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In India

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By: Navin C. Jain

The new media are not miracle drugs for educational system but they are tools of great potential power for teachers and administrators. They offer an uncommon opportunity, if used efficiently and appropriately, to help education go further, do more, and do it better (Schramm, 1964).

As so often happens in scientific endeavor, the relative success of Lewin and others with group decision-making has had the effect of discouraging the kind of critical research which less positive findings might have (March, 1965).

Considering the rather limited amount of research done, there is too much loose talk about the "proven" superiority of group-decision. The studies reported chiefly involved women in war-time (food change), partially industrialized mountain folk (Hardwood) and undergraduate students in Psychology. Further research should involve various kinds of groups, various types of tasks, and various forms of participation (G. Strauss, 1962).

In fact, some studies among this accumulated literature have been so widely quoted and reproduced that the rather tentative nature of the original conclusions is in danger of being forgotten. But wide quotation or reprinting is not equivalent to wide replication. Further evidence is needed ... (DeFleur, 1966).

cover page
courtesy of
I.H. Stewart

SOME SOCIAL PSYCHOLOGICAL FACTORS RELATED TO
THE EFFECTIVENESS OF RADIO FORUMS IN INDIA

BY

Navin C. Jain

Technical Report 11
Project on the Diffusion of Innovations
in Rural Societies

A Research Project Supported
by the United States Agency for
International Development

February, 1969

Department of Communication
Michigan State University
East Lansing, Michigan, U.S.A.

FORWARD

The present study is an important step forward for a number of reasons. First, it broadens the theoretical scope of a long and important research tradition in group dynamics (begun by the classic Kurt Lewin study of changing food habits) (1) by concentrating on such concepts as group listening, discussions, decision, commitment, and consensus, (2) in explaining such communication effects as knowledge, beliefs, attitudes, and behavioral intention to adopt an innovation. Secondly, the experiment was conducted by Dr. Jain with extant groups of Indian villagers, who discussed a new idea with relevance to their daily activities. There is little of the antiseptic artificiality of the usual laboratory experiment in communication, where college sophomores, who are largely strangers to each other, are asked to react to a message of little relevance.

The findings are of interest, however, not only to social scientists, but also to change agents who seek to introduce new ideas to client audiences. There are implications from the present inquiry as to how such change agents could more effectively bring about the diffusion of innovations through a discussion group approach. Such is presently little-used by most change agents in less developed nations.

This technical report is one in a series produced by a research project on DIFFUSION OF INNOVATIONS IN RURAL SOCIETIES, sponsored by the United States Agency for International Development, and conducted by the Department of Communication at Michigan State University. Other reports available from this study in India, Nigeria, and Brazil are listed on the inside cover of the present publication. Dr. Jain carried out the present data-gathering and analysis with partial financial support from this project, but also with considerable of his own funds, and also with the support of the Memorial University of New foundland, where he is now a faculty member.

Perhaps the present study is most noteworthy because it represents almost entirely the ingenuity and resourcefulness of Dr. Jain himself. Most of the important decisions had to be made by him with very little help from me or any of his Ph.D. Committee. Under these conditions, which are frequently encountered in Ph.D. candidates working in overseas settings, many fail. I feel that Dr. Jain succeeded in a way that is an outstanding tribute to his mentors, but for which they can claim little direct credit.

Everett M. Rogers
Professor, Communication
and Director, Diffusion Project
Michigan State University

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NAVIN CHAND JAIN

1969

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CHAPTER I

INTRODUCTION AND THEORETICAL CONSIDERATIONS

India is justifiably known as a land of villages. Over 82.7 percent of her mostly illiterate population live in more than half a million proverbially "timeless and changeless" villages scattered over its landscape. The most striking feature of these village communities is their unusual isolation and lack of communication, which appear to be associated with several problems of poverty, diseases, and malnutrition in most parts of the world.

The great communication problem of development of India is, therefore, to maintain contact among the villagers, to help them to adopt more productive farming and more effective health measures, and thus gradually to lead them toward better economic and social patterns. The Government of India is resolved to overcome India's underdevelopment, and she appears to be conscious of the need for improving the communication system as a requisite for achieving development.

Two methods of communication for introducing technological innovations in India have been used: (1) the traditional method which emphasizes the use of interpersonal channels of change agents such as village level Extension workers, and (2) the modern method which emphasizes the use of mass media. For instance, several decades ago the

Government of India started the National Extension Service, and the All-India Radio started a farm radio broadcasting program to educate the Indian farmers about the value of new technology to solve her food crises.

Each of these two methods has some unique advantages and disadvantages. For example, the traditional method provides for more intimate interaction and feedback, among other things, that make it very effective when the goal is persuasion. But it is also very costly in terms of time, money, and technical resources, which are necessary in recruitment, training, and guidance of a large corps of change agents, each of whom is assigned the task of conveying the new technology via interpersonal channels in selected communities. The traditional method is thus a discouragingly long range approach, which is not satisfactory to many complex and urgent problems of food crises mounting in several nations of Asia, Africa, and Latin America.

The modern method of introducing technological innovations, on the other hand, is very efficient in terms of its ability to disseminate information to a very large segment of the population of any nation within a very shorter time and at a cheaper rate as compared to the traditional method. But the modern mass media method is less effective as compared to the interpersonal method in bringing about change in attitudes and behavior, particularly in peasant communities (Rogers, 1969). Further, neither are there enough trained change agents and privately owned radio sets,

nor are there community radio sets in appreciable number in the villages of developing nations, in spite of the tremendous investments both in the training and recruitment of change agents, and free and subsidized radio sets distribution schemes for the villages by their governments over the number of years. For instance, there is an acute shortage of village Extension workers, and community radio sets in India, even after fifteen years of intensive recruitment and training of change agents, and over 25 years of rural radio broadcasting and radio distribution schemes of the Government of India.

