

INTERPERSONAL COMMUNICATION AND THE DIFFUSION OF INNOVATIONS¹

by

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I. INTRODUCTION

Many studies show that the mass media do not result in important changes in human behaviour unless they are combined with interpersonal communication (Klapper, 1960; Rogers, 1962; Luthe, 1968). Some of the advantages of interpersonal communication over the mass media are that (1) it is more casual and therefore less inclined to attract only persons already sympathetic to the view expressed, (2) it is more flexible in countering resistance, (3) it provides immediate personal rewards for compliance, and punishment for non-compliance, being itself capable for expressing social pleasure and displeasure, and (4) the receiver can ask questions to the sender in order to decrease his uncertainty on the effects of the new behaviour. (See: Lazarsfeld, Berelson and Gaudet, 1948). The relative importance of these and perhaps other factors is unknown.

The decision to adopt or not to adopt agricultural innovations usually involves a considerable amount of uncertainty. The situation of every farmer is somewhat different and frequently it is not known what the results of the innovation will be on his land with this year's weather. It is unknown how soon this innovation will be replaced by a better innovation. Also prediction of prices is difficult. Laboratory experiments by Sheriff and others indicate that in such a situation interpersonal communication can have considerable influence on the perception of the effects of an innovation. Social scientists will have to help extension officers to decide how they can take this influence

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into account in their attempts to stimulate the diffusion of good agricultural innovations.

We shall discuss the processes of interpersonal communication at three different levels:

1. the individual level: what are the characteristics of the opinion leaders?
2. the two-person level of the seeker-sought dyad: who influences whom and in which way?
3. the village level: how do villagers differ in interpersonal communication?

In each case we will try to raise some questions for further research. This is also done in a last section concerning the way in which change agents can use the research on interpersonal communication processes. In addition we will raise some doubts about the two-step flow of communication hypothesis.

2. CHARACTERISTICS OF OPINION LEADERS

A considerable number of research workers have investigated the characteristics of those farmers who have much influence on the decisions of their colleagues to adopt agricultural innovations. Several studies have tried to summarize the findings from this research by following Homans's (1950) assumption that the opinion leaders follow the group norms more closely than their followers. However, Homans himself has left no doubt that this assumption is incorrect (1961, ch. 16). Now he says that a man of high status provides rare and valuable services to the other group members. An important service is to select which changes should be adopted by the group. The leader is the man who introduces new ideas in such a way that others follow him and not the man who only conforms to the old established group norms. Naturally, most of these ideas will be in agreement with the group norms, but in some situations he will take the initiative to change these norms.

Research has also shown that there is no clear distinction between leaders and non-leaders, but there are different degrees of leadership. The result is that many farmers exert some influence on the behaviour of their colleagues.

Nearly all studies have found that adoption of agricultural innovations and contact with change agencies are positively correlated with opinion leadership (Rogers and Stanfield, 1968). Some studies found that this correlation is higher in high adoption communities

with favourable norms towards change than in low adoption communities (Marsh and Coleman, 1954; van den Ban, 1963; Yadav, 1967). It is not hard to explain this if one accepts Homans's theory that opinion leaders are the group members who are able and willing to provide rare and valuable services to the group. In groups with favourable norms towards change the members with most experience with and information about new farm practices are best able to help the other members with their decisions whether or not to adopt these practices. However, especially in cultures where leadership is ascribed, it is also possible that the explanation runs in the other direction: in villages where the opinion leaders have a high adoption level and many contacts with reliable sources of information about innovations, new farm practices are diffused rapidly (Yadav, 1967).

On the basis of Homans's theory one could expect to find rather low correlations between opinion leadership and the adoption of new farm practices or the contact with change agencies in developing countries. However, in some studies high correlations have been found (e.g. Sen and Roy, 1967, table 16).

This problem has been studied carefully by Sen and Bhowmik (in process) on the basis of data gathered in the Michigan State diffusion of innovations project in 8 to 20 villages in Brazil, India and Nigeria. They found that the degree of opinion leadership of an individual depends on three sets of variables:

1. a higher socio-economic status (farm size, income, caste rank, number of wives, and level of living);
2. formal positions;
3. external links (knowledge of extension agent, extension agent contact, political knowledge, newspaper exposure, and literacy).

Probably in these developing countries ascribed status as reflected, for example, in formal positions held, is a much more important factor than in industrialized countries.

