HOMOPHILY
IN THE DIFFUSION OF INNOVATIONS
IN BRAZILIAN COMMUNITIES

Thesis for the Degree of M. A.

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YUNG CHANG HO

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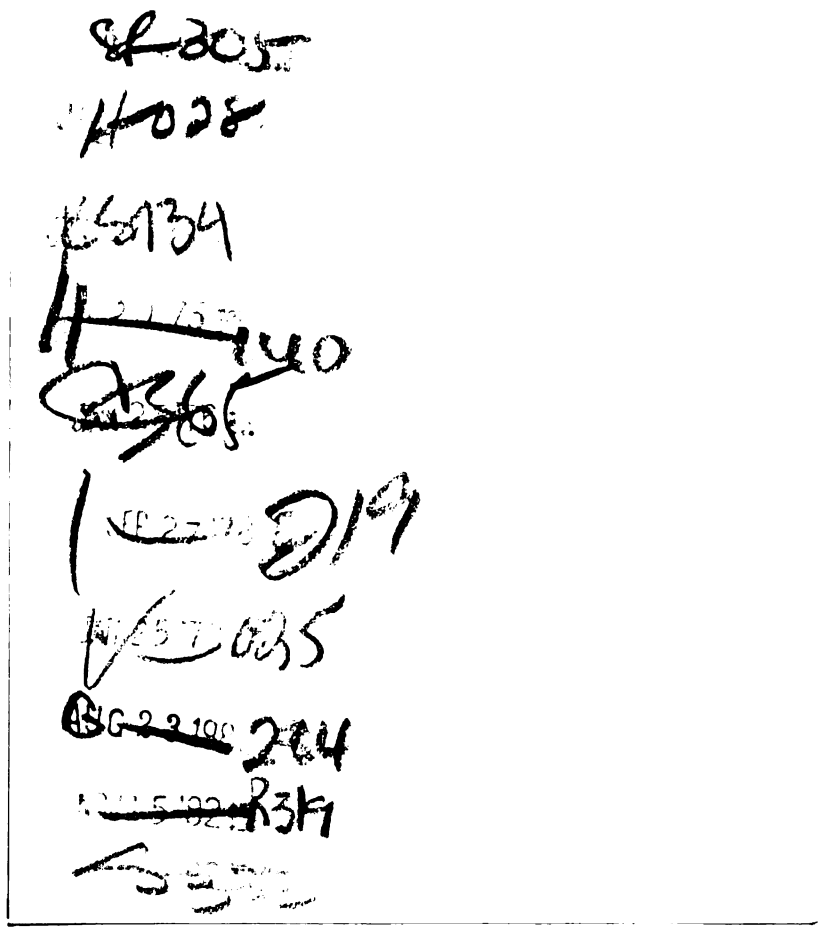

ABSTRACT

HOMOPHILY IN THE DIFFUSION OF INNOVATIONS
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by Yung Chang Ho

The present thesis related homophily with personal, socio-economic and demographic variables in interpersonal communication in the diffusion of technological innovations in 20 Brazilian communities.

Homophily was defined as the degree to which pairs of interacting individuals are similar in certain characteristics such as mass media exposure, change agent contact, cosmopoliteness, literacy, innovativeness, and opinionatedness.

The objectives were (1) to define and measure general homophily in each of 20 communities, and test what variables are related to homophily, and (2) to relate community homophily to aggregate communication characteristics: mass media exposure, change agent contact, cosmopoliteness, innovativeness, literacy, opinionatedness, and a non-communication characteristics, community economic development level.

The present study examined relationships between two indicants of community homophily: community innovative and change agent homophily; and seven indices of modernity: community mass media exposure, change agent contact, cosmopoliteness, literacy, opinionatedness, innovativeness,

and economic development. Since these are indicants of modernity, and traditional communities have a high degree of homophily, we predicted a negative relationship between the seven modernization variables and community homophily.

The independent variables were mass media exposure, change agent contact, cosmopoliteness, literacy, innovativeness, opinionatedness, and community economic development. Dyadic analysis was used to investigate relationships among pairs of individuals. Zero-order Pearsonian correlation was used to test all hypotheses.

The data analyzed in the present study were collected in a previous research project, "Diffusion of Innovations in Rural Societies." The project was funded by the United States Agency for International Development in cooperation with the Department of Communication, Michigan State University, under the direction of Dr. Everett M. Rogers in 1964-1968. There were 1,307 subjects interviewed in the Brazilian project, and 3,340 dyads were found. Of these, 1,604 were friend dyads, and 1,736 were influence dyads.

None of the 28 theoretical hypotheses were confirmed. Two were statistically significantly different from zero, but in the direction opposite to that which was predicted. The remaining 26 were not statistically significant.

There are at least two approaches which deserve attention: (1) Investigation of those variables negatively related to four types of homophily in the present study. These variables are movie exposure, TV exposure,

newspaper and magazine readership, radio exposure, change agent contact, opinionatedness, and innovativeness. (2) It might be fruitful for future researchers to use a combination of dyadic and individual analysis.

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

Everett M. Rogers

Director of Thesis

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CHAPTER I

INTRODUCTION

Background and Reason for the Study

Numerous research studies on the diffusion of innovations, i.e., the process by which information about an innovation spreads among members of a social system (Rogers, 1962, p. 13), have been completed by researchers in communication and rural sociology. A rich body of literature exists in the field of diffusion of innovation which relates behavioral change among selected individuals in certain social systems.

However, researchers still know very little about:

1. How structural characteristics of a social system influence the diffusion of innovations within the social system. Katz (1963, p. 239) clearly indicated that there is a need for research designed to analyze how differential characteristics of the communication structure influence the diffusion of innovations within one social system as compared to others.

2. Determinants of the role of interpersonal communication in the diffusion of innovations. There is overwhelming evidence for the importance of interpersonal communication in the diffusion of innovations in less developed countries. Pye (1963, p. 27) emphasized the relative importance of interpersonal communication in less developed countries by saying that, "It is only necessary at this point to make it clear that the process of development is less dependent upon increased invest-

ment in the modernized, urbanized mass media system than it is upon the adjusting of the informal, rural systems to each other and to the mass media system."

3. What variations in communication structure influence the level of development in social systems. We need a better understanding of communication structures in comparative social systems with varying degrees of traditionalism and modernity.

From a practical point of view, the present study is especially important to change agents whose ultimate goal is to disseminate new ideas through a social system to all receivers in the shortest period of time with desired results and at least cost. Therefore, to be effective it is imperative for change agents to have an understanding of the social system's structural characteristics influencing the diffusion and adoption of innovations, particularly in less developed countries.

A model of homophily indicates why individuals tend to interact with others who have similar characteristics in the same social system. So also from a theoretical point of view, a model of homophily is clearly needed in the field of diffusion of innovations.

Rogers with Svenning (1969, p. 236) pointed out that, "In one sense, homophily acts as an invisible barrier to the flow of innovations within a social system. New ideas usually enter a village via higher status peasants, who tend to have higher mass media exposure and cosmopolite relationships." In traditional communities, they further indicated, "These higher status peasants tend to spread new ideas horizontally within a village to others of high status, therefore, innovations trickle down

very slowly and indirectly to lower status peasants. Homophily can slow down the rate of diffusion of innovation in a system."

An example of homophily as a barrier to the trickle down of mass media messages was given by Lerner (1958, p. 192) when he interviewed a Lebanese villager who said, "Townspeople do listen, but I don't know them. Rich people have radios (but) none around me have radios."

Research in measuring personal influence has been mainly concerned with identifying and classifying the opinion leaders and followers; little effort has been made to find relationships between individual seeker-sought dyads,* i.e. why some pairs of individuals tend to interact with each other.

Limitations of Previous Interpersonal Communication Research

We know much about the diffusion of innovation process in the United States. For instance, there are more than 1,500 diffusion publications available at the Michigan State University Diffusion Documents Center (DDC) as of January, 1969. New diffusion research papers come to the DDC at the rate of one every two days. Of these research papers, about 63 percent were done in the U.S.

These past diffusion research studies have not focused on analyzing the characteristics of interpersonal communication networks in the

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*A dyad consiste consists of a seeker and a sought. The "seeker is the one who seeks information from others who are either his friends or influentials. The "sought" is one who provides information when asked by someone who seeks information.

diffusion of innovations, but rather have focused on studying the interpersonal channels. Chou (1966, p. 7) found that none of the 37 percent of the diffusion studies completed outside of the United States investigated dyadic communication. A few researchers (Rogers and van Es, 1964; Lionberger, 1963; Warland, 1963; Feldman, 1966; and Patel, 1966) studied dyadic relationships.

A further review of diffusion studies shows that only six dealt with the role of interpersonal communication in the diffusion of new ideas. Of these studies, only three (Patel, 1966; Chou, 1966; and Yadav, 1967) investigated the relationship of interpersonal communication variables to the diffusion of innovations across several social systems. The other three dealt with diffusion of educational innovations in school systems in the United States (Eibler, 1965; Davis, 1965; Lin, 1966).

Many limitations of these previous studies were pointed out by the researchers themselves. Yadav (1967, p. 15) said that his study was comparative in nature; nevertheless, it was limited to the analysis of communication structure in only two Indian communities. Therefore, certain statistical limitations are inevitable. Such was also the case with Chou's thesis (1966, p. 4), which was concerned with interaction patterns in only three Colombian villages in the process of the diffusion of innovations, using only three kinds of variables: Level of competence, communication contact, and social status. Patel (1966, p. 212) only compared the dyadic pairs in social status and competence. The association between interpersonal communication and such variables as education, mass media exposure, change agent contacts, opinionatedness, literacy,

cosmopoliteness, age, social status, and innovativeness of the receivers was not measured. Patel (1966) suggested that a complete sociometric survey of a system would give a more accurate picture of the flow of communication. Feldman (1966) was concerned with characteristics of the interpersonal communication dyad formed during the physician-selection decision process. Feldman (1966, p. 758), explored the dyadic relationships between the influencee (information seeker) and the influencer (referent) in the process of selecting a physician, and then compared "age and social status characteristics of those influentials who advise in the selection of a physician, the purchasing of household goods, and the purchasing of fashion goods."

Objectives of the Present Study

The present study is concerned with personal, socio-economic, and demographic variables in interpersonal communication in the technological diffusion of innovations in 20 Brazilian communities. To avoid statistical and other limitations of previous studies, 20 purposively-matched communities in Brazil are included.

The objectives of the present study are:

1. To define and measure general homophily in each of 20 communities, and test what variables are related to homophily. More specifically, we want to define and measure community homophily.

2. To relate community homophily to such aggregate communication characteristics of 20 communities as opinionatedness, literacy, mass media exposure, change agent contacts, cosmopoliteness, and a non-communication characteristic, community economic development level.

CHAPTER II

RATIONALE AND THEORETICAL HYPOTHESES

A Theoretical Rationale

In the present chapter, we shall present a theoretical background to support the relationship between the independent variables and the degree of homophily in dyadic communication in rural Brazilian communities. Also, we shall explain why certain types of communication structures exist in certain types of communities.

General homophily is defined as the degree to which pairs of individuals who interact with others with similar characteristics in the same social system (Lazarsfeld and Merton, 1954, p. 23). These characteristics in the present study are literacy, mass media exposure, opinionatedness, change agent contact, innovativeness and cosmopoliteness.

If the two interacting individuals are alike in some characteristic, such as mass media exposure, we consider them to be homophilous. If two pairs of individuals who interact with each other are different in certain characteristics, then they are heterophilous, the opposite of homophily (Lazarsfeld and Merton, 1954, p. 23).