In a review of mass media effects, Hovland (1954, p. 1062) suggests that some communication researchers believe that mass media communications are all-powerful, that they determine thought and action to a major degree. They cite the tremendous impact of propoganda during World War I, and of advertizing, via the mass media in our way of life. Other analysts, however, are inclined to minimize the effects of the mass media. They point to the fact that many political candidates supported by the press, are not actually elected in public office and, in general, they regard many interpretations of the power of the mass media as being quite extreme. Although a mass medium is able to increase the political knowledge of voters, it does not affect the amount of their participation in the campaign; neither does it have a direct influence on voting and political attitudes. People receive more direct information and become more familiar

with party policies, but they appear to be able to screen themselves from direct persuasion.

As such, mass communication researchers both in more and less developed nations have indicated that widespread mass media exposure alone is unlikely to affect large scale changes in human behavior. The early experiments in rural broadcasting revealed that even a loud-speaker with a larger output would not make the villagers listen to the radio programs in their homes (Awasthy, 1965). Individual listening is considered ineffective because it does not hold the attention of the audience, and too little is understood and retained of what is heard. It is suggested that increasing the number of radios, newspapers, and cinemas, even if available in larger number, would not necessarily bring about a corresponding increase either in knowledge, or in attitude and behavior. Merely multiplying channels, messages, and exposure to mass media as such are not enough for changing the passive audience.

It has been, therefore, proposed that significant changes in human behavior can be brought about rapidly through mass communication if the persons who are expected to change by its influence, participate in deciding what the change shall be, and how it shall be made. Striking demonstrations of the efficacy of participation in increasing group productivity, and attitudinal and behavioral change of the group members, have been shown in industrial contexts (Coch and others, 1948), and in food habits change (Lewin, 1947). The traditional and modern methods of change have

been, therefore, combined first in the listening groups of Great Britain during the World War II, and later on in the Radio Farm Forums of Canada. A radio forum is essentially an organized radio listening group of adults, in which they discuss the contents of the radio broadcasts, and make decision to implement the recommendations. The radio forum approach to development has been accepted by many nations as they appear to prefer voluntary development in which many people would participate, and the better informed would assist the less informed through persuasion, and free flow of information. However, no systematic efforts have been made to investigate the conditions under which participation of people in the programs of change would be most helpful.

After Independence in 1947, the All-India Radio expanded its program of rural broadcasting and introduced radio farm forums on the pattern of Canadian farm forum project, which utilizes both the traditional and the modern methods of communication. In 1956, it collaborated with Unesco to evaluate this project systematically. This experiment was reported a success (Neurath, 1960). On the basis of Neurath's report, the forum project was expanded at the national level, and subsequently integrated with the National Community Development and Extension programs in India.

About a quarter of a million people are now attending twice-weekly forum meetings in India (Schramm and others, 1967). Some evaluation studies have been favorable and the National Committee on the Five-Year-Plan Publicity in 1964

recommended that the forums should be increased as soon as possible until there is one in every village that had a village council, i.e., 200,000 villages. In 1963, All-India Radio broadcast over 10,000 hours of programs for rural listeners via its 30 regional stations in about 48 dialects. The number of community listening sets has risen from 2,000 in 1948 to about 117,000 in 1965. The Fourth Five Year Plan calls for an increase to 565,000, which is estimated to cost at least 15 million dollars for the radio sets alone, most of which would come from the government exchequer and scarce foreign exchange.

In spite of such an ambitious program of expansion of radio forums, and the success of the pilot project of Neurath (1960), the expanded forums were never as successful as the pilot ones. They did not develop as fast as expected, or become the irresistible tool they had promised to be. The Third Five Year Plan (1961-66) provided for the organization of 25,000 forums, but by the end of 1965 only 12,000 were in evidence (Schramm and others, 1967).

Figuring on a unit of 2,000 forums, Schramm and others (1967, p. 133) report that India estimates unit cost at \$3.46 per person per year, or 9 cents per listening hour. When we consider the cost of even 12,000 active forums for several years on the basis of previous estimates, the cost of technical experts, and the foreign currency for this program, one becomes a little uneasy seeing the dearth of sounder empirical and theoretical support of this program.

We, therefore, need to have more empirical research to show the usefulness of the forum project.

The Objectives of the Present Study

The main objectives of the present study are:

1. To summarize some of the main theoretical propositions and research results referring to the relationship of interpersonal and mass communication, and their individual and joint effects on attitudinal and behavioral change, with special reference to the functions of social psychological variables in the effects of mass media in the process of modernizing peasants.

2. To review some related experimental studies of group dynamics and mass media effects to develop a conceptual and analytical framework for assessing empirically factors related to the effectiveness of radio forums.

3. To investigate the effectiveness of group listening, discussion, decision, commitment, and consensus on attitudinal changes, especially in the context of radio forums in India.

Usefulness of the Investigation

Research on methods of accelerating diffusion and adoption of agricultural technology is badly needed if agricultural production is to keep pace with population expansion. While there are about a thousand diffusion research studies* in the Western world, there are less than three hundred such

*This estimate is based on the records of the Diffusion Documents Center, Department of Communication, Michigan State University, East Lansing, Michigan, U.S.A.

researches in developing countries, where their utility is tremendous.

Results of the present study will be of use to many types of change agencies such as Extension Service and Community Development agencies, who are interested in promoting change through group methods. The present investigation will contribute to our theoretical understanding of the process of group decision making and attitude change in programs of modernizing peasant communities. The study will also throw light on conducting experiments using farmers as subjects and using newer techniques of measuring attitudes like semantic differential scales.

Genesis of Radio Forum as a Developmental Tool

Although no one knows the exact origin of the idea for listening groups, a precursor of radio forum, it is generally agreed that the idea received its first substantial flowering in Great Britain. Several other countries initiated similar projects from this idea. The most prominent of these projects, the Canadian Farm Radio Forum, came into existence on a nationwide basis in 1941. The unique elements of the pattern which drew the most international attention were the emphases on feedback, supplemental printed materials, group decision, and local community action projects of self-help type. The Canadian forums were specifically designed to give farmers a new incentive to group action and neighborliness. These forums were also designed to stimulate thought and understanding among rural listeners, which would

widen their horizons as citizens and help them improve their conditions as farmers.

