely on the mass media. Also, our data suggest that exposure to diverse communication channels precedes high credibility of these channels. Panel studies, which aid in the analysis of time-order relationships, might be conducted in

traditional communities experiencing the modernization process. Investigation might then focus on alterations in communication behavior in these communities over time.

4. In the diffusion of new ideas, are certain communication channels, message strategies and sources more likely than others to enhance adoption of innovations? Field studies in traditional settings which match different communication techniques, sources and channels while measuring the adoption and retention of innovations should lead to suggestions for improving change agency programs of communication directed to traditional clients.

5. What are the major dimensions of traditional communication behavior? Also, what types of individuals interact in traditional communication systems? R-type factor analysis of numerous indices of traditional communication behavior should yield parsimonious dimensions of traditional communication behavior. Additionally, individuals identified as participants in traditional communication systems might be submitted to a P-type factor analysis in search of typologies of traditional communicators.

Clearly, this was not an exhaustive list of research suggestions, but merely select points guiding the direction of some of the many potentially fruitful areas of inquiry on traditionalism and communication behavior.

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APPENDICIES

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APPENDIX A

OPERATIONAL DEFINITIONS OF TRADITIONALISM AND COMMUNICATION VARIABLES

This appendix outlines the operational procedures used to measure 25 traditionalism variables submitted to R-type factor analysis and 20 communication variables submitted to zero-order, correlation analysis and analysis of variance.

Traditionalism Measures

1. Age refers to either the actual age of the respondent or his estimated year of birth.

2. <u>Level of aspiration</u> is the level of occupational prestige that parents desire for their children. It refers to the occupational aspirations the respondent holds for his eldest son. These were graded as low, middle and high status aspirations.

3. <u>Attitude toward future</u> is the degree of attention directed at planning for one's future. It refers to attitude toward teaching modern ideas in school and attitude toward planning for the future in general.

4. <u>Functional literacy</u> is mastery over symbols in their written form. It refers to the respondent's ability to read 40 or more words out of a 50 word message.

5. <u>Economic knowledge</u> is the degree of comprehension of basic economic factors relevant to one's occupational endeavor. It refers to

the sum of scores obtained from a six item economic knowledge test which utilized questions such as: "Do you think you could make more money if you had more knowledge about the variation of the demand for agricultural products?" A correct answer had to be right for the economically correct reason.

6. Use of agricultural facilities refers to the use of an agricultural post, store or cooperative for the largest purchase of materials for farming or cattle raising.

7. <u>Political knowledge</u> is possession of basic political information about one's region and country so as to enable one to function as a citizen. It refers to the sum of right answers to a five item political knowledge test which utilized such items as: "Who was the President of Brazil who was deposed two years ago?"

8. <u>Family income</u> is the respondent's approximation of his total family income during the previous year.

9. <u>Commercialization</u> is the degree of reinvestment of one's agricultural operation. It refers to the percentage of income invested in property and/or production.

10. <u>Farm size</u> refers to the total area of the respondent's property in <u>hectares</u>.*

11. <u>Source of income</u> refers to the principle source of a respondent's income from renting or landowning.

12. <u>Mention as best friend</u> is a sociometric friendship score. It refers to the number of times the respondent was mentioned by others

[&]quot;One hectare equals 2.47 acres.

in his community as a best friend.

13. <u>Counterfactuality</u> is the degree of skill one has in restructuring reality via the manipulation of symbols. It refers to interviewer rating of the respondent's ability to answer 24 contraryto-fact questions. Included were such items as: "If you were the person in charge of a factory, what would you do?"

14. <u>Opinionatedness</u> is individual disposition toward opinionholding in diverse topic areas. It refers to the total number of opinion questions on which respondent expressed any opinion at all. Included were such items as: "Do you think that the majority of men are naturally dishonest or honest?"

15. "<u>Innovativeness</u> is the degree to which an individual is relatively earlier in adopting new ideas than other members of his social system" (Rogers, 1962, p. 19). It refers to the sum of normalized years of adoptions are retained divided by the total number of practices available to be adopted.

16. <u>Adoption percentage</u>* is the degree to which an individual is relatively earlier in adopting new ideas promoted by change agents than other members of his social system. It refers to the number of practices adopted divided by the total number of practices promoted in the respondent's community.

17. <u>Status</u> is the relative desirability of a social-economic position in a social system in relation to others in the system. It

Adoption percentage refers to the number of practices adopted in relation to the number promoted; while innovativeness refers to the length of time adoptions are retained.

refers to the sum of six standard scores based on factor analysis for such items as sum of home and farm equipment improvements and approximate total family income.