Homophily in Traditional Communities vs. Heterophily in Modern Communities

Previous studies in the United States and Netherlands (Lionberger, 1957 and van den Ban, 1963) showed that when there are more distinct

differences in the degree of homophily between two individuals in a social system, interaction is less likely to occur between them. Rogers and van Es (1964) computed an index of homophily* for the seeker-sought relationships in the Colombian modern and traditional villages. "This index is a measure of the degree to which seekers interact with adopter categories** quite different from themselves" (Rogers and van Es, 1964, p. 43). The authors found that the homophily index was .80 for the two traditional Colombian villages, and .68 for the three more modern villages. Rogers and van Es (1964, p. 42) also found that in Colombian villages "In general there was a marked tendency for 'seekers' to name 'soughts' who are in a similar adopter category. In fact, 117 of the 177 sociometric relationship (66 percent) depicted are to the same or an adjoining adopter category". According to these findings, it seems reasonable to conclude that: (1) Villagers in the two Colombian traditional villages tend to interact with others who are similar to themselves while villagers in the three modern villages tend to interact with those who are quite different from themselves, and (2) generally speaking, in all five Colombian villages, seekers tend to interact with others with similar characteristics.

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*Rogers and van Es (1964, p. 43) reported that "this index of resistence to communication flow was competed as the average length of the sociometric arrows (the vertical distance in Figure 4) between seekers and soughts. When the average sociometric choice is across fewer categories, the index is greater. For example, the index of resistence in the three modern veredas (villages), is .68, which indicates that the average sociometric choice is across more adopter categories (Figure 4) than in the two traditional veredas, where the index is .80."

**Rogers (1962, pp. 168-171) defined adopter categories as innovators, early adopters, early majority, late majority, and laggards.

Bose (1962) found a very marked degree of homophily among traditional Indian villagers on the basis of caste ranking, education, and size of farm. In the nearby city of Calcutta, there was a high degree of homophily based on income. Dasgupta (1968) found that in a highly structured societies in Uttar Pradesh, India--traditional communities--the mere presence of stratification in terms of caste retarded interpersonal communication between people. This restriction on whom can be talked to is an indicant of a high degree of homophily in these traditional communities.

Warland (1963) reported that on the basis of his study of 28 sociometric relationships among Iowa farmers individuals tended to interact with those who have similar attitudes, levels of technical competence, and socio-economic status. Katz and Lazarsfeld (1948) and Merton (1957) supported the "likes-to-interact-with-likes" hypothesis, that individuals will interact with those who are similar to themselves. Chou (1966) examined the concept of homophily in the context of Colombian villages. She found little relationships between individuals' homophily based on competence, communication contact, or social status and their degree of interaction.

Previous research studies indicate that a seeker of information in traditional communities will go to somebody similar to himself for most of the information he is looking for. This pattern of behavior is also made possible by less specialized and functionally differentiated roles in traditional communities. In short, there is a high degree of homophily among individuals in traditional communities.

On the other hand, we expect that roles are more specialized and functionally differentiated in modern than in traditional communities (Rogers and van Es, 1964, p. 19). The more modern communities become, the more specialized the roles are likely to be. For example, as a traditional community becomes modern, an opinion leader may still be expert in farming but can not keep up with innovations in other fields. As change agents and mass media introduce more innovations, the process of modernization will accelerate. Very soon, the opinion leader may become highly specialized, since modernization has imposed complexity. Under these circumstances, the seeker of information can no longer go to one opinion leader like himself for answers to all of his questions. It is now beyond the latter's ability to answer all the questions because of specialization of roles in more modern community settings.

Emery and Oeser (1942) conducted studies of opinion leaders in four townships in Iowa, and concluded that opinion leaders are usually monomorphic. Rogers and Cartano (1962) suggested that opinion leaders are more likely to be polymorphic in traditional communities. They concluded that this was probably due to a greater separation of roles in more modern communities than in traditional communities. Katz and Lazarsfeld (1955) found that in the U.S., certain individuals are considered experts in one field, but not another. In other words, if an individual is an expert in fashion, then he can not be an expert in other fields such as movie-going, public affairs, and marketing at the same time.

Merton (1949) concluded that opinion leadership is not a general characteristic of a person, but is limited to a particular issue. More importantly, Lionberger (1953, 1957) found that individuals who are sought for information are more competent than those who seek information. Rogers with Svenning (1969) observed "a general tendency for opinion seekers to obtain information and opinions from opinion leaders who are more competent than the opinion-seekers in technical knowledge, innovativeness, etc. Thus, when heterophily occurs, the opinion-seekers interact with opinion leaders who are more innovative but not too much so."

Figure 1 shows a paradigm of information-seeking relationships between seeker and sought at different competence levels with technology and direction of information flow in modern social system.

Therefore, when an individual seeks advice on a variety of topics in a modern community, he will likely find others different from himself in terms of, for example, technical competence, innovativeness. He will also find them different due to specialized roles in a modern community. In short, there is a high degree of heterophily in modern communities.

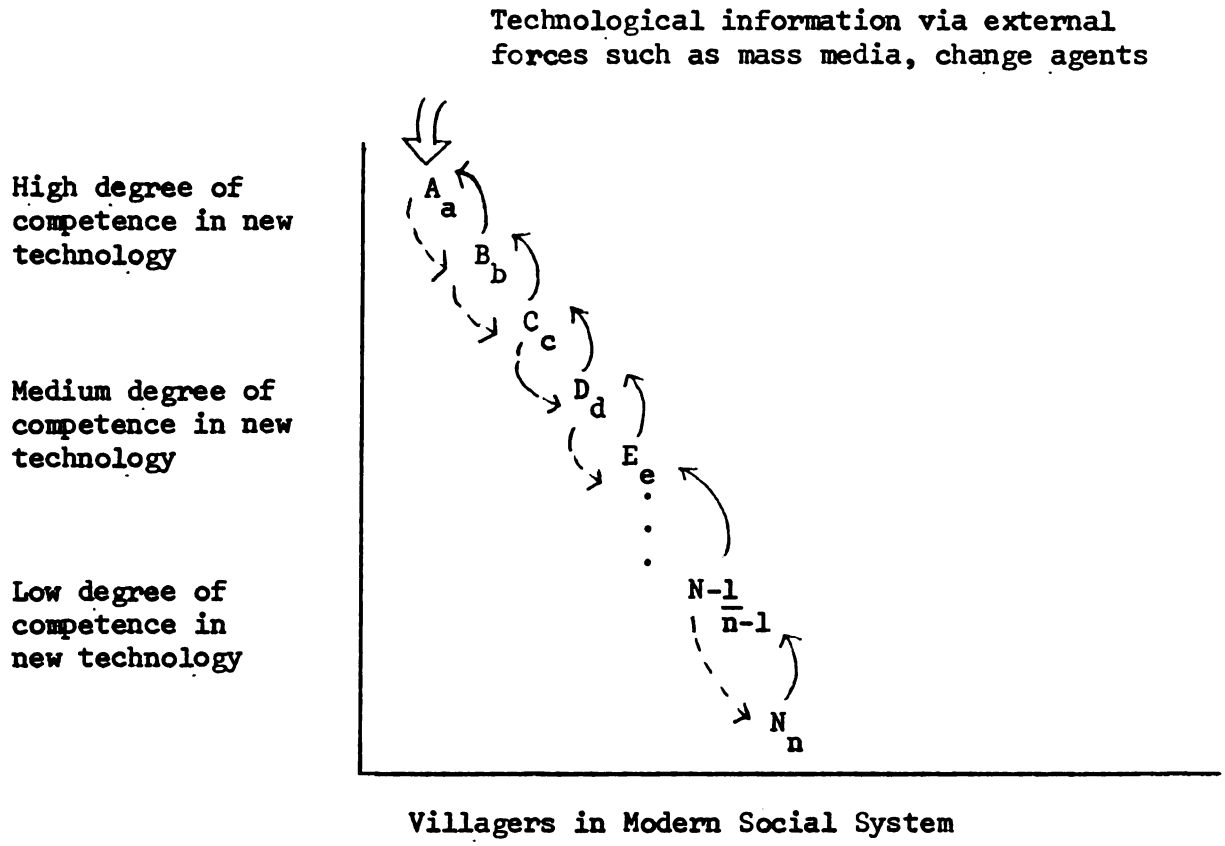

Figure 1. Paradigm of information-seeking relationship between seeker and sought in different levels of competence in new technology and direction of information flow in modern social system.

A, B, C, D....N-1, N Stand for individual villagers who could be both seekers and soughts.

a, b, c, d...n-1, n Stand for degree of competence in new technology, for example, Aa is slightly more competent than Bb who in turn is slightly more competent than Cc...etc.

——————→ Information-seeking direction

- - - - - - - - → Information flow direction

Theoretical Hypotheses and Modernization Variables

The first empirical problem is to determine the generality of homophily. For example, is a community that is homophilous on innovativeness also homophilous on literacy?

Before we measure these variables to obtain community homophily indices, we shall examine the possible relationships between modernization variables and homophily.

Modernization is the process by which individuals change from a traditional way of life to a more complex, technologically-advanced rapidly-changing style of life (Rogers with Svenning, 1969).

The level of analysis of homophily in the present study is community rather than individual.

Community Mass Media Exposure

Theoretical Hypothesis I: Homophily is negatively related to community mass media exposure.

Community mass media exposure is the relative proportion of members in a social system who are exposed to the outside world via radio, newspaper and magazine, TV and cinema.

Lerner indicated (1967) that the mass media are bringing strange new worlds into traditional societies in the developing countries. Rogers (1965) found that mass media exposure leads peasants in Colombia down the road of modernization. McNelly (1964) pointed out that "Much of the content in all of the media (is) designed to inform or persuade people about various kinds of modernization." Therefore,

it is clear that mass media exposure is an important indicant of modernity in developing countries. Furthermore, Rogers (1965) found that traditional communities have a lower level of mass media exposure than modern ones. Modern communities should have a higher degree of heterophily.

Community Change Agent Contact

Theoretical Hypothesis II: Homophily is negatively related to community change agent contact.

Community change agent contact refers to the frequency with which proportion of members in a social system come into contact with certain extension service personnel whose mission is to diffuse new ideas into the social system.

Villagers in the modern Colombian villages have more contacts with personnel of the National Agricultural Extension Service than those in traditional villages because there was no such service in the two traditional villages (Rogers and van Es, 1964, p. 13). Alves (1961), found that the Association for Credit and Rural Assitance (ACAR)* agents was one of the most important sources of new ideas for those villagers who participated in innovation programs; while others not in these programs received new ideas indirectly. Thus change agents represent external forces that bring new ideas into village social systems. These new ideas usually prove useful in accelerating the modernization of developing countries. The more contacts individuals have with change agents, the more new ideas they will likely have. Thus, change agent contact is an important force toward modernization.

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*Whiting and others (1968, p. 11) "A Summary of Innovation in Brazil: Success and Failure of Agricultural Programs in 76 Minas Gerais Communities," East Lansing; Department of Communication, Michigan State University (Diffusion of Innovations Report 7).

Community Cosmopoliteness

Theoretical Hypothesis III: Homophily is negatively related to community cosmopoliteness.

Community cosmopoliteness is the degree to which the orientation of members in a social system are external to a particular social system (Rogers, 1960, p. 102).

Merton (1957, pp. 387-420) found that "the cosmopolite belongs to more organizations than the localite; is more willing to live elsewhere; makes friends with those with whom they can exchange ideas." Menzel (1960) found that the individual who is in touch with the outside world simply receives more information about new practices than those who do not.

Opinion leaders not only have more contacts with the outside world (Rogers, 1955; Lionberger, 1953; and Menzel and Katz, 1955) but also tend to be seekers of technically accurate information sources. Thus, we may expect that social systems with a high degree of cosmopoliteness tend to be more modern than those without. In other words, cosmopoliteness is also an indicant of modernity.

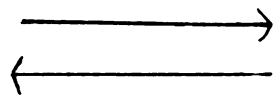
Community Literacy

Theoretical Hypothesis IV: Homophily is negatively related to community literacy.

Community literacy is the degree to which proportion of members in a social system possess mastery over symbols in their written form.