When the research workers ranked the villages according to innovativeness they found that the difference in the innovativeness of leaders and the followers was relatively small in the villages which were low and high in innovativeness, and larger in the villages with a medium level of innovativeness. The explanation is perhaps that in the villages with a low level neither the leaders nor their followers are interested in the adoption of innovations. In the medium villages the leaders feel secure concerning their social position and therefore free to deviate from the group norms. Furthermore, the extension officers might feel that their position depends on the opinion of these

formal leaders about their work and therefore try to help, especially the leaders, as much as possible. In the high adoption communities the leaders might feel less free to deviate from the group norms, because their social position is less secure, whereas their followers can be more inclined to follow their example as soon as possible.

In addition, one might wonder whether the group norms expect the same behaviour from all people in the community, or whether one expects the powerful leaders to be the first to try new ideas. Perhaps, in the analysis of opinion leadership, especially in developing countries, the power dimension has been neglected by rural sociologists. In order to study this dimension sociometric methods might have to be combined with anthropological methods.

The need for research on the changes in the leadership pattern in developing countries is also important. The introduction of agricultural extension and other forms of systematic economic development requires new leadership roles. To what extent are these roles fulfilled by the old leaders? From where is new leadership developing? What kind of tensions are there between the old and the new leaders? Does the extension officer arouse the opposition of the old leaders against his programme by stimulating the development of new leaders? Some research on these questions has been done, but a satisfactory answer to all these questions is certainly not yet available. A longitudinal study of some communities could help to answer them.

Barnett (1953) said that innovations are first adopted by the marginal members of the community, because they look for outside contacts to compensate their lack of acceptance in their community. However, he does not substantiate this statement. Many studies show that the leaders of a community are more cosmopolite and adopt agricultural innovations earlier than the low status members. Perhaps this is not true for other innovations which endanger the position of the leaders.

Coleman, Katz and Menzel (1966, ch. VII) found that well integrated doctors, who received many sociometric choices, adopted a new drug soon after its release to about the same extent as the less integrated doctors. However, their adoption rate was much higher and therefore, after 10 months, their adoption level was much higher than of the less integrated doctors. Van den Ban (1963, p. 188) could not confirm this finding in a study of the adoption of artificial insemination among Dutch farmers. From the first year onward the adoption level of the integrated farmers was much higher and the difference remained about constant.

3. WHO INFLUENCES WHOM, AND IN WHICH WAY?

To study social relationships one can analyse the dyads of the man who makes a sociometric choice and the person he has chosen. This makes it possible to study the similarities and the differences in magnitude and in direction between the seeker and the sought. Such a study can only be made if both the seeker and the person he has sought fall in the sample of interviewees. This is usually the case if one interviews all farmers in a rather closed community or if one uses snowball sampling, that is a two-stage sampling procedure in which one interviews in the second stage the people who have been chosen on sociometric choices in the first stage. In such studies one finds a differentiating effect, that is a tendency to select farmers who are different from the respondent, and a segregating effect, that is a tendency to select farmers who are similar to the respondents (Blau, 1962). Which tendency is strongest depends probably on the kind of relationship to which the sociometric question refers. One can ask questions regarding an:

1. *evaluative-instrumental* relationship, that is who one values for the way in which he does his work, e.g.: which two farmers do you consider as good farmers?
2. *interactional-instrumental* relationship, that is with whom one prefers to interact regarding his work, e.g.: from which two farmers would you most probably ask advice regarding a decision whether or not to adopt a new farm practice?
3. *evaluative-sociable* relationship, that is whom one values for social contacts e.g.: which two farmers do you like most?
4. *interactional-sociable* relationship, that is with whom does one most frequently interact on a social basis, e.g.: with which two farmers do you drink a glass of beer most frequently? (Yadav and Rogers, 1966, p. 15).

Several research workers have asked: "With which other farmer do you talk most frequently?" Probably this mainly gives an indication of the interactional-sociable relationship, but to some extent also an interactional-instrumental relationship.

For the evaluative-instrumental and the interactional-instrumental relationships the studies show a differentiating effect. There is clearly a tendency to choose as good farmers, and to a lesser extent as advisers, other farmers who have adopted more new farm practices and who have more contact with change agencies and other information sources.

This might be a result of the correlation between these factors and social status, at least the differentiating effect with regard to social status (judge rating) is even stronger (van den Ban, 1963, p. 182/3).