Unesco interest in the listening group started in the early 1950's as a result of the Canadian forum publications and its spectacular results, which subsequently became the model for a number of projects in France, Japan, India, and several other countries. Unesco considered the forum technique as an essential educational approach to stimulate social and economic development.

While the primary purpose of the Canadian forum was to help the farmers affect policy on a national level, the Unesco-sponsored forums were designed to inculcate information to change attitudes and to stimulate local self-help projects. The Canadian program was based on a political principle - that men of ordinary education can understand the world they live in, and that, with knowledge they can exercise more intelligent control over their social and economic environment. The Unesco financed projects, on the other hand, were based on an educational principle that education requires personal, intensive, and systematic study based on the active participation of those who are to be educated (Cassirer, 1957). It was designed to promote the process of modernization in developing countries based on scientific evaluation of the project.

Evaluation of Radio Forums

Do the radio forums make a difference? It is generally held that the radio (or media) forums are necessary

ingredients of the process of modernization in developing societies, yet the scant body of empirical evidence, accumulated to date, is far from conclusive. The main purpose of the present section is, therefore, to review all the important radio forum studies to determine the current status of knowledge about their effectiveness.

The Neurath's Farm Radio Forum Study

The first Unesco radio forum project (Sim, 1954) studied the approach of the Canadian radio forum and presented a general sociological view on a theoretical and descriptive level. The first Indian study, on the other hand, includes an evaluative study of the radio forums (Neurath, 1960). The structure of the forums closely followed the Canadian example. Each group had a lay chairman and a secretary who kept records and every week reported important points appearing in the discussions to the broadcasters. About 20 members were selected by the organizer, with the aid of local change agents, to represent village leadership. The members met in the early evening twice a week at a designated place, and heard a radio broadcast of 30 minutes from the regional radio station. The forum provided the opportunity to make decisions on adoption of new practices. Thus, radio forum is a club of villagers who listen in an organized way to selected radio programs, use them as a starting point for discussion among themselves, increase their knowledge, and put into practice some of their decisions. It is thus a listening-cum-discussion-cum-action group of villagers.

In his research Neurath utilized four treatments: (1) the organization of a farm radio forum and the provision of a radio where this was new to the village, (2) a forum and radio where the radio was not new, (3) no forum but the presence of a radio (which was not new), and (4) neither radio nor forum. Forty villages were utilized. Treatments # 3 and # 4 were forms of control. The villages were matched as to their size and accessibility to cities. A striking increase in knowledge of innovations resulted from forum discussion of the ideas suggested by the radio broadcasts. Radio without forum discussion had only a slightly greater effect than having neither radio nor forum. Attitudinal and behavioral changes were neither systematically measured nor probable as post-treatment measures were obtained within three or four months of the start of the treatments.

Attitudes questions were for the most bypassed, and so were attempts to gauge the depth of the new knowledge gained as a result of forum broadcasts. The analysis of the levels of knowledge and their change was carried out with the consideration that the author was not concerned with establishing the level of knowledge of an individual person, but rather, to make comparable the levels and their changes for the groups. It is easy to suspect that an individual who answers a few simple factual questions, might be parroting them from memory. However, it is much more difficult to raise the same suspicion against answers of large groups of people. Also, Neurath's measurement of knowledge was not very

systematic because he really measured the awareness of several innovations through responses to open ended questions, not by factual measurement of the content of broadcasts. To this extent even his claim of knowledge gain is not very impressive.

Radio Forum and Literacy in India and Costa Rica

This is a comparative experimental forum study by Unesco, Michigan State University, the National Institute of Community Development of India, and the Programa de Informacion Popular (PIIP) of Costa Rica. The general finding in the case of India is that radio forums are superior to literacy training and control groups in bringing about changes in knowledge and adoption of agricultural and health practices. The radio forum approach is the most effective in leading to increased adoption by the forum members and non-members in the forum villages. This greater impact of radio forums is all the more impressive when we remember that the total cost of the radio forum treatments is about half that of the literacy-reading treatment, and about the same as the animation training treatment. Taking into account time and cost inputs when evaluating the treatment impact, radio forums stand out for their efficacy and efficiency. The influence of radio and literacy training was re-examined after about a year from the start of the treatments by the three-Nations Diffusion of Innovations Project financed by the U.S.A.I.D. The previous findings were confirmed by this post-post re-survey of the Indian villages (Kivlin and others, 1968).

The Costa Rican forum study (Waisanen and Durlak, 1967) concludes that changes in knowledge and adoption of innovations are related to participation in both the radio and reading forums. Participation was not related to evaluation. The effect on the forum participants did not diffuse to their peers in the forum villages. Also the radio forum technique had greater impact than the reading treatment. In general, the superiority of radio forums to literacy training and control groups was found both in India and Costa Rica in knowledge gain and adoption of innovations, but not in changing attitudes.

This Unesco study is superior to Neurath's in that it has better control, longer duration of treatments, and more refined measurement of variables. While most of the findings by Neurath were suggestive, the findings of this study are more reliable because the results were replicated in two different cultures.

News Experiment in India

Manefee and others (1965) selected four villages in India and designed their study as follows: (1) a control village, (2) two villages that received a weekly mimeographed newspaper for four months, and (3) one village that received this newspaper, a new community radio, and a weekly public meeting. "Pre" and "post" measures of knowledge of public events were obtained via personal interviews with 60 respondents in each village. The treatment villages showed a greater increase in public events knowledge than the control.

As expected, the village with the newspaper and radio forum treatment showed the greatest knowledge increase. This confirms Neurath's and others' findings showing that mass media channels have a greater effect when they are combined with interpersonal discussion in forums.