Lerner (1963, p. 341), also pointed out that "Literacy is indeed the basic personal skill that underlies the whole modernizing sequence... the vary act of achieving distance and control over a formal language

gives people access to the world of vicarious experience." Rogers and Herzog (1966, p. 192) indicated that literacy is a "crucial element in the modernization process." The authors pointed out an interdependent relationship between literacy and modernization by saying that "...literacy is necessary for modernization, but modernization, as it develops, also impels literacy forward. Thus, the arrows of relationship are mutual and reciprocal:

Literacy  Modernization..."

They concluded that literacy was important not only for individual modernization but also for community modernization in less developed countries. It is also a key antecedent concept from which numerous modernization consequences flow (Rogers and Herzog, 1966, p. 202). We may expect that as the level of literacy in the community improves, so does people's ability to learn new ideas. Therefore, communities with higher levels of literacy tend to be more modern than those which are not. In other words, literacy is an indicant of modernity.

Community Opinionatedness

Theoretical Hypothesis V: Homophily is negatively related to community opinionatedness.

Community opinionatedness is the degree to which members in a social system have opinions about things of concern to the people in that social system.

Lerner (1958) reported that as people become more opinionated, the community is more likely to become modern. When people become more opinionated they tell others about whatever ideas they learned through such external forces as mass media or change agents. Chances are that both the talker and the listener will eventually benefit as a result of this exchange of ideas. Understandably, the former is seeking psychological support from the latter (Festinger, 1957). On the other hand, the latter benefits by gaining useful scientific ideas from the former. As these actions and reactions take place quite often in the community, the community is bound to show progress. Therefore, opinionatedness is also an important indicant of modernity.

Community Innovativeness

Theoretical Hypothesis VI: Homophily is negatively related to innovativeness.

Community innovativeness is the degree to which proportion of members in a social system are relatively earlier in adopting new ideas than the other members of his social system (Rogers, 1962, p. 19).

Rogers (1962) found that innovative members of a social system are relatively earlier in adopting new ideas than the other members of his social system. The more innovative individuals a social system has, the more new ideas this social system might adopt. Therefore, these social systems tend to be relatively more modern since new ideas usually help modernize social system. Thus, innovativeness is another indicant of modernity.

Community Economic Development

Theoretical Hypothesis VII: Homophily is negatively related to community economic development.

According to Stanfield (1968, p. 3): "Community economic development is the degree of the general physical well-being of a community's inhabitants, which is reflected by their possession of various comforts of life and an income sufficient to purchase these comforts."

Deutschmann (1963) found that the best single economic index is an Andean village in Colombia was size of farm, followed by radio set ownership. Stanfield (1968) reported that items such as running water, bath in house, electricity and radio constitute a measure of economic development in the state of Minas Gerais, Brazil.

According to a United Nations report,* community development"... designates the utilization under one single programme of approaches and techniques which rely upon local communities as units of action and which attempt to combine outside assistance with organized local self-determination and efforts, and which correspondingly seek to stimulate local initiative and leadership as the primary instrument of change..."

As communities in less developed countries achieve a higher degree of economic development, so will the social structure become more complicated due to clearer separation of roles in society. In other words, in the communities with high level of economic development, individuals depend heavily upon others for their daily necessities, either materially or non-materially.

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*United Nations Document E/CN 5/291, Programme of Concerted Action in the Social Field of the United Nations and Specialized Agencies.

People have to interact with all types of individuals in order to satisfy their own needs regardless of the latter's different characteristics. Thus, we may assume that the higher level of economic development of a social system is an important and necessary characteristic of modernity.

Summary

As a result of previous discussions and research findings, we may conclude that literacy, opinionatedness, innovativeness, change agent contact, mass media exposure, innovativeness, cosmopoliteness, and community economic development are important indicants of modernity of social systems in less developed countries. Modern communities have a higher degree of heterophily. Out of necessity, if not willingness, people in these communities have to interact with all types of other individuals regardless of their relative characteristics.

Therefore, we may expect that the higher the degree of literacy, opinionatedness, cosmopoliteness, mass media exposure, innovativeness, change agent contact, and community economic development, the more modern communities will be. In other words, a low degree of homophily would be found in modern communities. Figure 2 summarizes the expected relationships of modernization variables and homophily.

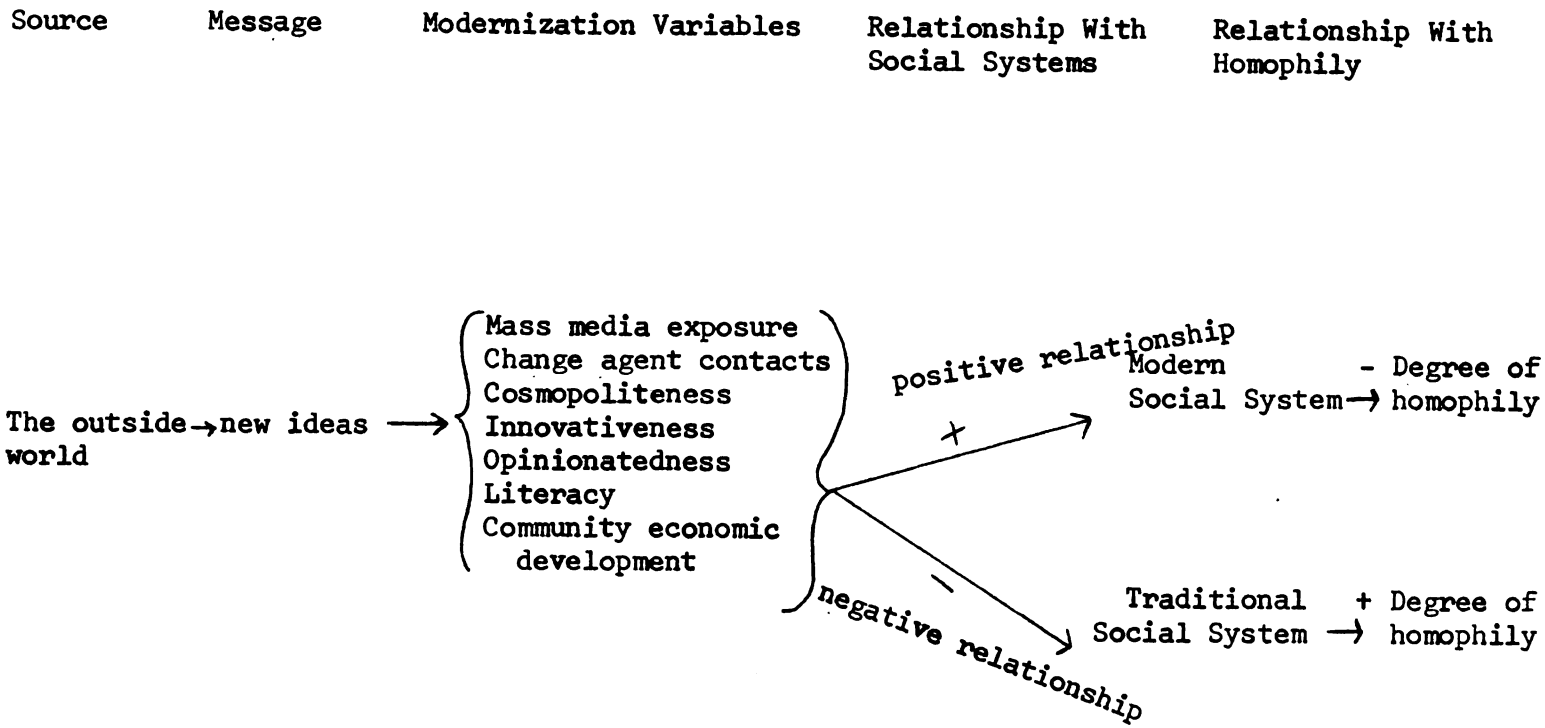

Figure 2. Paradigm of the relationships between modernization variables and homophily

CHAPTER III

METHODOLOGY

The Data

The data for this present study grew out of the project, "Diffusion of Innovations in Rural Societies" originally including three countries: India, Nigeria, and Brazil.

There were 1,307 subjects interviewed in the Brazil Phase II Diffusion Project.

Criteria for Selecting Communities

Community sampling of the present study was based on a purposive selection of 18 communities chosen from the 76 communities studied in Phase I of the Diffusion Project. All of these 18 communities were situated in the state of Minas Gerais. The communities were matched on size, highway access, distance from urban center, approximate level of literacy, and availability of mass media. Specifically, criteria for selection were:

1. They must be equally suitable for four treatments (plus a control) in Phase III of the Diffusion Project. These treatments consisted of two sets: Set A included literacy training and a community development program known as "animation."

Set B consisted of radio farm forums and community newspapers.

2. They must be within the range of a single broadcasting station so that any of 18 communities can be a part of radio forum.
3. There must be a meeting place in all communities for community members to use in literacy training and radio forums.
4. All communities must be relatively easily accessible to facilitate visits.

Besides these original 18 communities, we incorporated one "success" and one "non-success" community selected from the Association for Credit and Rural Assistance local offices outside our Phase II-sample.* The procedure for collecting data from these two communities was identical to those used in the original 18.

Criteria for Selecting Subjects

Subjects selected for the present study are on the basis of the following criteria:

1. Subject must work on the farm, in other words, he is not an absentee landowner.
2. Subject should be the major decision maker for his farm.
3. Subject should own at least part of the land they worked.

If the subject can not meet any of the above criteria, he might not either care about innovations or be reached by communications directed to people in the community.

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*Whiting and others, op. cit.

Method and Results of Data-Gathering

An interview schedule was designed and pre-tested by the Diffusion Project staff in Brazil in 1966. Given interviewer training prior to hiring, university students were sent out under supervision to interview farmers in 20 communities in the state of Minas Gerais. They were instructed to interview all farmers who owned at least part of the land they operated and made major decisions for their farm. A total of 1,307 interviews were held in 20 rural communities during July and August, 1966. The data were coded and mailed to Michigan State University for card punching and computer analysis.

The dyadic relationship between the seekers and the soughts is the unit of analysis in the present study. The "seekers" are not completely distinguished from the "soughts" since they make exchange roles. The seeker is the one who seeks information from others who are either his friends or influentials.

Pertaining to friendship, respondents were asked the question "Who are three friends with whom you talk most frequently?" Influentials were located by asking the question "Who are the three persons in this community who are most listened to or imitated when it comes to farming and cattle raising in general?" The people mentioned in response to these questions are the soughts of the seeker.

Excluded from the present analysis are those who did not seek information from anybody or who sought someone outside of the community. for information.

The interaction dyads were classified into two types according to the nature of their relationships:

1. Friend Dyad -- the dyad in which the sought was designated by the seeker as his friend.
2. Influence Dyad -- the dyad in which the sought was deisgnated by the seeker as a person who has influence on him.

IBM dyadic relationship cards (see Table 1 for results of dyad-gathering) were prepared which included community identification number, seeker's identification number, codes recording his personal characteristics, i.e., age, education, cosmopoliteness, innovativeness, etc., and same information on the person designated as a sought (see Appendix B).

The Measure of Homophily: Pearson Product-Moment Correlation

Pearson product-moment correlation is the statistical method used in the present study to measure homophily of dyads, where one variable of the seeker is related to the same variable of the sought. A high positive correlation coefficient indicates high homophily.

Pearson product-moment correlation coefficient analysis was used to relate the characteristics of seekers and soughts because:

1. The independent variables used in the present study are continuous rather than discrete. Had the variables been discrete, then Coleman's (1958) homophily index would have been used.

2. Highest degree of homophily is indicated by correlation coefficient of +1.

3. Lowest degree of homophily is indicated by a correlation coefficient of -1.

For example, if the seeker's age is highly correlated with the sought's age, there is homophily on age. On the basis of this correlation for each community measured separately, community homophily was calculated. Homophily is defined for of such independent variables as mass media exposure, change agent contact, opinionatedness, literacy, innovativeness and cosmopoliteness.

As stated in the rationale, there is a negative relationship between homophily and these modernization variables in traditional communities.