With regard to the question concerning with whom one talks most frequently there is some of this differentiating effect, but also a tendency to choose people who are similar in adoption level, contact with change agencies, and social status. Recent studies by Chou and Rogers (1966) in Colombia, and by Yadav in India do not confirm the hypothesis of a stronger differentiating effect for an interactional-instrumental relationship than for an interactional-sociable relationship. I cannot explain why their findings contradict the results from previous studies.

If this hypothesis is correct it could explain the difference in the findings of Katz and Lazarsfeld (1955) and of Lionberger and Coughenour (1957). The first authors found the opinion leaders to be at about the same status level as their followers, whereas Lionberger and Coughenour found them on a higher level of status and technological competence. They asked farmers from whom they obtained useful farm information. As they depend for their livelihood on the quality of information it is understandable that they look for a competent source. The choice of the movie to which one will go is much more a social activity and therefore it is understandable that Katz and Lazarsfeld found opinion leaders who are quite similar to their followers with questions of this kind.

In accordance with this explanation one can expect that farmers who are looking for information about a problem will get this mainly from farmers with a higher level of technological competence than they have themselves. In addition they will obtain a great deal of information, which they use in their decisions on the adoption of new farm practices, from other farmers at about their own level of competence in a more or less accidental way. An explanation for this phenomenon is given in Homans's valuable book, *Social Behaviour*. He sees human interaction as an exchange in which one does not get something for nothing. People at about the same level of technological competence can exchange information, because each of them will have valuable information which the other does not yet have. A farmer, however, who asks for information from a much more competent colleague cannot give him valuable information in return, for the simple reason that he does not have much information which the other does not yet have. Thus, he has to repay for the information he receives by admitting the other's competence and in this way in-

creasing his status. This also decreases his own status. He will only be willing to pay this cost if he is aware that he needs this information to make a good decision. Perhaps this is a reason why Hruschka and Rheinwald (1965) found that in discussions between pilot farmers and their neighbours in 80 per cent of the cases the pilot farmer had to introduce the new farm practices he had adopted, whereas in only 20 per cent did other farmers ask him for information about his experience. They also found that farmers are more inclined to follow the example of influential pilot farmers than of less influential. An attempt by the extension service to use a not very influential farmer as an example for his colleagues introduces a change in the social structure of the community, which is resisted. With regard to a new brand of coffee Arndt (1968, p. 463) found that among Harvard student wives "leaders and non-leaders often exchanged transmitter and receiver roles". In a case like this technical competence is much less important than with new farm practices with which only the pilot farmers have any experience.

(This theory might also help to explain why the farmers who are, objectively speaking, most in need of help from the extension service usually ask for this help least frequently. For them, asking for advice implies that they are not able to cope with their own problems, whereas experience of the best farmers is necessary for the extension officers in order to discover how new research findings can be applied in their area. Therefore, the best farmers can exchange valuable information with the extension officer).

Very few studies have not been restricted to the study of dyads, investigating also the effects of sociometric chains (e.g. Singh, Arya and Reddy, 1966) or sociograms (Rahim, 1965; Yadav, 1967). Further studies of this kind might help the extension officers to find a few key leaders, with whom they can co-operate to introduce certain innovations. These sociograms could also be used to study whether one is influenced by the cliques to which one belongs or by the individuals whom one has chosen on sociometric questions. It is possible that different cliques in one village have different group norms and that these norms influence individual behaviour.

In a number of rural societies one is inclined to rely more on government help for village improvement than on their own efforts. Thus, one needs leaders who have connections with government officials which enable them to bring a road, a school, a job for a village boy or whatever one needs to their village. In this situation one usually does not consider new knowledge as an important resource

for village development. The 'clients' will help their 'patron', who often does not live in their village, in elections and by providing services for him, and in return they expect him to bring a somewhat larger share of the scarce resources of the society to them (Galjart, 1968, ch. 6). It is not yet known in which circumstances such a patron can help with the diffusion of agricultural innovations. Perhaps the patron is only willing to help the extension officers if he gets something in return for his help, e.g. the assistance of the extension officers in the next election campaign. In general, the role of the leaders in relating their village to the larger society deserves more attention in extension research. Sociometric methods will not be sufficient to study this role. Perhaps anthropological methods are more valuable for this purpose.