The Ghana Farm Radio Forum Study

The evaluation of Ghana's Unesco supported rural farm radio forum project (Abell, 1965) showed that it may be considered successful when evaluated in terms of its stated purpose of transmitting information and stimulating rural people towards increased self-help activities. The question of attitudinal change was almost disregarded. Thus, the results are generally parallel to those of Neurath in India: the forums had greater effect on knowledge and adoption of new ideas than did individual radio listening.

American League of Women Voters Study

From 1927 to 1934, the League of Women Voters presented a series of broadcasts for listening groups called "Voters' Service," designed to arouse the interest of the groups' participants in political issues and to help clarify their thinking by increasing their ability to criticize proposals of all types. It was found in this experimental study (Ohlinger, 1967) of the broadcasts that awareness of political events increased significantly, when compared with a control group that did not listen to the broadcasts. The investigator was most impressed with the fact that opinions did not change significantly, instead, popular opinions were held

more consistently. However, he did not attempt to set up a control group which listened to, but did not discuss the content of the broadcasts.

The Spector and Others Ecuadorian Study

A field experiment by Spector and others (1963) in rural Ecuadorian villages tested the efficacy of radio, certain audio-visual techniques, and personal discussion in the adoption of four different innovations, which required varying amounts of investment by the receivers. Among the media, radio led as an information source and motivator for decision-making; but in teaching skills or techniques, the town receiving radio plus audio-visuals plus personal discussion was superior, audio-visual alone was second, and the radio third. This study shows clearly the superiority of media plus discussion in teaching skills. This is not an unexpected finding as more channels should result in greater effects. The most challenging finding is the superiority of radio as a motivator for decision making.

Radio Schools in Rural Colombia

Radio schools aimed at reducing illiteracy in remote rural areas were initiated in Colombia (Havens, 1965). There are about 16,000 radio schools in Colombia claiming some 130,000 students. Over 60 per cent of those enrolled in the schools were said to have been initially illiterate with 64 per cent of these achieving literacy as a result of the one-year course. However, we do not have any good evaluation of radio schools and forums in any of the Latin American countries as we have in India.

The Mass Media and Study Groups in Communist China

Communist China has institutionalized a unique procedure of media discussion groups which are called "study groups". It is estimated that 96 per cent of the adults regularly attend meetings in Communist China, 60 per cent of them regularly attend meetings in which periodicals are read or discussed, and the remaining 40 per cent have newspapers reading or discussion (Hiniker, 1967). The use of radio discussion groups in China was a common practice in the early 1950's when communication facilities were relatively underdeveloped. But this practice seems to have died out with the development of the print media and higher literacy rate.

Study groups have been used in Communist China as a basic setting in which to teach literacy. They are instrumental in achieving national integration and development. The study groups are based more on the print media than electronic media; they are applied on a relatively universal basis, and their ostensible purpose is national political indoctrination by a disciplined set of cadres.

The study groups would seem to be more important as a social adjunct to the media. They are important in that they act as a multiplier to media vehicles in further disseminating mass media messages to the population. They also serve to add a basic personal dimension to media consumption and thereby add to the attitudinal impact of the media messages. However, no empirical investigation of these claims have been reported systematically like the radio forum studies.

Some Theoretical Considerations on the Effectiveness of Radio Forums

In terms of open systems theory of Katz and others (1966), the previous description of radio forums could be summarized into the following components:

1. Input of influence from radio broadcast messages, which could also be from other media.
2. Influence attempt is carefully designed and addressed to several individuals simultaneously through one or more mass media.
3. There is a specified occasion for influence attempt in terms of (1) audience, (2) time, (3) place, and (4) circumstances.
4. There is a regularly scheduled and planned group discussion and decision on (i) more directly and (ii) less directly related topics to the influence attempt, among the forum members including some leaders.
5. Continuous feedback among the audience and broadcasters.
6. Output of the forums in terms of changes in knowledge, beliefs, attitudes, values, and behavior; planning and executing self-help projects; general growth of individuals as useful citizens; and the establishment of radio forums as a new social institution.

A critical examination of all the cross-cultural radio forum studies, described in the previous section, shows that the basic concept of radio forum is the same in all

cultures, and that, theoretically, it would seem to have application in any part of the world as a developmental tool. The six components of the concept of a radio forum are the typical characteristics of an open system, whose specific functions have not yet been systematically investigated. However, there seems to be a general agreement among the mass communication researchers that the main function of a radio forum is the dissemination of a message to a large heterogeneous population, and the reinforcement of the message in such a way as to convince the recipients of the message to internalize it and act upon its content. In the present section an attempt is made to review some important theoretical propositions regarding the effects of mass media with a view to develop a theoretical rationale for the concept of radio forums.

The basic question that has dominated research and the development of contemporary theory of the mass media can be summed up in simple terms - namely, "What is their effect?" That is, how has media participation influenced individuals, in terms of persuading them to believe in new political ideologies, to vote for a particular party, to purchase more goods, to adopt an innovation, or to change patterns of behavior? Propositions concerning the impact of the media on individuals and groups have undergone progressive change. This change has been a continuous and cumulative discovery of important intervening processes between media and mass, that is, between the stimulus and response sides of the S-R equation.

Radio forum has been acclaimed as the most effective method to develop social attitudes, relate knowledge to experience, influence personal values, deepen understanding, reach decision, and plan for action (Wadia, 1960). Neurath demonstrated that villagers can learn via radio farm forums even if they are illiterate. He noted that forum groups showed "an impressive gain in knowledge" for various types of villagers. His observers reported that forums "functioned on the whole very well". They noted that forum experience encouraged participation from all types of audience, the group method of discussion brought with it a learning process in meeting and discussing things together and in decision making, and finally, the discussion tended to bring out into the open a great deal of knowledge that was present in a latent form in the villages. Neurath records that many forums appear well on the way to becoming village institutions which can serve as a tool toward a wider spread and better founded village democracy. Reaction of forum members to the program appeared generally favorable. In spite of all this, the importance of the forum as a means of enhancing informational and motivational values could not be systematically demonstrated.