The coefficient of multiple determination, r^2, indicates the common variance of two variables. In this data, the two variables are always the same characteristic of the seeker and that of the sought. This r^2 is the basic measure of homophily for each community. To avoid negative correlations we decided to add .50 to every score. Therefore, the formula for homophily in the present study is:

Homophily = r^2 + .50

Operationalization of Variables

Independable Variables

1. Individual mass media exposure is measured by Question No. 8* which asks each respondent "Have you read (or has anybody read for you) newspapers or magazines lately? (If yes) How many times a month." No. 8 also indicates that the individual mass media score ranges from 0 to 99

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* Questions used in this thesis can be found in Appendix A, p.

times a month. Community mass media exposure in the present study is the percent of members in the social system who read a newspaper or magazine one or more times per month.

2. Individual change agent contact is measured by Question No. 25 which asks each respondent "How many times have you talked to the Association for Credit and Rural Assistance agent (ACAR agent) last year?" Question No. 25 also indicates that the individual score may range from 0 to 99 contacts. Community change agent contact is the percent of members in the social system who have had one or more contacts with ACAR agent in the last year.

3. Individual cosmopoliteness is measured by Question No. 4 which asks "Did you visit a large city last year?" A large city is one with more than 40,000 inhabitants. Question No. 4 also indicates individual score ranging from 0 to 99 times. Therefore, community cosmopoliteness is the percent of members in the social system having made five visits to a large city with population more than 40,000 in the past year.

4. Individual literacy is measured by Question No. 22, which asks each respondent to read a 50-word reading card: "He who cannot read is like a blind man who has to be guided according to other people's wishes; or then he will stumble his way. The illiterate man is not altogether free; he is a slave of his ignorance. Never stop reading something every day and keep learning." Item No. 22 indicates how many words respondent can not read. Individual functional literacy score range from 00 to 50 words. Community literacy is the percent of members in the social system who can read 40 to more words in the 50-word passage.

5. Individual opinionatedness is measured by Question 38 which asks each respondent "How many of ten questions on which have you expressed opinion?" The range of scores is from 0 to 9. The higher the score, the greater the individual opinionatedness. Community opinionatedness is the percent of members in the social system who expressed opinions on 9 items of opinion questions.

6. Individual innovativenss is measured by a series of five questions. The first question, No. 16, ascertains how many agricultural practices have ever been adopted, while the second question No. 17, indicates year of adoption by practice. The last question, No. 18 shows continuing use of practices by adopters.

The agricultural practices are:

(1) Correct spacing for corn

(2) Hybrid corn

(3) Chemical fertilizer - corn

(4) Chemical fertilizer - other crops

(5) Contour plowing

(6) Septic tank

(7) Reforestation

(8) Lime on acid soil

(9) Ant control

(10) Irrigation

(11) Termite control

(12) Forage grass plot

Community innovativeness is the percent of members in the social system who adopt one or more practices in the average year of adoption for 12 selected agricultural practices.

7. Community economic development is a measure of home and farm equipment and improvements possessed by each respondent in the social system. This home and farm equipment or improvements included water filter, wood or tile floor in the house, refrigerator, stove with chimney, plumbing for running water, bathroom inside the house, electric lighting, radio, relevision set, motorized vehicle, property, house in town and agricultural machines. The range of scores is 0 to 26. Question No. 26 indicates that community economic development is the percent of members who possessed 12 or more items mentioned.

The distribution of friend, influence and general dyads in 20 Brazilian communities are shown in Table 1.

Table 1. Results of dyad gathering.

	Names of Communities	Friend dyads		Influence dyads		General dyads
10	Tres Pontas	71		79		150
11	Tres Coracoes	68		70		138
20	Sao Joao Nepomuceno	109		127		236
21	Sao Joao del Rei	83		75		158
22	Santos D	58		49		107
23	Bicas	80		95		175
24	Rio Voro	85		97		182
30	Parao-Poba	95		130		225
31	Sete Ligoas	78		102		180
32	Podro Leopaldo	85		63		148
34	Corinto	100		121		221
35	Cordisburgo	99		109		208
42	Itauna	99		61		160
43	Divinopolis	88		83		171
51	Formiga	52		78		130
70	Uba	72		71		143
71	Catagueses	77		85		162
72	Tocantins	74		95		169
80	Fonta	40		48		88
82	Alvinopolis	91		98		189
	Total	1604	+	1736	=	3340

Empirical Hypotheses

In the present study, the level of homophily analysis is the community.

Theoretical Hypothesis I: Homophily is negatively related to community mass media exposure.

Empirical Hypothesis Ia: Homophily is negatively related to community radio exposure.

Empirical Hypothesis Ib: Homophily is negatively related to community TV exposure.

Empirical Hypothesis Ic: Homophily is negatively realted to community movie exposure.

Empirical Hypothesis Id: Homophily is negatively related to community newspaper and magazine readership.

Theoretical Hypothesis II: Homophily is negatively related to community change agent contact.

Empirical Hypothesis II: Homophily is negatively related to community ACAR agent contact.

Theoretical Hypothesis III: Homophily is negatively related to community cosmopoliteness.

Empirical Hypothesis III: Homophily is negatively related to community number of trips to city in the last year.

Theoretical Hypothesis IV: Homophily is negatively related to community literacy.

Empirical Hypothesis IV: Homophily is negatively related to community literacy.

Theoretical Hypothesis V: Homophily is negatively related to community opinionatedness.

Empirical Hypothesis V: Homophily is negatively related to community opinionatedness.

Theoretical Hypothesis VI: Homophily is negatively related to community innovativeness.

Empirical Hypothesis VI: Homophily is negatively related to community average years of adoption of innovations.

Theoretical Hypothesis VII: Homophily is negatively related to community economic development.

Empirical Hypothesis VII: Homophily is negatively related to community economic development.

CHAPTER IV

FINDINGS

Measurement of Homophily

Pearson Product-Moment Correlation Coefficient Analysis

Most correlations between seekers' and soughts' 20 variables across 20 Brazilian communities were found to be very low and positive, but not significant. For example, only in the case of friend dyadic relationships in Sao Joao Nepomuceno community, Pearsonian correlations on home and farm improvement and equipments, income, and most influential source A were .402, .325, and .306. They were significantly different from zero. In the case of influence dyadic relationships in Sao Joao Nepomuceno community, none of the correlations was significant. Similar results are found in other 19 communities as well. Therefore, we are unable to say that seekers in Brazil who are homophilous on one variable should interact with soughts who are also homophilous on the same variable. The expectation that there is a high degree of homophily in Brazilian communities was not fulfilled. Findings are consistent with Chou's findings (1966) in three Colombian villages when she reported that homophily was also very low there.

Tables 2, 3, 4, and 5 show Pearsonian correlations between variables of seekers' and soughts' in two representative communities: Sao Joao Nepomuceno (relative modern community) and Corinto (relative traditional community) on the basis of friendship and influence.

Factor Analysis

Given the low correlations between seekers' and soughts' characteristics in Brazil, we tried to find what variables, if any, constitute general homophily. No main factor indicating general homophily was found. Using the criterion that loadings should be .40 or larger on one factor and less than .40 on other factors, four groups of homophily emerged from our factor analysis: (See Table 6 for factor loadings of homophily items).

(1) Cosmopolite group homophily consists of: education, visits to the city, political knowledge, and opinionatedness.

(2) Information and source group homophily consists of: radio listening, total number of sources utilized and opinion leadership.

(3) Adoption group homophily consists of: ACAR contacts, social participation, and innovativeness.

(4) Economic group homophily consists of: information source, trust in neighbors, home and farm equipment and improvements, and income.

Table 2. Pearsonian correlations of seekers' 20 variables to soughts' 20 variables in Sao Joao Nepomuceno community on the basis of friendship (Modern community N = 109).

Seekers', Soughts' 20 Variables in Sao Joao Nepomuceno Community	Pearsonian Correlations
Age	.091
Education	-.074
Visit to city	-.001
Newspaper & Magazine Readership	.000
Radio Listening	-.040
Cinema Attendance	.436+
Total Sources Utilized	-.017
Source A	.263+
Most Influential Source A	.306+
Trust in Neighbor	.151
Functional Literacy	.142
ACAR Contact	-.052
Home and Farm Improvement & Equipment	.402+
Political Knowledge	.185
Income	.325+
Number of cows owned	.135
Opinion Leadership	-.104
Social Participation	.193
Opinion Leadership Total	.007
Innovativeness	.087

*Significantly different from zero at the 5 per cent level.
+Significantly different from zero at the 1 per cent level.

Table 3. Pearsonian correlations of seekers' 20 variables to soughts' 20 variables in Sao Joao Nepomuceno community on the basis of influence (Modern community N = 127).

Seekers', Soughts' 20 Variables in Sao Joao Nepomuceno Community	Pearsonian Correlations
Age	.030
Education	.025
Visit to city	.023
Newspaper & Magazine Readership	-.120
Radio Listening	.000
Cinema Attendance	.122
Total Sources Utilized	-.065
Source A	.128
Most Influential Source A	.064
Trust in Neighbor	-.049
Functional Literacy	.168
ACAR Contact	-.055
Home and Farm Improvement & Equipment	.105
Political Knowledge	.034
Income	.058
Number of cows owned	-.020
Opinion Leadership	-.071
Social Participation	.020
Opinion Leadership Total	-.051
Innovativeness	.062

*Significantly different from zero at the 5 per cent level.
+Significantly different from zero at the 1 per cent level.

Table 4. Pearsonian correlations of seekers' 20 variables to soughts' 20 variables in Corinto community on the basis of friendship (Traditional community N = 100).

Seekers', Soughts' 20 Variables in Sao Joao Nepomuceno Community	Pearsonian Correlations
Age	.178
Education	.062
Visit to city	-.075
Newspaper & Magazine Readership	-.029
Radio Listening	.362+
Cinema Attendance	-.003
Total Sources Utilized	.319+
Source A	-.018
Most Influential Source A	-.162
Trust in Neighbor	-.014
Functional Literacy	-.015
ACAR Contact	.161
Home and Farm Improvement & Equipment	.139
Political Knowledge	.103
Income	.162
Number of cows owned	.196*
Opinion Leadership	.062
Social Participation	.210
Opinion Leadership Total	.197*
Innovativeness	.147

*Significantly different from zero at the 5 per cent level.
+Significantly different from zero at the 1 per cent level.

Table 5. Pearsonian correlations of seekers' 20 variables to soughts' 20 variables in Corinto community on the basis of influence (Traditional community N = 121).

Seekers', Soughts' 20 Variables in Sao Joao Nepomuceno Community	Pearsonian Correlations
Age	-.046
Education	-.082
Visit to city	.030
Newspaper & Magazine Readership	-.056
Radio Listening	.069
Cinema Attendance	-.049
Total Sources Utilized	.225*
Source A	-.009
Most Influential Source A	-.142
Trust in Neighbor	.167
Functional Literacy	-.019
ACAR Contact	.071
Home and Farm Improvement & Equipment	.108
Political Knowledge	-.022
Income	.003
Number of cows owned	-.037
Opinion Leadership	-.091
Social Participation	.039
Opinion Leadership Total	.027
Innovativeness	.057

*Significantly different from zero at the 5 per cent level.
+Significantly different from zero at the 1 per cent level.

Table 6. Varimax rotation: factor loadings for homophily items.