Many adoption studies are implicitly based on the assumption that the farmer, who has responded in the interviews, takes the decisions regarding the adoption of new farm practices, although we know that other family members share in the decision-making. Wilkening (1958) has shown that the farmer's wife has most influence on decisions, which can have considerable influence on their life, either because she participates in the farm work or a decision to invest money in the farm involves that less can be used in the house. Probably customs regarding financial management also affect the relative influence of husband and wife. In the Eastern and Southern part of the Netherlands, where subsistence farming was still prevalent less than a century ago, it is the custom that the wife keeps the purse because she is usually at home when someone comes with a bill. In recent years, most payments have been made through the bank. This probably has decreased the considerable influence the wife had on many farms in decisions to adopt new practices. Previously she had to solve the difficulties if, as a result of investments in new farm practices, not all bills could be paid immediately. Now her husband has to arrange this with the bank.

Unfortunately there is not much research on the roles of father and son in the decision-making process regarding new farm practices. Wilkening (1953, p. 31 and 43) and Herzog et al. (1968, p. 34) found no correlation between an index of father-centered decision-making or patriarchalism and the adoption of new farm practices. Also, the communication between the farmer and his labourers on agricultural innovations can be an important topic for research. This communication is probably difficult where there is a large gap in status between both categories and where the labourers do not have confidence that

the farmer is trying to serve their interests. Frequently, these labourers can see to it that the adoption of an agricultural innovation is not profitable to their boss.

Sociometric research techniques can tell us who influences whom, but not how they influence each other; these techniques give very little information on the content of the communication. Cartwright (1965, p. 28-31) noticed that a person may yield to the influence exerted on him, because

1. he hopes for some kind of reward,
2. he fears some kind of punishment,
3. he likes to identify himself with the person who exerts this influence,
4. the person who exerts influence has a legal right to influence him because he is his superior,
5. the person who exerts influence is perceived to be more competent in this field than the person he influences.

It is not known to what extent each of these factors plays a role in interpersonal influence concerning agricultural innovations. In fact, rural sociologists have not given much attention to the content of interpersonal communications, but recent surveys have used two different techniques to analyse this content.

Arndt (1967 b and 1968 b) asked whether the comments which one had received on a new brand of coffee were favourable or unfavourable for its use. The answers were clearly related to the use of the product. He also showed nicely that the impact of this communication depends on the social position of the receiver and on her interest in the information transmitted.

Lionberger and Francis (1969) used a semantic differential technique to analyse how farmers see different information sources. They found that the farmers who are considered to be innovators are seen as more up-to-date and scientific than the farmers who influenced the decisions of the respondents to adopt certain new practices directly. This latter category is seen as more trustworthy, considerate and dependable than the innovators. Obviously, each technique has its limitations, and therefore both need attention in future research.

It is also possible to study the leadership roles with projective techniques, as has been done on a small scale by Srivastava (1965), who used sentence completion tests, and by Rogers and Beal (1958) with stimulus pictures.

Anthropologists have shown that in many societies religion and belief in supernatural power have much more influence on the techno-

logy of the people than in the industrialized countries (e.g. Mair, 1965, ch. 13 and 14). This may be because these people have not much confidence that they can master the world around them with scientific methods. In order to influence the outcome of their efforts in agriculture and elsewhere they turn to other methods. Frequently, magical rituals are performed in order to influence supernatural powers to give good crops, rain at the right moment, to prevent illness, etc. The way in which a farmer should grow his crops can be prescribed fairly precisely by these rituals and religious beliefs. These support orderly behaviour which usually is in accordance with natural conditions. This can have advantages, but also disfunctional effects. It might make it more difficult to adopt scientific agricultural methods which deviate from the prescribed methods, especially if one believes that a deviation from the prescribed rules might not only bring harm to the person who deviated, but also to other members of his group. Unfortunately, there is not much research in this field. Anthropologists have not been interested in the first place in economic change whereas rural sociologists, working in developing countries, have frequently neglected the influence of religion on economic life because they were not used to studying this factor in the industrialized countries. In order to study the influence of religion and magic on the adoption of agricultural innovations it seems to me that new research methods have to be developed. For these problems rural sociologists might have to use depth interviews, whereas anthropologists should quantify their information as much as possible.

Witchcraft is partly a social control technique. Some people are believed to have the capacity to harm others, e.g. with sickness. If someone becomes ill or is overcome by some other kind of evil, which cannot be explained as a correction by some supernatural power for his own faults, a witch is believed to have used his powers to harm somebody he does not like. This may be because he envies him for his success, but also for many other reasons. In some parts of Africa the fear of witches and of the accusation of being a witch is widespread. Persons who are considered to be able to detect and destroy or cure the witches or their evil deeds as a rule have considerable influence. It is not known whether or not this belief in witchcraft influences the diffusion of agricultural innovations.