Educational researchers credit the listening group approach with ability to spread learning of factual material efficiently on a mass basis, to promote the development of desired attitudes, to increase interest in various subject matter areas, and to affect motivation toward group and

individual action. Mass communication research suggests that there is potentially great educational and persuasive power in the combination of broadcast followed by small group discussion. Thus a listening group movement could be an important element in moving toward more direct democracy in an age of pervasive mass media.

Blakely (1954), Vice Chairman of Unesco's International Committee on Adult Education, called the listening group "the most significant method for the purposeful use of audio-visual media for adults". It is an attempt to combine the impact, feasibility, economy, and range of the mass media, on the one hand, with the educative processes of personal participation (exchange of ideas and information, the formulation and testing of conclusions, and reflection) and group discussion into an integrated learning experience.

Schramm (1964) calls the listening groups "uniquely effective (examples of) and the uniquely powerful combination of mass media and related group discussion." He believes that such groups are "potentially of great value in changing group-anchored attitudes and behavior." As such at various times listening group projects have been characterized as a "Broadcast University," "the University of Equals," and "a kind of people's University on an immense scale." Listening groups have also been characterized as representing "a frontal attack on passivity," "the power plants of democracy," and as "the nearest approach to direct democracy in the modern world."

May and Lumsdaine (1965) in their review of mass communication and educational media conclude that given a reasonably favorable situation, a pupil will learn from any medium - television, radio, or film. They believe that this has been demonstrated by hundreds of experiments and the same factors that control the amount of learning from a teacher face to face also control the amount of learning from educational media. Some of these factors are: the relevance and clarity of the content, individual abilities and habits, motivation to learn, attention, interest in the subject, respect and affection for the teacher, emphasis and replication of the central points to be learned, and rehearsal by the learner. Whenever it is possible in an experimental situation to separate out all the extraneous factors, so that a teacher on television, let us say, is compared with the same teacher in the classroom, teaching the same lesson with the same materials to the same or equal pupils, there are almost never any significant differences. According to this view, the technique of radio forum is not great. At best, this theoretical position is not very useful to an action agent because it does not specify the role of the factors associated with the effectiveness of media.

Interpersonal Influence and Mass Media Effects

On the other hand, a central concern of the communication research program at Columbia University has been the relation of interpersonal influence to social effects of mass communication. For ten years after the Erie County study,

the movement was toward deflating the influence of the mass media and inflating the importance of personal influence. Personal influence was found to be more powerful than any other process variable in determining the effect of mass communication. In support of this the Columbia researchers developed the idea of opinion leaders and the role of the group in mediating change, etc. This notion was also supported by studies of the adoption of new products and practices and diffusion of information (e.g., Rogers, 1962; and Coleman and others, 1966). In general, studies of agricultural and medical innovativeness support the idea that mass media and personal influence enter into the decision to adopt, but often the media make the first contact (particularly if easily accessible) and send the reader seeking personal advice. De Fleur and others (1958) also concluded in their information diffusion studies that the effectiveness of mass communication depends in determinable ways on the degree to which the media are linked to interpersonal networks.

Klapper (1960) has summed up 20 years of thinking and research by the Columbia University researchers on the relationship between mass communication effect and personal influence. He says that the mass media which by their very nature tend to support the status quo rather than change, have to work through social processes of interpersonal communication, group norms, and personal influence, and the individual selective processes of attention, perception, cognition, and attitude change. These processes, occurring

together in the crowded competition of social life, have the power to blunt almost any change suggested by an individual communication from the media (Schramm, 1962). It is, therefore, important to consider the effect of media by controlling other factors.

But it must be recognized that behavior patterns of a given individual can seldom be accurately interpreted on the basis of individuals acting within a social context. To explain, predict, or manipulate his behavior, reference must be made to social norms, roles, social controls, and culturally defined or shared values, expectations, and beliefs, which surround action. New definitions can be given to these socio-cultural processes in groups with the use of the mass media. If individuals to be persuaded are members of these groups, it may be possible to give new direction to their overt actions somewhat independently of their psychological predispositions.

For example, when interviewers talked with the people of Erie county (Lazarsfeld and others, 1944), they kept getting somewhat unanticipated answers to one of their major lines of questioning: "Whenever the respondents were asked to report on their recent exposure to campaign communications of all kinds, political discussions were mentioned more frequently than exposure to radio or print." As a matter of fact about 10 per cent more people engaged in some sort of informal exchange of ideas with other persons than were exposed to campaign material directly from the mass media.

It was concluded that informal social relationships play a significant role in modifying the manner in which a given individual will act upon a message, which comes to his attention via the mass media.

Pool's Communist and Non-Communist Communication Theories

Pool (1963) suggests that elites in non-communist countries consider media as ineffective agents of action. It is believed that while media are not effective instruments of constructive action, they have a considerable power to disorient and engender confusion in a society. They generate rising expectations by creating desires for new goods about which their listeners learn. However, they do not thereby generate a willingness to act to obtain these good things. Without an effective organization at the grass roots to provide word-of-mouth support for the messages in the media, the latter do not provide desired action results.

Pool's theory of mass communication for communist countries is more emphatic on the possible negative effects of some messages. Communist propaganda rules require that the agitator always exhort specific actions rather than simply advocate attitudes. The communists think of using the mass media to produce character change and they are aware of the possibility of using the mass media as organizational devices, for they are just an adjunct to political organization. The important thing about a medium is not what it says per se, but the social function of its existence as an institution, and of the statement in it. Media provide an

important activity around which to build organizations. For example, discussion groups around radio broadcasts, etc., involve people deeply in the media. The media give the orders of the day to be carried out in face-to-face organization. Words in the media alone do not effectively change people. It takes a combination of the media and direct personal contact to move people to action. It is only through participation in action that deeply held attitudes are changed. By action, however, these can be changed, even down to changing the basic personality of man. This view justifies the emphasis that radio forum programs received during the last two decades on action.