Item No.	Homophily Item Name	Factor 1	2	3	4
1	Age	-.0578	-.3080*	-.1011	-.0891
2	Education	.6905*	.3481	-.1708	-.1780
3	Visits to City	.7396*	-.5034	.0110	-.1818
4	Newspaper and Magazine Readership	-.1584*	.1034	-.0288	.0617
5	Radio Listening	-.0221	.7665*	-.3017	.0677
6	Cinema Attendance	-.2577	-.0162	.4093	.7881*
7	Total Sources Utilized	.1333	.7990*	.0072	-.2767
8	Source A	.1611	-.1467	-.4788	.5370*
9	Most Influential	-.1388	.0163	.0772	.5649*
10	Trust in Neighbor	.3314	-.0903	.1546	.6011*
11	Functional Literacy	.4950*	-.1372	-.1740	.4777
12	ACAR Contact	-.0751	-.0672	.8582*	-.0445
13	Home and Farm Improvement and Equipment	.1235	.4551	-.0755	.6137*
14	Political Knowledge	.5967*	.2669	.4340	.3156
15	Income	.2366	-.0597	.0898	.7838
16	Numbers of cows owned	-.0217	.4766*	.4535	-.0412
17	Opinion Leadership	.8636*	.1226	.1227	.1457
18	Social Participation	.1269	-.0482	.7379*	.1245
19	Opinion Leadership Total	-.1557	.6410*	.0877	.0319
20	Innovativeness	.0404	.0692	.7847*	.2453
Proportion of Variance Explained by the Factor		.1395	.1351	.1458	.1584

*Largest factor loading

Correlates of Homophily

To find relationships between types of homophily and independent variables used in the present study, it was decided to select innovative and change contact homophily on the basis of friendship and influence.

There are several reasons for selecting these four types of homophily. Innovativeness is a key variable in the modernization process. Rogers with Svenning (1969) pointed out that "the best single indicator of (an individual's) degree of modernization is innovativeness, indicating a behavioral rather than a cognitive or attitudinal change." Change agent contact is an important external force in bringing new ideas into a social system. It is also an important indicant of modernity, that is, there is a higher degree of change agent contact in the modern than in the traditional community.

Furthermore, it is not known what the relationships are between these four types of homophily and the independable variables: mass media exposure, change agent contact, cosmopoliteness, literacy, opinionatedness, innovativeness, and community economic development.

Results of Intercorrelation between Homophily Indices and All Independent Variables

Pearson product-moment correlation coefficient was used to analyze relationship between homophily indices and all independent variables. Tables 7 and 8 show results of intercorrelation between homophily indices and all independent variables.

Table 7. A comparison of Pearsonian correlations between innovative homophily on the basis of friendship or influence and modernization variables.

	Innovative Homophily on the basis of Friendship	Innovative Homophily on the basis of Influence
Radio Exposure	.104	.407*
TV exposure	.303	.169
Movie exposure	-.048	.159
Newspaper and magazine readership	-.063	.055
Change agent contact	-.033	-.036
Cosmopoliteness	.256	.130
Literacy	.292	.183
Opinionatedness	-.026	-.073
Innovativeness	-.189	.049
Community Economic Development	.046	.170

*Significantly different from zero at the 5 per cent level.

Table 8. A comparison of Pearsonian correlations between change agent contact homophily on the basis of friendship or influence and modernization variables.

	Change agent contact homophily on the basis of friendship	Change agent contact homophily with basis of influence
Radio exposure	.049	-.107
TV exposure	.224	.222
Movie exposure	.035	-.052
Newspaper and Magazine readership	.118	.008
Change agent contact	-.231	-.183
Cosmopoliteness	.463*	.631
Literacy	.140	.109
Opinionatedness	.223	.113
Community Economic Development	.107	.018

*Significantly different from zero at the 5 per cent level.

Test of Hypotheses Dealing with Homophily

In the present study, none of the hypotheses were confirmed. Of the 28 hypotheses, 26 did not reach statistical significance; Pearsonian correlations of .360 and .492 are necessary at the five and one per cent levesl respectively. The remaining two hypotheses were statistically significant, one at 5 per cent level and the other at 1 per cent, but in the direction opposite from that predicted.

Theoretical Hypothesis I

Theoretical Hypothesis I: Innovative homophily on the basis of friendship is negatively related to community mass media exposure.

Empirical Hypothesis Ia: Innovative homophily on the basis of friendship is negatively related to community radio exposure. The zero-order Pearsonian correlation is .104, which is not significantly different from zero. Empirical Hypothesis Ia is not confirmed.

Empirical Hypothesis Ib: Innovative homophily on the basis of friendship is negatively related to community TV exposure. The zero-order Pearsonian correlation is .303, which is not significantly different from zero. Empirical Hypothesis Ib is not confirmed.

Empirical Hypothesis Ic: Innovative homophily on the basis of friendship is negatively related to community movie exposure. The zero-order Pearsonian correlation is -.048, which is not significantly different from zero. Empirical Hypothesis Ic is not confirmed.

Empirical Hypothesis Id: Innovative homophily on the basis of friendship is negatively related to community newspaper and magazine

readership. The zero-order Pearsonian correlation is -.063, which is not significantly different from zero. Empirical Hypothesis Id is not confirmed.

Since none of four Empirical Hypotheses is confirmed, Theoretical Hypothesis I is not confirmed.

Theoretical Hypothesis II

Theoretical Hypothesis II: Innovative homophily on the basis of influence is negatively related to community mass media exposure.

Empirical Hypothesis IIa: Innovative homophily on the basis of influence is negatively related to community radio exposure. The zero-order Pearsonian correlation is .407, which is significantly different from zero but not in the direction predicted. Empirical Hypothesis IIa is not confirmed.

Empirical Hypothesis IIb: Innovative homophily on the basis of influence is negatively related to community TV exposure. The zero-order Pearsonian correlation is .169, which is not significantly different from zero. Empirical Hypothesis IIb is not confirmed.

Empirical Hypothesis IIc: Innovative homophily on the basis of influence is negatively related to community movie exposure. The zero-order Pearsonian correlation is .159 which is not significantly different from zero. Empirical Hypothesis IIc is not confirmed.

Empirical Hypothesis IId: Innovative homophily on the basis of influence is negatively related to community newspaper and magazine readership. The zero-order Pearsonian correlation is .055, which is not

significantly different from zero. Empirical Hypothesis IId is not confirmed.

Since none of four Empirical Hypotheses is confirmed, Theoretical Hypothesis II is not confirmed.

Theoretical Hypothesis III

Theoretical Hypothesis III: Change agent contact homophily on the basis of friendship is negatively related to community mass media exposure.

Empirical Hypothesis IIIa: Change agent contact homophily on the basis of friendship is negatively related to community to radio exposure. The zero-order Pearsonian correlation is .049, which is not significantly different from zero. Empirical Hypothesis IIIa is not confirmed.

Empirical Hypothesis IIIb: Change agent contact homophily on the basis of friendship is negatively related to community TV exposure. The zero-order Pearsonian correlation is .224 which is not significantly different from zero. Empirical Hypothesis IIIb is not confirmed.

Empirical Hypothesis IIIc: Change agent contact homophily on the basis of friendship is negatively related to community movie exposure. The zero-order Pearsonian correlation is .035, which is not significantly different from zero. Empirical Hypothesis IIIc is not confirmed.

Empirical Hypothesis IIId: Change agent contact homophily on the basis of friendship is negatively related to community movie readership. The zero-order Pearsonian correlation is .118, which is not significantly different from zero. Empirical Hypothesis IIId is not confirmed.

Since none of four Empirical Hypotheses is confirmed, Theoretical Hypothesis III is not confirmed.

Theoretical Hypothesis IV

Theoretical Hypothesis IV: Change agent contact homophily on the basis of influence is negatively related to community mass media exposure.

Empirical Hypothesis IVa: Change agent contact homophily on the basis of influence is negatively related to community radio exposure. The zero-order Pearsonian correlation is -.107, which is not significantly different from zero. Empirical Hypothesis IVa is not confirmed.

Empirical Hypothesis IVb: Change agent contact homophily on the basis of influence is negatively related to community TV exposure. The zero-order Pearsonian correlation is .222, which is not significantly different from zero. Empirical Hypothesis IVb is not confirmed.

Empirical Hypothesis IVc: Change agent contact homophily on the basis of influence is negatively related to community movie exposure. The zero-order Pearsonian correlation is -.052, which is not significantly different from zero. Empirical Hypothesis IVc is not confirmed.

Empirical Hypothesis IVd: Change agent contact homophily on the basis of influence is negatively related to community newspaper and magazine exposure. The zero-order Pearsonian correlation is .008, which is not significantly different from zero. Empirical Hypothesis IVd is not confirmed.

Since none of four Empirical Hypotheses is confirmed, Theoretical Hypotheses IV is not confirmed.

Theoretical Hypothesis V

Theoretical Hypothesis V: Innovative homophily on the basis of friendship is negatively related to community change agent contact.

Empirical Hypothesis V: Innovative homophily on the basis of friendship is negatively related to community ACAR change agent contact. The zero-order Pearsonian correlation is -.033, which is not significantly different from zero. Empirical Hypothesis V is not confirmed.

Since Empirical Hypothesis V is not confirmed, Theoretical Hypothesis V is not confirmed.

Theoretical Hypothesis VI

Theoretical Hypothesis VI: Innovative homophily on the basis of influence is negatively related to community change agent contact.

Empirical Hypothesis VI: Innovative homophily on the basis of influence is negatively related to community ACAR change agent contact. The zero-order Pearsonian correlation is -.036, which is not significantly different from zero. Empirical Hypothesis VI is not confirmed.

Since Empirical Hypothesis VI is not confirmed, Theoretical Hypothesis VI is not confirmed.

Theoretical Hypothesis VII

Theoretical Hypothesis VII: Change agent contact homophily on the basis of friendship is negatively related to community change agent contact.

Empirical Hypothesis VII: Change agent contact homophily on the basis of friendship is negatively related to community ACAR change agent contact. The zero-order Pearsonian correlation is -.231, which is not significantly different from zero. Empirical Hypothesis VII is not confirmed.

Since Empirical Hypothesis VII is not confirmed, Theoretical Hypothesis VII is not confirmed.

Theoretical Hypothesis VIII

Theoretical Hypothesis VIII: Change agent contact homophily on the basis of influence is negatively related to community change agent contact.

Empirical Hypothesis VIII: Change agent contact homophily on the basis of influence is negatively related to community ACAR change agent contact. The zero-order Pearsonian correlation is -.183, which is not significant different from zero. Empirical Hypothesis VIII is not confirmed.

Since Empirical Hypothesis VIII is not confirmed, Theoretical Hypothesis VIII is not confirmed.

Theoretical Hypothesis IX

Theoretical Hypothesis IX: Innovative homophily on the basis of friendship is negatively related to community cosmopoliteness.

Empirical Hypothesis IX: Innovative homophily on the basis of friendship is negatively related to community number of visits to large

city in past year. The zero-order Pearsonian correlation is .256, which is not significantly different from zero. Empirical Hypothesis IX is not confirmed.

Since Empirical Hypothesis IX is not confirmed, Theoretical Hypothesis IX is not confirmed.

Theoretical Hypothesis X

Theoretical Hypothesis X: Innovative homophily on the basis of influence is negatively related to community cosmopoliteness.

Empirical Hypothesis X: Innovative homophily on the basis of influence is negatively related to community number of visits to large city in past year. The zero-order Pearsonian correlation is .130, which is not significantly different from zero. Empirical Hypothesis X is not confirmed.

Since Empirical Hypothesis X is not confirmed, Theoretical Hypothesis X is not confirmed.

Theoretical Hypothesis XI

Hypothesis XI: Change agent contact homophily on the basis of friendship is negatively related to community cosmopoliteness.

Empirical Hypothesis XI: Change agent contact homophily on the basis of friendship is negatively related to community number of visits to large city in past year. The zero-order Pearsonian correlation is .463, which is significantly different from zero, but not in the direction predicted. Empirical Hypothesis XI is not confirmed.

Since Empirical Hypothesis XI is not confirmed, Theoretical Hypothesis XI is not confirmed.

Theoretical Hypothesis XII

Theoretical Hypothesis XII: Change agent contact homophily on the basis of influence is negatively related to community cosmopoliteness.

Empirical Hypothesis XII: Change agent contact homophily on the basis of influence is negatively related to community number of visits to large city in past year. The zero-order Pearsonian correlation is .631, which is significantly different from zero, but not in the direction predicted. Empirical Hypothesis XII is not confirmed.