18. <u>Agricultural influence</u> is a sociometric agricultural opinion leadership score. It refers to the number of times respondent was mentioned by others as being influential in regard to agriculture.

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19. <u>Status inconsistency</u> is the relative lack of similarity in one's ranking on various indicators of social status. It refers to the relative disparity of scores among six measures of status.

20. <u>Need for achievement</u> "is a social value that emphasizes a desire for excellence in order for an individual to develop a sense of personal accomplishment" (Rogers with Svenning, 1969, p. 34). It refers to the sum of raw scores on such items (selected by factor analysis) as: "What do you intend to do in the next three years?"

21. <u>Risk orientation</u> is one's relative capacity for measurable uncertainty in decision-making. It refers to the sum of raw scores calculated by factor analysis of items indexing hypothetical risktaking.

22. <u>Social participation</u> is one's relative propensity for interpersonal involvement in social and economic organizations. It refers to membership in a cooperative or other clubs, organizations or societies.

23. <u>Attitude toward credit</u> is the position one holds on lending and borrowing practices. It refers to the sum of raw scores selected by factor analysis indexing general attitude toward credit. Included were such items as: "Borrowing money to increase his property

is the best thing a farmer can do nowdays (agree, doesn't know or no response, disagree)?"

24. <u>Opinion leadership</u> is one's relative ability to influence other individuals' attitudes in a desired way. It refers to an overall opinion leadership score derived from the number of times a respondent was mentioned by others as being: (a) best friend, (b) influential in agriculture, and (c) influential in regard to specific innovations.

25. <u>Empathy</u> is one's relative ability to see oneself in diverse roles. It refers to respondent's ability to conceptualize himself in such roles as: mayor of the <u>municipio</u> (county), director of a factory, President of Brazil, or an ACAR supervisor.

Communication Measures*

1. <u>Newspaper readership</u> is the number of newspapers the respondent reads monthly.

2. <u>Radio listening</u> is the degree of communication contact by the respondent to radio. This variable was operationalized by asking the following question, and scoring the response as follows:

"How often do you listen to the radio?"

0 -- no; 1 -- almost never, doesn't know, no response;

2 -- sometimes; 3 -- more or less an hour per day

3. <u>Television viewing</u> is the degree of communication contact by the respondent to television. This variable was operationalized by

Although 20 communication measures were retained as dependent or independent variables, a number are component parts of a common variable. Thus, 13 communication measures are defined and operationalized in the present Appendix.

asking the following question, and scoring the response as follows: "Do you watch TV?"

> 0 -- never see it; 1 -- sometimes see it, in some other place, doesn't know, no response; 3 -- more or less regularly

4. <u>Cinema viewing</u> is the frequency with which the individual visits the movies yearly.

5. <u>Letter writing</u> refers to both the respondent's ability to write letters and his frequency of doing so in terms of one a year, one a month or one a week.

6. <u>Source of agricultural news</u> refers to the "usual" or most often used sources from which agricultural news is received. Included as sources from which respondents may indicate having received agricultural news are such communication channels as radio, newsprint, magazines, ACAR bulletins, extension agents and neighbors. For example, the question was asked, and scored as follows:

"Do you usually receive news about agriculture through radio?"

0 -- no; 1 -- doesn't know, no response; 2 -- yes

7. <u>Number of channels of agricultural news</u> refers to the total number of sources utilized to receive agricultural news. This variable was operationalized as 0 to 7 positive responses to the use of radio, television, newspaper, magazine, ACAR bulletin, extension agent and/or neighbor as channels for the regular reception of agricultural news.

8. <u>Channel credibility</u> is the degree of perceived trustworthiness and competence in communication channels. It refers to the relative channel credibility of radio, newspaper, extension agent and neighbor for new ideas about farming and cattle raising. It refers to the number of choices each channel receives in comparison with every other channel in pairwise choice items measuring most credible channel. For example the question was asked, and scored as follows:

> "Whom do you trust most when it comes to new ideas about farming and cattle in general? In those you learn through." 0 -- doesn't know; 1 -- newspaper or 2 -- extension agent

9. <u>Highest and second highest channel credibility</u> refers to the rank-ordering of the first and second choices among radio, newspaper, extension agents and neighbors for agricultural news.

10. <u>Change agent-client contact</u> is the degree of interaction between professional representatives of change agencies, who seek to influence innovation decisions in a desirable direction, and their clients. It refers to the number of times the respondent talked with the ACAR agent during the past year.

11. <u>Mass media credibility</u> is the perceived trustworthiness and competence of mass media communication. It refers to the respondent's overall mass media channel credibility score for radio and newspaper channels.