The integrative approach to the combination of mass media and small groups also received a new shift in emphasis through Back's proposition (Arons and others, 1963) which centers on the situation in which the products of the mass media are received. Back concentrates on the setting for the reception of communication, which he believes is "the crucial point for understanding the impact of the mass media." He defined two situational variables: (1) prominence which is a function of the amount of control which the communicator has over the time and place of exposure, and (2) audience - structure, i.e., the social relations among the members of the audience. The major hypothesis is that the immediate impact of mass communication is stronger the greater the prominence of the communication in the reception situation, and will remain stronger the greater the opportunity for

further discussion in social conditions analogous to the original audience structure. Further, the impact of mass media may also be furthered if the (audience) situation is attuned to the kind of communication suitable for the purpose. Radio forums appear to be high on both of these variables. Their effectiveness should, therefore, be great.

Klapper (1960) also concluded that the multi-media approach, which includes small group discussion, adds significantly to effects in intensity of appeal in offering real and immediate rewards, and in conferring peculiarly high status upon both the media spokesman and his audience. Pye (1963) appears to support Klapper's general findings by saying that the essential characteristics of a modern communication system is that it involves two stages or levels: (1) highly formalized mass media, and (2) face-to-face communication. The critical feature of this system is that orderly relationships exist between the two levels. The better these levels are interconnected, the more can the whole system grow and produce. In the context of modernizing Indian peasants, radio forum offers this alternative.

A critical analysis of the previous radio forum studies and theoretical propositions regarding the effects of mass media leads one to the conclusion that there is neither a coherent theory of mass media, nor is there a theory of the effects of any of the components of radio forums. However, some statements can be made regarding the effects of mass media and radio forums. Mass media effects may be direct or

indirect. Direct effects are those which may be attributed to a mass media message which is not mediated by interpersonal communication, i.e., the receiver is in direct contact with the media. Indirect effects are those attributed to an original mass media source, but which are mediated by a person or chain of persons before reaching the defined target audience. A general finding on indirect effects includes effects on attitudes and knowledge, as with direct media exposure, but considerably greater attention to behavior effects, i.e., changing one's vote or adopting a new farm practice. It is concluded that mass communication would be most effective when it is intimately connected with interpersonal and intergroup communication channels as in radio forums, but there remains opportunities for direct mass media effects on information levels and attitudes.

Among direct and immediate effects which exposure to the media may have upon the individuals, are changes in: attention, saliency, information, skills, tastes, images, beliefs, attitudes and actions. Changes in each one of these may in turn change each of the others: Changes in the information one has may change one's distribution of attention. Yet it is possible analytically to distinguish these changes and to consider the differences in the conditions for each kind of change.

Various experimental and survey results suggest that the mass media operate very directly upon attention, information, tastes, and images. Election studies, for example,

show that the campaign in the mass media does little to change attitudes in the short run, but does a great deal to focus attention on one topic or another (Katz and others, 1955). Changes in skills and attitudes are less apt to be brought about by the mass media operating alone. Usually face-to-face relations with a human being toward whom the learner has considerable cathexis is essential for producing changes in those variables. Psychotherapy shows that to change deeply rooted attitudes requires the development of an intense relationship with a reference person

Persuasion researchers have studied the effects of varying the structure of a persuasive communication (e.g., one-sided or two-sided, or whether it is fear arousing or not) on attitude change. This literature has been given a theoretical orientation by Hovland and others (1953). Many questions remain unanswered, among them problems concerning the relationships between certain aspects of group interaction and the direction and stability of attitude change under the impact of a persuasive communication. For example, most of the attitude change studies have examined the processes and determinants of attitude change from an individual standpoint. These studies have dealt with external appeals directed toward a person and that person's response according to his cognitive and emotional make-up. People do not, however, exist in isolation, and their thoughts, attitudes, and actions are inextricably interwoven with those of the other people around them. In all our daily activities, we

take positions, arrive at decisions, and carry out actions against a backdrop of other people with whom we are involved in a network of responsibility and mutual regard. We believe that getting an entire group organized to do something, aside from being more efficient than individual solicitation, is often more effective. In spite of all this, the existing theories of persuasion and diffusion of innovations see group phenomena largely in terms of obstacles to change, and not in terms of possible tools to be used in achieving desired effects.

Attitudinal Versus Behavioral Change

The diffusion studies usually have time and adoption behavior as dependent variables. While many of these studies have examined how to persuade the citizenry to take specific actions, only a few studies have looked at the role of the media in producing changes in attitudes which appear to be far more important to modernization than are mere changes in action.

This is perhaps an unusual view, for it is common to assume that changes in men's actions are the really important objective and that changes in attitudes are but a means toward the desired actions. We would argue, however, that it is the other way around. A far more significant change would be the development of a scientific attitude toward the adoption of new practices. It is only this kind of internal change in the latent structure of attitudes that would produce self-sustaining movement toward modernization.

Pool (1966) observes that all over the world those individuals and villages that have access to the printed page or radio have more modern attitudes, are more progressive, and move into modern roles faster than those who do not. He suggests, therefore, that the scientific knowledge of developing modern attitude is very important for predicting modernity.

Carnegie (1936) describes his model for change which focuses on the relationship between changer and changee, pointing out that changes in feelings and attitudes are prerequisites to voluntary changes in overt behavior. He proposes that one changes others, first by developing a relationship valuable to the other person and then by using that relationship as a lever for bringing about the change. One does not attack with logic, criticism, and advice. A offers B support, approval, and a permissive atmosphere; having thus established warm, affective bonds (invariably "sincere" bonds, too), A then asks B to change in the way A wishes, while A holds the relationship as collateral. Following Carnegie's previously stated other propositions, the major focus of this investigation is on the study of attitudinal effects rather than behavioral effects of radio forums. It is hoped that the study of predispositional changes would help in developing a more general theory of change than the ones based on behavioral changes.