Since Empirical Hypothesis XII is not confirmed, Theoretical Hypothesis XII is not confirmed.

Theoretical Hypothesis XIII

Theoretical Hypothesis XIII: Innovative homophily on the basis of friendship is negatively related to community literacy.

Empirical Hypothesis XIII: Innovative homophily on the basis of friendship is negatively related to community literacy. The zero-order Pearsonian correlation is .292, which is not significantly different from zero. Empirical Hypothesis XIII is not confirmed.

Since Empirical Hypothesis XIII is not confirmed, Theoretical Hypothesis XIII is not confirmed.

Theoretical Hypothesis XIV

Theoretical Hypothesis XIV: Innovative homophily on the basis of influence is negatively related to community literacy.

Empirical Hypothesis XIV: Innovative homophily on the basis of influence is negatively related to community literacy. The zero-order

Pearsonian correlation is .183, which is not significantly different from zero. Empirical Hypothesis XIV is not confirmed.

Since Empirical Hypothesis XIV is not confirmed, Theoretical Hypothesis XIV is not confirmed.

Theoretical Hypothesis XV

Theoretical Hypothesis XV: Change agent contact homophily on the basis of friendship is negatively related to community literacy.

Empirical Hypothesis XV: Change agent contact homophily on the basis of friendship is negatively related to community literacy. The zero-order Pearsonian correlation is .140, which is not significantly different from zero. Empirical Hypothesis XV is not confirmed.

Since Empirical Hypothesis XV is not confirmed, Theoretical Hypothesis XV is not confirmed.

Theoretical Hypothesis XVI

Theoretical Hypothesis XVI: Change agent contact homophily on the basis of influence is negatively related to community literacy.

Empirical Hypothesis XVI: Change agent contact homophily on the basis of influence is negatively related to community literacy. The zero-order Pearsonian correlation is .109, which is not significantly different from zero. Empirical Hypothesis XVI is not confirmed.

Since Empirical Hypothesis XVI is not confirmed, Theoretical Hypothesis XVI is not confirmed.

Theoretical Hypothesis XVII

Theoretical Hypothesis XVII: Innovative homophily on the basis of friendship is negatively related to community opinionatedness.

Empirical Hypothesis XVII: Innovative homophily on the basis of friendship is negatively related to community opinionatedness. Zero-order Pearsonian correlation is -.026, which is not significantly different from zero. Empirical Hypothesis XVII is not confirmed.

Since Empirical Hypothesis XVII is not confirmed, Theoretical Hypothesis XVII is not confirmed.

Theoretical Hypothesis XVIII

Theoretical Hypothesis XVIII: Innovative homophily on the basis of influence is negatively related to community opinionatedness.

Empirical Hypothesis XVIII: Innovative homophily on the basis of influence is negatively related to community opinionatedness. The zero-order Pearsonian correlation is -.073, which is not significantly different from zero. Empirical Hypothesis XVIII is not confirmed.

Since Empirical Hypothesis XVIII is not confirmed, Theoretical Hypothesis XVIII is not confirmed.

Theoretical Hypothesis XIX

Theoretical Hypothesis XIX: Change agent contact homophily on the basis of friendship is negatively related to community opinionatedness.

Empirical Hypothesis XIX: Change agent contact homophily on the basis of friendship is negatively related to community opinionatedness. The zero-order Pearsonian correlation is .223, which is not significantly different from zero. Empirical Hypothesis XIX is not confirmed.

Since Empirical Hypothesis XIX is not confirmed, Theoretical Hypothesis XIX is not confirmed.

Theoretical Hypothesis XX

Theoretical Hypothesis XX: Change agent contact homophily on the basis of influence is negatively related to community opinionatedness.

Empirical Hypothesis XX: Change agent contact homophily on the basis of influence is negatively related to community opinionatedness. The zero-order Pearsonian correlation is .113, which is not significantly different from zero. Empirical Hypothesis XX is not confirmed.

Since Empirical Hypothesis XX is not confirmed, Theoretical Hypothesis XX is not confirmed.

Theoretical Hypothesis XXI

Theoretical Hypothesis XXI: Innovative homophily on the basis of friendship is negatively related to community innovativeness.

Empirical Hypothesis XXI: Innovative homophily on the basis of friendship is negatively related to average years of adoption of innovations in the community. The zero-order Pearsonian correlation is -.189, which is not significantly different from zero. Empirical Hypothesis XXI is not confirmed.

Since Empirical Hypothesis XXI is not confirmed, Theoretical Hypothesis XXI is not confirmed.

Theoretical Hypothesis XXII

Theoretical Hypothesis XXII: Innovative homophily on the basis of influence is negatively related to community innovativeness.

Empirical Hypothesis XXII: Innovative homophily on the basis of influence is negatively related to community average years of adoption of innovations. The zero-order Pearsonian correlation is .049, which is not significantly different from zero. Empirical Hypothesis XXII is not confirmed.

Since Empirical Hypothesis XXII is not confirmed, Theoretical Hypothesis XXII is not confirmed.

Theoretical Hypothesis XXIII

Theoretical Hypothesis XXIII: Change agent contact homophily on the basis friendship is negatively related to community innovativeness.

Empirical Hypothesis XXIII: Change agent contact homophily on the basis of friendship is negatively related to community average years of adoption of innovation in the community. The zero-order Pearsonian correlation is -.080, which is not significantly different from zero. Empirical Hypothesis XXIII is not confirmed.

Since Empirical Hypothesis XXIII is not confirmed, Theoretical Hypothesis XXIII is not confirmed.

Theoretical Hypothesis XXIV

Theoretical Hypothesis XXIV: Change agent contact homophily on the basis of influence is negatively related to community innovativeness.

Empirical Hypothesis XXIV: Change agent contact homophily on the basis of influence is negatively related to average years of adoption of innovations in the community. The zero-order Pearsonian correlation is -.117, which is not significantly different from zero. Empirical Hypothesis XXIV is not confirmed.

Since Empirical Hypothesis XXIV is not confirmed, Theoretical Hypothesis XXIV is not confirmed.

Theoretical Hypothesis XXV

Theoretical Hypothesis XXV: Innovative homophily on the basis of friendship is negatively related to community economic development.

Empirical Hypothesis XXV: Innovative homophily on the basis of friendship is negatively related to community home and farm improvements and equipment. The zero-order Pearsonian correlation XXV is .046, which is not significantly different from zero. Empirical Hypothesis XXV is not confirmed.

Since Empirical Hypothesis XXV is not confirmed, Theoretical Hypothesis XXV is not confirmed.

Theoretical Hypothesis XXVI

Theoretical Hypothesis XXVI: Innovative homophily on the basis of influence is negatively related to community economic development.

Empirical Hypothesis XXVI: Innovative homophily on the basis of influence is negatively related to community home and farm improvements and equipments. The zero-order Pearsonian correlation for Empirical Hypothesis XXVI is .170, which is not significantly different from zero. Empirical Hypothesis XXVI is not confirmed.

Since Empirical Hypothesis XXVI is not confirmed, Theoretical Hypothesis XXVI is not confirmed.

Theoretical Hypothesis XXVII

Theoretical Hypothesis XXVII: Change agent contact homophily on the basis friendship is negatively related to community economic development.

Empirical Hypothesis XXVII: Change agent contact homophily on the basis of friendship is negatively related to community home and farm improvements and equipment. The zero-order Pearsonian correlation is .107, which is not significantly different from zero. Empirical Hypothesis XXVII is not confirmed.

Since Empirical Hypothesis XXVII is not confirmed, Theoretical Hypothesis XXVII is not confirmed.

Theoretical Hypothesis XXVIII

Theoretical Hypothesis XXVIII: Change agent contact homophily on the basis of influence is negatively related to community economic development.

Empirical Hypothesis XXVIII: Change agent contact homophily on the basis of influence is negatively related to community home and farm improvements and equipments. The zero-order Pearsonian correlation is .018, which is not significantly different from zero. Empirical Hypothesis XXVIII is not confirmed.

Since Empirical Hypothesis XXVIII is not confirmed, Theoretical Hypothesis XXVIII is not confirmed.

CHAPTER V

SUMMARY, ADDITIONAL ANALYSES, DISCUSSION OF HYPOTHESES, AND SUGGESTIONS FOR FUTURE RESEARCH

Summary

The present thesis was concerned with personal, socio-economic and demographic variables in interpersonal communication in the diffusion of technological innovations in 20 Brazilian communities.

Homophily was defined as the degree to which pairs of individuals who interact are similar in certain characteristics such as mass media exposure, change agent contact, literacy, cosmopoliteness, innovativeness, and opinionatedness. Dyadic analysis is a method to study relationships among pairs of individuals.

The objectives were (1) to define and measure general homophily in each of 20 communities, and test what variables are related to homophily. More specifically, we wanted to define and measure community homophily, and (2) to relate community homophily to such aggregate communication characteristics as opinionatedness, literacy, mass media exposure, change agent contact, cosmopoliteness, innovativeness, and a non-communication characteristics, community economic development level.

The data used in the present study were collected during 1964-68 in the research project, "Diffusion of Innovations in Rural Societies." The project was funded by the United States Agency for International

Development, and conducted by the Department of Communication, Michigan State University, under the direction of Dr. Everett M. Rogers. There were 1,307 subjects interviewed in the Brazilian Phase II project, and 3,340 dyads were found. Of these, 1,604 were friend dyads, and 1,736 were influence dyads.

The present study examined relationships between innovative or change agent contact homophily on the basis of friendship and influence and community mass media exposure, community change agent contact, cosmopoliteness, literacy, opinionatedness, innovativeness, and economic development.

There were 28 theoretical hypotheses in the present study, none of which were confirmed. However, two theoretical hypotheses were significantly different from zero in the direction opposite to that which was predicted. The remaining 26 were not statistically significant.

Of all 40 empirical hypotheses tested, Pearsonian correlations of 13 were negative as predicted, with the remaining 24 positive. All except 3 Pearsonian correlations were very low and not significantly different from zero. Three empirical hypotheses were statistically different from zero, but not in the direction predicted.

Additional Analyses

Two additional variables, opinion leadership concentration* and size of community were correlated with innovative and change agent contact homophily. The purpose was to see whether any relationships

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*Opinion leadership concentration is measured by Question No. 36 which asks each respondent, "Who do you think would be the best person to organize this (Cooperative community project) in the community? Community opinion leadership concentration is giniratio for each community.

between these two variables and the four types of homophily could clarify the previous results.

Reasons for relating opinion leadership concentration and size of community to homophily are:

1. As we know that opinion leaders are characteristically different from seekers of information. In a community with a low degree of opinion leadership concentration, it might be likely that opinion leaders and seekers are relatively more similar to each other than their counterparts in a high degree of opinion leadership concentration.

Since there are more opinion leaders in the former case, opinion leaders might be more similar to seekers in terms of social status, literacy level, income, etc., except the specific knowledge seekers are looking for.

On the other hand, in a community with only a handful of opinion leaders, we might also find less interacting dyads than we could in a community with a larger number of opinion leaders because seekers tend to seek others like themselves. Thus, we assume that there is a higher degree of homophily in a community with a lower degree of opinion leadership concentration.

2. In a community with larger numbers of individuals, we might find relative more opinion leaders as well as seekers of information. As a result, we might find not only more individuals with similar characteristics but also a higher degree of interaction among individuals. However, intervening variables such as physical locations of individuals in the community, geographical size of the community, etc., must be taken

into consideration. In the present study, failure to take these variables into consideration might contribute to the unexpected results.

We found negative Pearsonian correlations that are not significantly different from zero. Pearsonian correlations between size of community and change agent contact homophily on the basis of friendship was negative as predicted, but not significant. Correlations between size of community and other three types of homophily were positive and not significant. Table 9 shows the zero-order correlations between innovative or change agent contact homophily and opinion leadership concentration or size of community.

Therefore, we conclude that there are no significant relationships between opinion leadership concentration or size of community and four types of homophily.