12. <u>Cosmopoliteness</u> is the degree to which one is oriented outside his immediate environment, his social system. Operationally, the degree of cosmopoliteness was measured by asking the following questions and summing the scores across four items, including:

> "Have you ever lived away from this community?" 0 -- never lived outside community; 1 -- lived outside but not in a large city, doesn't know, no response; 2 -- lived in a large city

"Did you visit a large city last year? (One with more than 40,000 inhabitants)"

0 -- did not visit a large city in the past year; 1 -- one visit to a large city in past year; 2 -- two visits to a large city in past year; 3 -- three or more visits to a large city in past year.

"Do you have any relative who lives in a large city? (More than 40,000 inhabitants)"

0 -- does not have relative living in a large city; 1 -- one contact per year with relative living in a large city; 2 -- two contacts per year with relative living in a large city; 3 -three or more contacts per year with relative living in a large city.

"If you were starting your life now and were young, healthy, and in good condition, where would you like to start?" 0 -- chooses to begin again in country; 1 -- doesn't answer, doesn't know; 2 -- chooses to begin again in city.

13. <u>Mass media exposure index</u> is the degree of communication contact by the respondent to radio, television, newspaper and/or cinema communication. Stanfield (1968, p. 40) created the present mass media index for the study of mass media exposure of the presently sampled Brazilian population. He notes that the intercorrelations of these measures for the 1,307 respondents are all low but positive: newspaper and radio .171, newspaper and TV .337, newspaper and cinema .344, radio and TV .226, radio and cinema .127 and TV and cinema .273. The four operations used to measure these concepts have previously been mentioned in the present Appendix.

	STAGE I UE	T.F.KMTWAT.TO	N OF VARLABL	E RETENTION AND	DELETION	
Varriables	Retention*	Deletion	Refusal Rate Less Than 10 Per cent **	Correlation with at Least Three Other Variables	Redundancy Not Great ^{***}	Variance Explained Exceeds 5 Per cent
l. Age	×		yes	yes	Ves	ves
2. Education		×	yes	yes	, 10 (46)	yes
3. Education of eldest's son		×	yes	Ves	ves	, u
4. Educational aspira- tions for eldest so	Ę	×	ves		u an	C C
5. Occupational aspira- tions for elacet con	:		- -	2	5	
6. News meadowner's	× ;		yes (114) yes	yes	yes
7 Dadie i cauersrup	×		yes	yes	yes	yes
0. Television uistening 8. Television uizzien	×		yes	yes	yes	yes
9. Cinema vrievince		×***	yes	yes	yes	yes
10. Letter miting	:	×***	yes	yes	yes	yes
ll. Source aminitius	×		yes	yes	yes	yes
news: radio	×		yes (2)	yes	sav	Ves
* Variable retention	depended unc	n caticfac				

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APPENDIX B

ed upon satisfaction of all four criteria.

Figures in parenthesis represent the no-answer rate. A no-answer rate of 131 or less

*** Figures in parenthesis identify the variable number of the selected measure among two or more redundant variables. **** Variable rejected on the basis of extreme skewness of their distribution.

Appendix B (contd)

Variables Re	tention*	Deletion	Refusal Rate Less Than 10 Per cent**	Correlation with at least Three Other Variables	Redundancy Not Great***	Varriance Explained Exceeds 5 Per cent
12. Source agricultural news: newsprint	×		yes (1)	yes	yes	yes
13. Source agricultural news: magazines	×		yes (1)	yes	yes	yes
<pre>14. Source agricultural news: ACAR bulletin</pre>	×		yes (1)	yes	yes	yes
15. Source agricultural news: Extension Agen	r X		yes (1)	yes	yes	yes
l6. Source agricultural news: neighbor	×		yes	yes	yes	yes
17. Number of sources of agricultural news	×		yes	yes	yes	yes
18. Source credibility: radio	×		yes	yes	yes	yes
19. Source credibility: newspaper	×		yes	yes	yes	yes
20. Source credibility: Extension Agent	×		yes	yes	yes	yes
21. Source credibility: reighbor	×		yes	yes	yes	yes
*						

Variable retention depended upon satisfaction of all four criteria.