4. VILLAGE STRUCTURE OF INTERPERSONAL
COMMUNICATION

Many adoption studies have correlated the characteristics of individuals, e.g. their innovativeness with their social status. Partly on the basis of the correlations found in these studies most sociologists believe that human behaviour is influenced to a large extent by the groups to which an individual belongs. In order to test this hypothesis there is a tendency in recent years, in several fields of social research, to study the structural effects, that is to study whether individuals with the same characteristics differ in behaviour if they belong to different groups (e.g. Likert, 1961). Attempts to apply these methods in adoption research give the impression that individual levels can be predicted just as well from the characteristics of the group to which the individual belongs as from his individual characteristics (van den Ban, 1960; Rogers and Burdge, 1961).

It is not yet known with a high degree of certainty how the group influences the behaviour of its members. Some studies have found relatively large differences between villages in their group norms towards innovativeness, which can be measured by questions such as: "What is the general opinion in this village about a farmer who is always one of the first to try some new farm practices?" (van den Ban, 1963). One possibility is that these group norms influence the social status of high and low adopters in the community. As there is a tendency to prefer interactional-instrumental relationships with persons of higher status than one has oneself, one may expect that in villages with group norms favourable towards innovativeness the high adopters interact frequently with other farmers, and in this way influence their adoption behaviour. A study of the factors influencing the college plans of American high school seniors found this pattern of influence. No effects of the school norms about college plans could be found if the plans of the friends of the students were kept constant (Campbell and Alexander, 1965/6).

Another possibility is that the group norms result in some form of social control by which the group as a whole influences the behaviour of its members. It is my impression that this has been the case in Western European peasant societies. In these societies, the neighbourhood used to have a strong influence on the behaviour of the people. The families were very open to each other. It was usual for everybody to enter the house of the other members of his neighbourhood without knocking on the door. He merely came in, took a seat

and was able to participate in any discussion. This made the people relatively closed in two ways. In the first place they were closed to outsiders, especially to city people with a different set of values and interests, and in the second place to each other. Husband and wife were not much inclined to show that they loved each other if at any moment one of the neighbours might step into the house.

During the frequent discussions the neighbours had usually developed a general agreement on the group norms about the way one should behave. If somebody deviated from these norms it would certainly be discussed extensively in the neighbourhood. In extreme cases, the boys of about 20 years of age, on behalf of the neighbourhood, might show quite clearly their dissatisfaction concerning this behaviour, e.g. by hanging a puppet of the person who deviated in the neighbourhood centre. In such a situation it was more or less the neighbourhood as a whole which influenced the behaviour of its members, although there were naturally some leaders who had much influence on what the neighbourhood would do.

In some traditional societies the leaders can have considerable influence, because the other villagers accept their decisions, in many fields, as binding to them. In other traditional societies, however, it seems to be more difficult to find the leaders than in modern societies (van den Ban, 1963, p. 78; Rogers and van Es, 1964, p. 18). A further study of the factors which determine the influence traditional leaders have in developing societies seems necessary.

In a modern rural society the situation is quite different. Here, one does not frequently interact with everybody in the community, but selects a few friends from a much wider geographical area. These friends give each other much more privacy than do neighbours in the traditional society. The group norms do not precisely prescribe how one should behave, but are much more concerned with which criteria one should choose one's behaviour (Germani, 1960). Here, social influence is exerted much less by the community as a whole and much more by the group of friends. It is not quite clear how much influence these friends exert. It is not fully acceptable to admit that one is influenced by one's friends, but these friends do have an opportunity to exert influence which neighbours in a more traditional peasant society do not have. These neighbours are supposed to interact with all the members of their neighbourhood except when they have misbehaved quite seriously. In a modern society one is free not to select somebody whom one does not really like.

The way in which these interaction patterns influence the diffusion

of agricultural innovations has not yet been studied carefully. In two villages with traditional interaction pattern we asked how much time it takes for the majority of farmers in the village to know that one of them has tried something new. Six per cent said that they already knew this before he had tried it. A farmer in these traditional communities may complain, as may happen nowadays, that one *sees* that one of the neighbours has bought a new manure spreader. Previously one used to discuss for months with his neighbours before one adopted such an innovation. The same question asked in a modern community showed quite clearly that it takes much more time before the news that somebody had adopted an innovation was spread by word or mouth (van den Ban, 1963).