Why Do Peasants Change More in Radio Forums?

The radio forum's ability to achieve attitudinal change could be seen as a function of several factors. Self-selection of audience groups to consistent messages on a regular basis is the first factor which is likely to reduce the influence of selective processes of perception and retention of mass media messages. Through the constant feedback mechanism among the broadcasters and the audiences, the message would be more interesting, timely, understandable, and practical, all of which are likely to increase greater attendance and involvement of members. In this way the locus of change would be in the individual and the group under the general guidance of the mass media system.

Group discussion and decision is the second most important factor in the effectiveness of radio forums. Group discussion and decision is likely to deepen the understanding of the message, and motivate action on the part of the members. Regular group interaction in the forums is likely to help in developing primary relationships among the members, whose social pressure will induce members to translate group decisions to group actions.

The Lewinian experiment (1947), for example, does not try to bring about a change of food habits by an approach to the individual. Nor does it use the "mass approach" characteristic of radio and newspaper propaganda. The mass approach and the individual approach place the individual in a quasi-private, psychologically isolated situation with

himself and his own ideas. Although he may, physically, be part of a group listening to a lecture, for example, he finds himself, psychologically speaking, in an "individual situation."

Lewin's experiments approach the individual as a member of a face-to-face group. His experience in leadership training indicates that it is easier to change the ideology and social practice of a small group handled together, than of single individuals. One of the reasons why "group carried changes" are more readily brought about seems to be the unwillingness of the individual to depart too far from group standards. He is likely to change only if the group changes. Lecture reaches the individual in a more individualistic fashion than group discussion. If a change of sentiment of the group becomes apparent during the discussion, the individual will be more ready to come along.

Because individuals are members of groups, attempts to change them, particularly when they are members of cohesive groups with relevant norms, are likely to be fruitless unless the groups themselves are attacked. In order to change attitudes and habits, one must work with the existing relevant groups, or create new ones. However, groups have been generally thought to favor compromise rather than bold action. Whyte (1956), for example, argued that team approach in business enterprises leads inexorably to an inhibition of daring and risk taking. Consequently, a recent discovery that group decisions following discussion are consistently riskier

than individual decisions have occasioned some surprise.

In experiments with several kinds of subjects and with payoffs both actual and hypothetical, both positive and negative groups have arrived at unanimous decisions that were riskier than the average of the decisions made by the individual prior to discussion (Kogan and others, 1967). In addition, the individual opinions taken after discussion have been riskier than they were before discussion (Brown, 1965). Wallach and others (1962) believe that the shift to risk occurs because of the diffusion of responsibility that occurs when a decision is made by a group. When one individual has complete responsibility, he is afraid to risk bad consequences, whereas when several persons share the responsibility, they are less afraid. These notions again support Lewin's explanation of his results.

However, research and experience with group methods of working have indicated that they take too much time and too much energy (Strauss, 1963). What we need, therefore, is a cut down in time and boredom. One possible solution seems to be listening to a well organized lecture by an expert on the topic followed by a group discussion and decision on it. This decision would then be more focused and intelligent as has been reported in case of some radio forums. In order to arrive at such practical recommendations we need to re-examine studies by Lewin and Kogan, and their associates to determine the various group factors that are associated with attitude change. This is the main objective of the next chapter.

Summary

A radio forum is conceived as a club of villagers, who wish to listen in an organized way to selected radio programs, which are used as a starting point for group discussion and decision. Its unique elements are input of influence from mass media which are very efficient in dissemination of information, continuous feedback among the forum members and the broadcasters, regularly scheduled group discussion and decision, and follow-up of the decisions. The forum approach is essentially an educational use of mass media to stimulate social and economic development through active participation of members. Emphasis is on developing modern attitudes, relating new knowledge to experience, deepening understanding, and promoting execution of self-help projects.

Although the concept of radio forum received its first substantial flowering in Canada in 1941, it was established as a new social institution in India in 1960, where it has been subjected to several experimental investigations. Our survey of forum studies in Canada, India, Ghana, Costa Rica and several other countries have shown that the concept of radio forum is being utilized in solving several socio-economic problems. Also, its experimental results have shown not only the information gain for both illiterate and literate members, but also the achievement of some new skills such as literacy and the adoption of new farm and health practices. There is some evidence that radio forums are superior to literacy training, animation, newspaper reading,

and radio listening in bringing about innovation adoption and increased knowledge of political events. What we have not yet clearly demonstrated is the efficiency and effectiveness of radio forums in bringing about attitude change which can only justify its cost.

A survey of mass communication researches shows that radio forums should be very efficient and effective in bringing about attitude change because it is an intergration of formalized mass media and interpersonal communication. It is suggested that self-selection of audience groups to consistent messages on a regular basis should eliminate the screening effect of the selective processes of mass media exposure. Intensive participation of forum members in group discussion and decision with some influential peers should result in greater comprehension of the message, and the members' commitment to the group decisions respectively. However, we do not know precisely the nature of these group factors which are associated with the effectiveness of radio forums. This is what we have attempted in the present study.

CHAPTER II
RESEARCH ANTECEDENTS AND HYPOTHESES

The main purpose of this chapter is to present a review of those studies which have reported the use of group discussion and decision methods as a means of bringing about change in a group and its members. An attempt is made to describe briefly those experimental studies of group dynamics, which have compared the group methods to other methods of introducing change, and which are likely to help us in understanding the influence of group processes on the effectiveness of radio forums. The studies have been described under each of the variables being investigated in the present study according to the year of publication. Our main theme is that only when the different specific variables influencing the group discussion and decision processes have been isolated and studied in interaction, will the power of the group method as a way of causing change be fully realized.