** Figures in parenthesis represent the no-answer rate. A no-answer rate of 131 or less satisfied the criteria.

*** Figures in parenthesis identify the variable number of the selected measure among two or more redundant variables.

Appendix B (contd)

			Refusal Rate Less Than 10	Correlation with at Least Three Other	Redundancy	Variance Explained Exceeds 5
Varriables	Retention*	Deletion	Per cent**	Variables	Not Great***	Per cent
22. Media with highest source credibility	×		yes	yes	yes	yes
23. Media with second highest source credibility	×		yes	yes	yes	yes
24. Source for first know ledge of innovation	- MO DIS	×	no (539)	yes	yes	yes
25. Source during awaren stage of innovatio	ness ns	×	no (684)	yes	yes	yes
26. Most influential so in adoption of inn vation	urce o-	×	no (805)	ОЦ	yes	yes
27. Innovativeness		×	yes	yes	no (47)	yes
28. Risk orientation		×	yes (21)	ои	no (60)	оп
29. Satisfaction with status quo		×	yes (2)	оп	yes	ои
30. Attitude toward fut	ure X		yes	yes	yes	yes
31. Functional literacy	×		yes	yes	yes	yes
32. Change agent-client contact	×		yes	yes	yes	yes

* Variable retention depended upon satisfaction of all four criteria.

** Figures in parenthesis represent the no-answer rate. A no-answer rate of 131 or less satisfied the criteria.

*** Figures in parenthesis identify the variable number of the selected measure among two or more redundant variables.

Varriables	Retention*	Deletion	Refusal Rate Less Than 10 Per cent **	Correlation with at Least Three Other Variables	Redundancy Not Great***	Variance Explained Exceeds 5 Per cent
33. Topic of conversation with change agent	بر	Х****	yes	yes	yes	yes
34. Use of credit		×	yes (3)	yes	yes (59)	yes
35. Economic knowledge	×		yes	yes	yes	yes
36. Use of agriculture facilities	×		yes (19)	yes	yes	yes
37. Political knowledge	×		yes	yes	yes	yes
38. Family income	×		yes	yes	yes	yes
39. Commercialization	×		yes (125) yes	yes	yes
40. Cash or subsistence crops		×	- no (176)	yes	yes	yes
41. Farm size	×		yes	yes	yes	yes
42. Source of income	×		yes (34)	yes	yes	yes
43. Best friend	×		yes	yes	yes	yes
44. Counterfactuality	×		yes	yes	yes	yes
45. Opinionatedness	×		yes	yes	yes	yes
*						

Appendix B (contd)

Variable retention depended upon satisfaction of all four criteria.

Figures in parenthesis represent the no-answer rate. A no-answer rate of 131 or less satisfied the criteria.

*** Figures in parenthesis identify the variable number of the selected measure among two or more redundant variables.

**** Variable rejected on the basis of extreme skewness of their distribution.

'arriables Re	tention*	Deletion	Refusal Rate Less Than 10 Per cent**	Correlation with at Least Three Other Variables	Redundancy Not Great ^{***}	Variance Explained Exceeds 5 Per cent
H6. Education	×		yes	yes	yes	yes
47. Innovativeness	×		yes	yes	yes	yes
48. Adoption percentage	×		yes	yes	yes	yes
49. Discontinuance		×	yes	ou	yes	оц
50. Socioeconamic status	×		yes	yes	yes	yes
51. Agriculture influence	×		yes	yes	yes	yes
52. Opinion leadership for cooperative		×	yes	yes	(64) ou	yes
53. Mass media credibility	× ×		yes	yes	yes	yes
54. Trust		×	yes	оп	yes	оц
55. Mass media exposure	×		yes	yes	yes	yes
56. Cosmopoliteness	×		yes	yes	yes	yes
57. Status inconsistency	×		yes	yes	yes	yes
58. Need-for-achievement	×		yes	yes	yes	yes
59. Credit attitude	×	yes	yes	yes	yes	yes
60. Risk orientation	×		yes	yes	yes	yes

* Variable retention depended upon satisfaction of all four criteria.

** Figures in parenthesis represent the no-answer rate. A no-answer rate of 131 or less satisfied the criteria.

*** Figures in parenthesis identify the variable number of the selected measure among two or more redundant variables.

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Appendix B (contd)

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Appendix

Varriables	Retention*	Deletion	Refusal Rate Less Than 10 Per cent**	Correlation with at Least Three Other Variables	Redundancy Not Great ^{***}	Varriance Explained Exceeds 5 Per cent
61. Social participa- tion	X		yes	yes	yes	yes
62. Partriarcalism		×	yes	no	yes	ou
63. Credit orientation for productivity		×	yes	yes	yes	yes
64. Opinion leader- ship	×		yes	yes	yes	yes
65. Empathy	×		yes	yes	yes	yes

* Variable retention depended upon satisfaction of all four criteria.

** Figures in parenthesis represent the no-answer rate. A no-answer rate of 131 or less satisfied the criteria.

*** Figures in parenthesis identify the variable number of the selected measure among two or more redundant variables.