Perhaps the picture that one interacts frequently with all other members of one's neighbourhood is not always correct. In European peasant societies factions are not unknown. They might have been started during a fight over the division of an inheritance, but can continue for quite a long time. Sometimes these factions become so serious that members of opposite factions hardly talk to each other. In developing countries, such as India, one gets the impression that these factions are much more prevalent. This might be partly due to the patron - client relationship discussed earlier. If each of the different patrons tries to obtain as great a share of the limited government resources as possible for his followers, it is understandable that factions develop easily between the different groups of followers. In other words, serious factionalism can be expected if the available resources are limited for the needs of the people and if one is inclined to rely on outside help rather than on one's own efforts to satisfy these needs.

Research on the effects of factionalism on the diffusion of agricultural innovation is again limited. Fliegel et al. (1967) found only a weak negative correlation between severity of faction disputes and the diffusion of agricultural innovations in 108 villages, but they admit that their measure of the severity of faction disputes was rather weak.

Villages may differ in the amount of interpersonal influence, just as Likert (1961, p. 56) found that departments in a company can differ in this respect. It is not yet sure under which conditions considerable interpersonal influence is exerted. Favourable factors might be an atmosphere of mutual confidence and a high level of willingness to consider new ideas (Yadav, 1967), because one perceives that one has the resources to try these ideas and to be able to continue in the competition with other farmers only if one rapidly adopts good new

ideas. In a number of peasant communities, where the people are exploited for a long time by landlords and powerful urban people, anthropologists have found very little mutual confidence among the peasants. Lopreato (1967, ch. IV) reports, for instance, from Southern Italy that everybody is expected to serve his own interests, if necessary at the expense of his neighbours' interests.

Another difference between villages can be in the extent to which the leadership is specialized, that is the extent to which leaders in one field are also leaders in other fields. Perhaps the most serious study of this problem has been made by Singh, Arya and Reddy (1966). In two Indian villages they used sociometric methods to find four kinds of leaders: traditional (ascribed), political, opinion making (advice on work) and decision-making (consult in daily life and act upon their advice). The average correlation coefficients for the two villages were:

traditional	- political	.21
traditional	- opinion maker	.93
traditional	- decision maker	.97
political	- opinion maker	.43
political	- decision maker	.33
opinion maker	- decision maker	.96

In these villages there is little specialisation in leadership, except for the new role of political leader. There are indications that in modern societies the leadership is more specialized (Yadav, 1967), partly because a good deal of the leadership activities are exerted in specialized associations. The effects of the specialization in leadership on the adoption of new farm practices are not well-known.

There are also differences between communities in the concentration of leadership; there might be a few very powerful leaders, or a much more diffused pattern of leadership. Herzog *et al.* (1968) found that, with an increasing level of development of communities, the concentration of opinion leadership decreases. Two studies found indications that the concentration of opinion leadership in agriculture is positively related to village level adoption of agricultural innovations (Fliegel *et al.*, 1967, p. 171 and Hursh, Röling and Kerr, 1968, p. 99 and 108), but one found a negative correlation coefficient of -0.67 (Herzog *et al.*, 1968). The reason for these contradictory findings is not yet clear.

In villages where the leaders have frequent contacts with change agencies the rate of adoption of innovations and the adoption level are usually high (Coughenour, 1964; Fliegel *et al.* 1967; Yadav, 1967).

The main reason is probably that modern leaders stimulate the adoption of innovations by their followers.

5. THE TWO-STEP FLOW OF COMMUNICATIONS HYPOTHESIS

A well-known hypothesis on the process of interpersonal communication is that, "ideas often flow from radio and print to the opinion leaders and from them to the less active sections of the population." (Lazarsfeld, Berelson and Gaudet, 1948, p. 151). It is doubtful whether this hypothesis is correct. The opinion leaders indeed use the mass media more than their followers, but at least in one study it was found that this is also true for personal sources of information (van den Ban, 1964, p. 241). Adoption research has shown that people become aware of new ideas from the mass media, but they usually do not adopt these ideas themselves before they have been able to use personal sources of information. Probably this holds true for the opinion leaders just as much as for their followers. The major difference between the opinion leaders and their followers is that the first use information sources of a higher quality. They read more, and more specialized papers, have more contacts with technical experts and with innovators among the farmers in other villages, at least in modern villages. Whether or not these opinion leaders influence their followers, directly or indirectly, depends on the need these followers feel for their information. As we discussed previously, low status farmers will only turn to farmers with a high status directly if they feel a serious need for this information. Otherwise, they will restrict their discussions mainly to their friends, who have only a little higher status than they have themselves. In that case it may take some time before the innovation trickles down through the whole community. Also the opinion leaders will not simply pass on the information they receive, but they will give their own interpretation to this information (Arndt, 1968 a), taking into account what they expect their followers would like to hear.