Discussion of Hypotheses

The failure to obtain support in the present study for any of the 28 hypotheses might be due to the following reasons:

1. One of the criteria for selecting the 20 Brazilian communities studies was having a place where villagers could attend literacy training classes. Under these circumstances, two possible results could take place.

a. Those villagers who go to the literacy training program might very well be similar to one another in terms of level of literacy; otherwise, they would not be assigned to the same program. Besides their level of literacy, they probably have other similar characteristics since

Table 9. The zero-order Pearsonian correlations between innovative or change agent contact homophily and opinion leadership concentration or size of community

Types of Homophily	Variables		
	Opinion Leadership Concentration		Size of Community
Innovative homophily on the basis of friendship	-.048		.082
Innovative homophily on the basis of influence	-.022		.050
Change agent contact homophily on the basis of friendship	-.235		-.014
Change agent contact homophily on the basis of influence	-.161		.079

*Significantly different at the 5 per cent level.

level of individual literacy in rural areas is related to "measure of power and social status (such as income, control of land, number of employees) and to mass media usage" (Whiting and others, 1968, p. 139).

An old saying, "Birds of a feather flock together," may be proved true among these Brazilian villagers.

b. Those who are not in the program may use the training center as a gathering place. Thus on the basis of unexpected results* we might speculate that despite the presence of a higher degree of mass media exposure, more frequent change agent contacts, etc,, Brazilian villagers still interact with others who have similar degrees of innovativeness and change agent contacts.

2. The present study was exploratory in nature. This is the first study of community homophily using the village as a unit of analysis. There was no past research to guide its design. Ways and means to improve its design are open to investigation by future researchers.

3. Since we did not find a high degree of general homophily among 20 Brazilian communities, we decided to use innovative and change agent contact homophily as indicants of community homophily. If we

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*We expected negative relationship between four types of homophily, i.e., innovative and change agent contact homophily on the basis of friendship or influence and seven modernization variables such as mass media exposure, change agent contact, cosmopoliteness, etc., but we found correlations between them are low and positive and not significant.

had used four groups of homophily*, i.e., cosmopolite, information and source, adoption and economic group homophily, found in the present study as indicants of community homophily, we might have been able to get more expected results. The reasons for selecting innovative and change agent contact homophily are:

a. In traditional communities, change agent contact is one of the best indicators of villagers' external contacts with new ideas vital to modernization.

b. In traditional communities, innovativeness is the crucial fact of villagers which determines how many new ideas they might adopt.

However, we found that innovative and change agent contact homophily are only two of the three elements in adoption group homophily.** In other words, we suspect that adoption group homophily might be a better indicant of community homophily than either innovative or change agent contact homophily alone.

4. Based on the same Brazilian data, Guimaraes (1968, p. 50) inferred that "the (relative) modern community exhibits relatively more integration in its communication system*** than does the (relative) traditional community (in Brazil)." Whiting and others (1968, p. 31) also reported that "The (Brazilian) success communities (i.e., more modern)

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*See p. 32 of this thesis for a clear description of these four groups of homophily.

**See p. 32 of this thesis for different elements in different groups of homophily.

***Guimaraes defined communication integration as "a communication system which maybe a subsystem of a social system (in one case, a community) embraces such communication subsystem as cliques, subgroups, chains, and dyads." (1968, p. 44) Unpublished M.A. thesis. East Lansing, Department of Communication, Michigan State University.

tend to have fewer cliques."* Therefore, we might speculate that there are many cliques in Brazilian communities. Based on our findings again, despite a high degree of mass media exposure, more frequent change agent contacts, etc., villagers still tend to interact with others in the same cliques.

5. The data were not originally collected for the present study. For example, of all 1,307 subjects, we found only 3,340 pairs of general dyads consisting of friend and influence dyads when we asked respondents, "Who are three friends with whom you talk most frequently?", and "Who are the three persons in this community who are more listened to or imitated when it comes to farming and cattle raising in general?" We might better have gone beyond the sought to find out from whom did he sought information, because he might seek information from someone not included in 1,307 subjects.

Rogers and Jain (1968, p. 28) suggested that "past diffusion research has over emphasized investigation in which the individual, rather than communication relationship, is the unit of analysis." If we had utilized pairing, chain, or snowball sampling techniques, we might have gotten a better measure of general homophily in Brazil as a result.

6. Katz and Lazarsfuld (1955) indicated that gregariousness is an important characteristic of opinion leaders. Perhaps in the information-seeking interaction, seekers in Brazilian communities rely more upon the

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*Guimaraes, op. cit., p. 31, defined a clique as a "subsystem (of the communication system) in which at least three members mutually interact."

sought's social ability i.e., gregariousness, rather than his knowledge of innovations as an information-seeking condition. We may assume that popular villagers are similar to seekers in different attributes; otherwise, they can hardly be popular among those who are quite different from themselves. On the basis of our unexpected results, we might say that despite a high degree of mass media exposure, more frequent change agent contacts, etc., seekers of information in Brazilian communities still tend to seek information from other who are similar to themselves on the basis of innovative or change agent contact homophily.

Suggestions for Future Research

Importance of homophily in the field of diffusion of innovations was suggested by the present study. However, the study of homophily, particularly at the community level, is only in its infant stage. This present study was exploratory in nature; therefore, exploration of new variables such as interpersonal, psychological, and other communication variables which might be related to homophily indices is very important. There are at least two approaches which deserve attention:

1. Investigation of those variables negatively related to four types of homophily in the present study. These variables are movie exposure, TV exposure, newspaper and magazine readership, radio exposure, change agent contact, opinionatedness, and innovativeness. We found only weak evidence that the higher the degree of these variables, the less likely farmers will interact with others who have similar degree of change agent contact and innovative homophily.

On the other hand, it does not mean that those variables positively related to homophily should be discarded because they tend to increase degree of homophily in the community. These variables are visits to city, literacy, and community economic development. These results could be due to special circumstances in Brazil as we pointed out in the first part of this chapter. Interested researchers are encouraged to look into these variables as well. In addition to modernization variables used in the present study, special attention should be paid to interpersonal, psychological, and other communication variables. These variables such as personal attractiveness, personality, and motivation, could be relevant to homophily.

2. We emphasized that dyadic analysis, i.e., using pairs of individuals as the unit of analysis, is better than conventional analysis, i.e., using the individual as the unit of analysis. However, we feel that it might be fruitful for future researchers to use a combination of dyadic and individual analyses. For example, future researchers should first investigate how homophilous each individual is in the community. Then they could get a composite homophily score for all dyads in the community and investigate relationships between their scores and modernization variables.

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APPENDIX A

THE QUESTIONNAIRE

DO NOT WRITE IN THIS SPACE
Project 712
Phase 02
Subject Number

Reitoria da Universidade Federal de Minas Gerais

and

Michigan State University

September 1, 1968

Date: _____

Interviewer: _____

Name of Community: _____

Type of Community: _____ (INTERVIEWER: INDICATE BETTER OR POOR COMMUNITY)

1. How old are you? (INTERVIEWER: IF THE RESPONDENT DOES NOT KNOW HIS OWN AGE ASK YEAR OF BIRTH)

2. How many years did you attend school?

   0) None or doesn't apply _____
   1) Part of primary _____
   2) Primary completed _____
   3) Secondary-high school _____
   4) University _____

3. 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 _____

4. Did you visit a large city in past year? (One with more than 40,000 inhabitants)

1) Did not visit a large city in past year _____
1) One visit in past year to a large city _____
2) Two visits in past year to a large city _____
3) Three " " " _____
4) " " " " _____
") " " " " _____
99) 99 " " " _____

5. Are you a member of the cooperative?

0) No _____
1) Doesn't know; no response _____
2) Yes _____

6. To how many other organizations, clubs, societies, charities (conferencias), etc. do you belong?

0) Zero organization as a member of _____
1) One organization as a member of _____
") " " " _____
9) Nine organizations as a member of _____

7. Can you read (or someone in family can read) a newspaper?

0) No one in family can read a newspaper _____
1) He cannot, but someone in family can, doesn't know; no response _____
2) Respondent can read a newspaper _____

8. Have you read (or has anybody read for you) newspapers or magazines lately? (IF YES) How many times a month?

0) Zero time per month exposed to newspaper or a magazine _____
") " " _____
99) 99 times " _____

9. Do you have a radio at home?

0) No _____
1) Doesn't know; no response _____
2) Yes _____

10. How often do you listen to the radio?

0) Never (SKIP TO QUESTION 28) _____
1) Almost never; doesn't know; no response _____
2) Sometimes _____
3) More or less than an hour per day _____

11. What program do you like best?

0) Doesn't listen _____
1) Musical _____
2) Sports _____
3) Others, doesn't know; no response _____
4) Agricultural _____

12. Do you watch TV?

0) Never sees it _____
1) Sometimes sees it, in some other place; doesn't know; no response _____
2) More or less regularly _____

13. Do you go to the cinema?

0) Doesn't go _____
1) Once per year attended cinema _____
2) Twice per year attended cinema _____
3) Three times per year attended cinema _____
") " _____
") " _____
99) " _____

14. Do you usually receive news about agriculture through:

a. Radio

0) No _____
1) Doesn't know; no response _____
2) Yes _____

b. Television

0) No _____
1) Doesn't know; no response _____
2) Yes _____

c. Newspaper

0) No
1) Doesn't know; no response
2) Yes

d. Magazine

0) No
1) Doesn't know; no response
2) Yes

e. ACAR Bulletin

0) No
1) Doesn't know; no response
2) Yes

15. How many sources you utilized

0) Zero sources utilized
1) One source utilized
2) Two sources utilized
3) Three sources utilized
4) Four sources utilized
5) Five sources utilized
6) Six sources utilized
7) Seven sources utilized

16. Has practice _____ ever been used?

a. Practice A

0) No
1) Doesn't know; no response
2) Yes

b. Practice B

0) No
1) Doesn't know; no response
2) Yes

c. Practice C

0) No
1) Doesn't know; no response
2) Yes

d. Practice D

0) No
1) Doesn't know; no response
2) Yes

e. Practice E

0) No
1) Doesn't know; no response
2) Yes

f. Practice F

0) No
1) Doesn't know; no response
2) Yes

g. Practice G

0) No
1) Doesn't know; no response
2) Yes

h. Practice H

0) No
1) Doesn't know; no response
2) Yes

i. Practice I

0) No
1) Doesn't know; no response
2) Yes

j. Practice J

0) No
1) Doesn't know; no response
2) Yes

k. Practice K

0) No
1) Doesn't know; no response
2) Yes

l. Practice L

0) No
1) Doesn't know; no response
2) Yes

17. How many years since you used it for the first time?

a. Practice A

00) Year of adoption of practice A
..
..
..
66)

b. Practice B

00) Year of adoption of practice B
..
..
66)

c. Practice C

00) Year of adoption of practice C
..
..
66)

d. Practice D

00) Year of adoption of practice D
..
..
66)

e. Practice E

00) Year of adoption of practice E
..
..
66)

f. Practice F

00) Year of adoption of practice F
..
..
66)

g. Practice G

00) Year of adoption of practice G _____
.. _____
.. _____
66) _____

h. Practice H

00) Year of adoption of practice H _____
.. _____
.. _____
66) _____

i. Practice I

00) Year of adoption of practice I _____
.. _____
.. _____
66) _____

j. Practice J

00) Year of adoption of practice J _____
.. _____
.. _____
66) _____

k. Practice K

00) Year of adoption of practice K _____
.. _____
.. _____
66) _____

l. Practice L

00) Year of adoption of practiceL _____
.. _____
.. _____
66) _____

18. What practices are you still using?

0) None practice _____
1) One practice _____
") " _____
") " _____
") " _____
12) Twelve practices _____

19. From whom did you first hear about?

0) Neighbor _____
1) Person from outside community _____
2) Doesn't know; no response _____
3) Agronomist _____
4) Radio or Newspaper _____

20. Who convinced you to use it?

0) Neighbor _____
1) Stranger _____
2) Doesn't know, no response _____
3) Agronomist _____
4) Radio or newspaper _____

21. What do you consider best when it comes to dealing with your neighbors: trust, or "trusting them but at the same time doubting them?"