6. IMPLICATIONS FOR EXTENSION EDUCATION

Perhaps in adoption research we have not sufficiently asked what the implications of our research are for extension education. An indication is given in Sanders's (1966) recent textbook on extension education, which makes very little use of the numerous studies on the adoption of new farm practices. Therefore, let us briefly discuss how extension

officers can use the research summarized in this paper, and which of their questions cannot yet be answered by this research.

It has been found that personal communication is usually required before new farm practices are adopted, but that there is some resistance to asking advice from other farmers. Therefore, it seems desirable to make more use of group discussions in extension education in order to create a situation where the information from one farmer to the other flows easily. Levêsqe (1961) found indications that such a discussion group can decrease the mutual distrust among farmers and, if the extension officer participates, the distrust in him also. If we accept that human behaviour is influenced to a large extent by the norms of the groups to which one belongs, another advantage of these group discussions is that it is often easier to change the norms of a group as a whole than to let a person deviate from the norms of his groups. Group discussion can be the best way to change group norms. If one likes to work through groups one can work through existing groups or try to establish new groups. What are the advantages and disadvantages of both methods?

What can the extension officer do in communities where the group norms do not favour the introduction of new ideas? Probably the informal leaders there are not much interested in co-operating with the extension officers, whereas most farmers who are interested in this co-operation have not much influence. Can the extension officer build new leaders out of this last group or can he gain the co-operation of some of the established leaders? In which way is this possible? What can be done with a discussion group where the extension officers use counselling methods in order to help the group to discover its own problems and stimulate them to try to solve these problems.¹

In order to develop rural leadership the extension service, folk high schools, farmers organizations and others frequently give courses in which the participants can discover that the society as a whole is changing and that they have to adjust themselves to these changes. What is the effect of these courses? In which circumstances are the participants accepted as leaders? Does it perhaps happen that they become outsiders in their own group, because of their participation in these courses?

What are the effects of working with extension committees? Under what circumstances does this stimulate co-operation among the people, and between the people and the extension service? In which circumstances does it stimulate factionalism? How effective is the application of social action theory? How can an extension officer

work effectively in a community where there are serious tensions between different factions?

Extension officers do not have sufficient time to work intensively with all farmers. Research shows that by working with the local leaders they will often be more effective than by working with the farmers who are most interested in co-operating with the extension service. The informal leaders are frequently more important than the formal leaders, but how can an extension officer find them? Research on leadership characteristics can help to make the extension officers sensitive to the kind of people among whom they would probably find the informal leaders. What is the best way to find them? Sociometric methods are usually out of question, because asking these kinds of questions directly does not fit in with the role expectations for the extension officers, and the analysis takes too much time. Can one use a judge's rating of the influence of different farmers? Can the extension committee make the selection, or do they make their selection on the basis of factors other than or different from informal leadership? Can the village itself select the farmers through whom they get the information from the extension service, as is done in the 'animation rurale'? Is it true that in poor villages the leaders are often more inclined to hoard the information they have rather than to pass it on to other villagers?

Lionberger and Coughenour (1957) studied a community where they found a clear tendency to select persons of higher social status and technological competence as sources of farm information, whereas status differences did not serve as serious barriers to the selection of high status persons as information sources. If this also holds true for an interactional-sociable relationship the extension educator may reasonably expect to influence those at the bottom indirectly, in due time, by working with those at the top of the scale. In other situations, however, status differences do serve as a serious barrier to communication. It even happens that small farmers select large farmers as a model for their farm management, and therefore do not farm intensively enough to make a reasonable income on the small acreage of land they have (van den Ban, 1963, p. 164-5). How does the extension officer know in which situation he is working if he does not have the resources to make a full-scale sociological study? What should he do if there are serious status barriers? Starting a discussion group for small farmers only might also cause some resistance.

A well-known principle for introducing change is, "if the group is to be used effectively as a medium of change, those people who are

to be changed and those who are to exert influence for change must have a strong sense of belonging to the same group". (Cartwright, 1961). On the basis of this principle it has been advocated that the extension officer should try to decrease the status difference between him and the farmers. Is this indeed the best way in developing countries with a tradition of large status differences? Is not an extension officer of high status, who has presumably also much power, more effective?