0) "Trust ... untrustingly" _____
1) Doesn't know; no response _____
2) Trust _____

22. Can you read this card for me?

"He who cannot read is like a blind man who has to be guided according to other people's wishes; or then he will stumble his way. The illiterate man is not altogether free; he is a slave of his ignorance. Never stop reading something every day and keep learning."

0) Cannot _____
1) Slow and stammering _____
2) More or less satisfactorily _____

23. CODER: SUBTRACT THE NUMBER OF WORDS MISSED FROM 50 AND CODE THE RESULT

0) 00-04 -- Functionally illiterate _____
1) 05-09 _____
2) 10-14 _____
3) 15-19 _____
4) 20-24 _____
5) 25-29 _____
6) 30-34 _____
7) 35-39 _____
8) 40-44 _____
9) 45-50 -- Functionally literate _____

24. All right, from what you have just read can you tell me now in what sense "the illiterate is not free?"

0) Didn't understand the reading _____
1) Understood vaguely _____
2) Understood well _____

25. How many times have you talked to the ACAR Agent last year?

0) Zero times last year respondent talked to ACAR agent. _____
1) One time last year respondent talked to ACAR agent _____
2) Two times last year respondent talked to ACAR agent _____
.. _____
.. _____
.. _____
.. _____
99) Ninety-nine times last year respondent talked to ACAR agent _____

26. Do you own ...

a. Water filter

0) No _____
1) Yes _____

b. Wood or tile floor in your house

0) No _____
1) Yes _____

c. Refrigerator

0) No _____
1) Yes _____

d. Stove with chimney

0) No _____
1) Yes _____

e. Plumbing for running water

0) No _____
1) Yes _____

f. Bathroom inside the house

0) No
1) Yes _____

g. Electric lighting

0) No
1) Yes _____

h. Radio

0) No
1) Yes _____

i. Television Set

0) No
1) Yes _____

j. Motorized vehicle

0) No
1) Yes _____

k. Any property

0) No
1) Yes _____

l. House in town

0) No
1) Yes _____

m. Agricultural machines

0) No
1) Yes _____

27. a. Who is the present governor of Minas?
b. To what American country has Brazil sent troops last year?
c. Who was the President of Brazil who was deposed two years ago?
d. What is the name of one of the parties created after the 1964 revolution?
e. Which country of Latin America became communist a few years ago?

0) Zero right answers _____
1) One right answer _____
2) Two right answers _____
3) Three right answers _____
4) Four right answers _____
5) Five right answers _____

28. All sources considered, what was approximately the total cash income of your family last year? (salaries, revenues, etc.)

1) Less than Cr$500,000 _____
2) From Cr$500,000 to Cr$,000,000 _____
3) From Cr$1,000,000 to Cr$2,000,000 _____
4) From Cr$2,000,000 to Cr$3,000,000 _____
5) From Cr$3,000,000 to Cr$4,000,000 _____
6) From Cr$4,000,000 to Cr$6,000,000 _____
7) From Cr$6,000,000 to Cr$10,000,000 _____
8) More than Cr$10,000,000 _____

Conversion rate at the time of data collection: Cr$2,210 = US $1.00

29. What is the total area in pasture?

0) Zero hectares of pasture land _____
1) One hectare of pasture land _____
.. _____
.. _____
.. _____
99) Nine _____

30. How many milk cows do you have?

0) 0 Milk cows _____
1) One milk cow _____
.. _____
.. _____
.. _____
99) Ninety-nine milk cows _____

31. What is the total area of your property?

0) Zero hectares of respondent's property _____
1) One hectare of respondent's property _____
.. _____
.. _____
.. _____
99) Ninety-nine hectares of respondent's property _____

32. Who are three friends with whom you talk most frequently?

0) Zero times respondent was mentioned by others as being a best friend _____
1) One time respondent was mentioned by others as being a best friend _____
.. _____
.. _____
.. _____
99) Ninety-nine times respondent was mentioned by others as being a best friend _____

33. Who are the three persons in this community who are more listened to or more imitated when it comes to farming and cattle raising in general?

0) Zero times respondent was mentioned by others as being influential in regard to agriculture in general _____
1) One time respondent was mentioned by others as being influential in regard to agriculture in general _____
.. _____
.. _____
99) Ninety-nine times respondent was mentioned _____

34. In this community who is more listened to in regard to Practice A?

0) Zero times respondentwwas mentioned by others as being influential in regard to practice A _____
1) One time respondent was mentioned by others as being influential in regard to practice A _____
.. _____
.. _____
.. _____
99) Ninety-nine times respondent was mentioned by others as being influential in regard to practice A _____

35. SCORE: Polymorphic opinion leadership on three practices

0) Zero practices for which respondent received any nominations in question 41 _____
1) One practice for which respondent received any nominations in question 41 _____
2) Two practices for which respondent received any nomincations in question 41 _____

36. If you need to borrow money, who would you ask for it?

0) Zero times respondent was mentioned by others as a potential source for a loan _____
1) One time respondent was mentioned by others as a potential source for a loan _____
.. _____
.. _____
99) Ninety-nine times respondent was mentioned by others as a potential source for a loan _____

37. Who do you think would be the best person to organize this (cooperative community project) in the community?

0) Zero times respondent was mentioned by others as a potential leader for a cooperative community project _____
1) One time respondent was mentioned by others as a potential leader for a cooperative community project _____
.. _____
.. _____
99) Ninety-nine times respondent was mentioned by others as a potential leader for a cooperative community project. _____

38. SCORE: Opinionatedness How many questions on which did you express opinions?

0) Zero opinion questions on which respondent expressed any opinion at all _____
1) One opinion question on which respondent expressed any opinion at all
. _____
. _____
9) Nine opinion questions on which respondent expressed any opinion at all _____

APPENDIX B

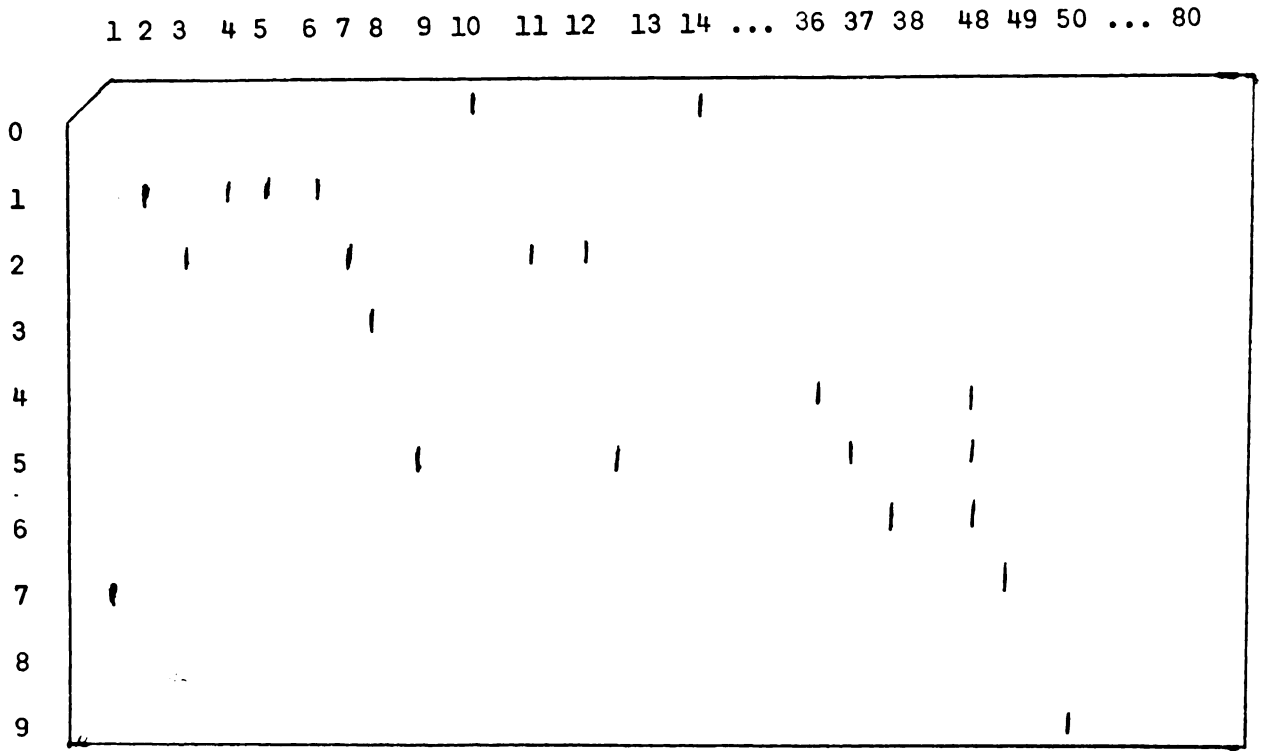
Friendship Dyadic Relationship Card and

Friendship and Dyadic Card Format

Appendix B

Friendship Dyadic Relationship Card*

Column no.



Column	Contents
1,2,3	Project number; 712
4,5	Community number; 11
6,7,8	Seeker's number; 1,2,3
9,10	Deck number; 50
11,12	Card number; 2
13,14	Age; 50
..	..
36,37,38	Influence I.D. number; 4,5,6
48,	Type of sought; 4 or 5 or 6 (Influential)
49,50	Age; 69
..	..

*Influence dyadic relationship card is same as that of friendship's.

Friendship and Dyadic Card Format

Card	Column	Contents
1	1-3	Project number.
	4-5	Community identification number.
	6-8	Respondent number and Reproduce all 6-8.
	9-10	Deck number (50) Dyadic Deck.
	11-12	Card number. (01)
	13-14	Age of seeker.
	15	Seeker's education.
	16-17	Seeker's visits to city in the past year.
	18-19	Newspapers and Magazines seeker reads
	20	Seeker's radio listening.
	21-22	Seeker's cinema attendance.
	23	Total number of sources seeker utilized.
	24	Seeker's source for first knowledge of practice "A".
	25	Seeker's most influential source in making decision to adopt practice "A".
	26	Seeker's trust in neighbors.
	27-28	Seeker's functional literacy.
	29-30	Seeker's contact with ACAR supervisor in past year
	31-32	Seeker's home and farm equipment and improvements.
	33	Seeker's political knowledge.
	34	Seeker's income.
	35-36	Seeker's ownership of cows.

Card	Column	Content
	37	Seeker's opinionatedness.
	38-39	Seeker's social participation.
	40-41	Opinion leadership total
	42-44	Seeker's innovativeness.
	45-47	Source's I.D. No. 1st. friend 1
		2nd. friend 2
		3rd. friend 3
		1st. Influence 1
		2nd. Influence 2
		3rd. Influence 3
	48	1, 2, or 3 for 1st, 2nd, or 3rd. Source for friend
		4, 5, or 6, for 1st, 2nd, or 3rd. Choice for influence.
	49-50	Sought's age.
	51	Sought's education.
	52-53	Sought's visits to a large city in past year.
	54-55	Newspapers and magazines sought reads.
	56	Sought's radio listening.
	57-58	Sought's cinema attendance.
	59	Total number of sources sought utilized.
	60	Sought's source for first knowledge of practice "A".
	61	Sought's most influential source in making decision to adopt practice "A".
	62	Sought's trust in neighbors.
	63-64	Sought's functional literacy.
	65-66	Sought's contact with ACAR supervisor in past year.

Card	Column	Content
	67-68	Sought's home and farm equipment and improvements.
	69	Sought's political knowledge.
	70	Sought's income.
	71-72	Sought's income.
	73	Sought's opinionatedness.
	74-75	Sought's social participation.
	76-77	Opinion leadership total.
	78-80	Sought's innovativeness.