There is no doubt that research on leadership and interpersonal communication is useful for extension officers. However, even after all the research which has been done many important questions in this field of extension can only be answered on the basis of common sense. The same holds true in the field of marketing (Arndt, 1967 a).

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SUMMARY

INTERPERSONAL COMMUNICATION AND THE DIFFUSION OF INNOVATIONS

Most studies have found that opinion leaders have a higher level of adoption of new farm practices, more contact with competent sources of farm information, and more contacts outside their village than their followers. This is especially true in communities with group norms favourable towards the adoption of innovations and in some communities in developing countries.

In the analysis of sociometric dyads several studies have found that on instrumental questions farmers are chosen with a higher level of technological competence, whereas on sociable questions such differences are relatively small. The way in which farmers influence each other and the effects of the patron-client relationship on the adoption of new farm practices are neglected research topics.

Differences between villages in the effect of personal influence on the adoption of new farm practices can be caused by differences in group norms, specialisation and concentration in opinion leadership,

and in mutual confidence among the villagers. The two-step flow of communication hypothesis probably needs revision.

Research on interpersonal communication is useful for increasing the effectiveness of extension services, but extension officers can still take many decisions in this field only on the basis of common sense.

RÉSUMÉ

COMMUNICATION INTERPERSONNELLE ET LA DIFFUSION DES INNOVATIONS

De nombreuses études ont montré que les leaders adoptent plus aisément les innovations en matière agricole, ont plus de contacts avec des sources compétentes d'information et le monde extérieur que les autres membres de leur communauté. Cet aspect est tout particulièrement remarquable dans les communautés dont les normes sont favorables à l'innovation et dans certains pays en voie de développement.

L'analyse dans plusieurs études des dyades sociométriques montre que si les questions posées sont d'ordre technique, les agriculteurs choisis ont un degré de compétence professionnelle élevé; les différences sont moins importantes, si ces questions sont d'ordre sociable. Le processus de réciprocité des influences entre agriculteurs, les effets des relations patrons-clients sur l'adoption de l'innovation sont négligées dans la recherche.

La diversité que l'on peut constater entre villages dans l'effet de l'influence personnelle pour l'adoption d'innovations peut être provoquée par des différences dans les normes du groupe, par la spécialisation et la concentration du leadership, par la confiance mutuelle des agriculteurs. L'hypothèse d'une circulation en deux étapes de l'information nécessite, vraisemblablement, une révision.

La recherche sur les communications interpersonnelles est nécessaire à la croissance de l'efficacité des services de vulgarisation. Cependant, les vulgarisateurs ne peuvent prendre bon nombre de leurs décisions en ce domaine qu'en s'aidant du simple bon sens.

ZUSAMMENFASSUNG

PERSÖNLICHE KOMMUNIKATION UND DIE VERBREITUNG VON NEUERUNGEN

Die meisten bisherigen Untersuchungen kamen zu dem Ergebnis, daß Meinungsführer in höherem Grade neue landwirtschaftliche

Methoden annehmen, mehr Kontakt mit den Quellen der Informationen und außerhalb ihres Dorfes haben, als die Menschen, die ihnen folgen. Das gilt besonders in Gemeinschaften, deren Gruppennormen der Adoption von Neuerungen günstig sind, und in einigen Gemeinschaften in Entwicklungsländern.

Bei der Analyse soziometrischer Dyaden fanden mehrere Studien, daß bei technischen Fragen Landwirte mit besseren technologischen Fähigkeiten gewählt wurden, während bei gesellschaftlichen Fragen diese Differenzen recht gering sind. Der Weg, auf dem Bauern einander beeinflussen und die Wirkungen des Patron-Klienten-Verhältnisses auf die Annahme neuer Methoden sind bisher in der Forschung vernachlässigt worden.

Unterschiede zwischen den Dörfern beim persönlichen Einfluß auf die Adoption neuer landwirtschaftlicher Methoden können verursacht sein durch Unterschiede in den Gruppennormen, Spezialisierung und Konzentration der Meinungsführerschaft und durch Vertrauen zwischen den Dorfbewohnern. Die Hypothese von einem zweistufigen Kommunikationsablauf muß wahrscheinlich revidiert werden.

Forschung über Kommunikation zwischen Personen kann dazu dienen, Beratungsdienste effektiv zu gestalten. Aber noch immer können Berater einen großen Teil ihrer Entscheidungen auf diesem Gebiet nur auf der Grundlage des gesunden Menschenverstandes treffen.