In the present chapter we have discussed two small group dynamics research traditions* which, we feel, are highly interrelated and useful in understanding the functioning of radio forums. The first tradition which received substantial

*By a research tradition we mean a series of studies which have quite similar theoretical orientation and research design.

attention during the 40's and 50's of the current century was initiated by Lewin (1947). Its major focus was on introducing new ideas and practices in small groups. The second tradition was mainly concerned with increasing risk taking* behavior. It was started by Kogan and Wallach (1967). Although risk appears to be involved in adoption of any new idea, Kogan and others neither refer to the Lewinian tradition nor do they quote any diffusion of innovations studies. Likewise, the radio forum studies do not make any reference to the Kogan tradition. We are making the first attempt to integrate the three traditions with a view to develop a more meaningful theoretical rationale for the technique of radio forums.

Group Discussion and Decision

Although the effects of group discussion and decision have been studied from the very beginning of the present century, many early investigations had less experimental control than is possible in the laboratory. For example, as early as 1914, Munsterberg reported that individuals' judgements of the number of dots on cards were more correct

*To talk about risk taking is to refer to behavior in situations where there is a desirable goal and a lack of certainty that it can be attained. The situation may take the form of requiring a choice between more and less desirable goals, with the former having a lower probability of attainment than the latter. A further possible characteristic of such situations is the threat of negative consequences for failure, so that the individual at the post-decision stage might find himself worse off than he was before he made the decision.

after participation in a group discussion. While Burt (1920) also found that discussion promoted change, he noted that average effectiveness of the group was not increased. In the present section we review those studies which have investigated the relative influence of group discussion and decision on attitudinal and behavioral change.

Group Discussion and Decision Versus Lecture Method:
The Lewinian Tradition*

Willerman's Study on Decision and Request as
a Means of Changing Food Habits

One reason why group decision facilitates change is illustrated by Willerman's (1943) study concerning the degree of eagerness of members of a students' eating cooperative to change from the consumption of white bread to whole bread. When the change was simply requested, the degree of eagerness varied greatly with the members' degrees of personal preference for whole breads. In case of group decision the eagerness seemed to be relatively independent of personal preference, and the individual seemed to act mainly as a group member.

A second factor favoring group decision, according to Willerman, has to do with the relation between motivation and action. A lecture, and particularly a discussion, may be quite effective in setting up motivations in the desired direction. Motivation alone, however, does not suffice to

*By the Lewinian tradition we mean a series of studies which were influenced by Lewin's theory and methodology of group decision experiments.

lead to change. That presupposes a link between motivation and action. This link is provided by the decision, but it usually is not provided by lectures or even by discussions. This seems to be, at least in part, the explanation for the otherwise paradoxical fact that a process like decision making, which takes only a few minutes, is able to affect conduct for many months to come. The decision links motivation to action and, at the same time, seems to have a "freezing"* effect which is partly due to the individual's tendency to stick to his decision and partly due to his commitment to the group. The importance of the second factor would be different for a student's cooperative where the individuals remain together, for housewives from the same block who see each other once in a while, and for farmers who are in contact with each other continuously. The experiments show, however, that decisions concerning individual achievement, which are made in a group setting of persons who do not see each other again, can be effective.

Lewin (1947) compared the effectiveness of a "group decision" with that of some other methods of changing food habits, and demonstrated the superiority of "group decision" over other methods employed.

By "group decision" Lewin meant "a group discussion about the desirability of a particular action to be taken by

*According to Lewin "freezing" is one of the three phases of group decision, which involves reinvoking psychological forces to conformity to the new norm being introduced.

members of the group as individuals." The discussion always ended with the leader's request for individual decisions regarding intended action. The experiments also focused upon individuals under inducement to reach a personal decision in a group setting, a situation different from one involving collective solutions of group problems in which action decisions have implications for the discussion participants as group members rather than as individuals. In this way Lewin considered group discussion as one of the elements of group decision.

Bavelas' Study of Changing Food Habits

The first of the Lewinian studies performed by Bavelas and others (Lewin, 1947) was directed at convincing housewives to buy and use unpopular foods such as beef hearts. Six groups of Red Cross volunteers organized for home nursing were the subjects. Groups ranged in size from 13 to 17 members. Prior to the experiment, all subjects reported how often they used these foods at home for their family meals. Three groups received attractive lectures on the problems of providing nutritious foods for their families and the difficulties involved due to war efforts. The lecture suggested the use of these unpopular meats and emphasized their value in terms of vitamin content and economy. Another three groups were also presented with the same message, but after a few minutes they were invited to discuss the use of these substitute foods by housewives, like themselves, and to discuss the problems which would arise, such as odors, cooking,

and family acceptance. As in the lecture group, suggestions were offered as to how these difficulties could be overcome.

Following both the lecture and the group discussion, a decision was requested regarding whether or not the housewives intended to change to use of these foods. Both groups indicated a positive and unanimous decision by a show of hands. The discussion group, but not the lecture group, was told that a follow-up check would be made to determine the extent of their compliance with their decision. When the follow-up check was made, it was found that while none of the meats had been served prior to the experiment by any of the women, three per cent of the lecture group and 32 per cent of the discussion group had served them since the time of the experiment. It was concluded that the group discussion and decision method was more effective for achieving change in behavior.

Radke and Klisurich Milk Consumption Study

In this experiment (Lewin, 1947) six groups of women neighbors, each meeting in the home of one of their members, were the subjects. The objective was to increase the use of fresh and evaporated milk above habitual levels. Lecture and group decision methods were again compared. The lecturer and discussion leader in this case was the same individual. He was an expert in the subject area (i.e., nutrition), but not in either of the techniques. After the group discussions, decisions regarding individual action were again requested, and 100 per cent of the members in each of the

three groups indicated willingness by a show of hands. The discussion-decision groups were informed that a follow-up of their action would be made after two weeks, while the three lecture groups were not so informed.

Phone inquiries after two weeks revealed that members of the discussion groups increased their use of both fresh and evaporated milk more than participants in the lecture groups. The difference between the numbers of women who increased their use of either type of milk was significant. A second phone follow-up after an additional two weeks, of which neither group had been warned, showed that these differences were maintained.

Radke and Klisurich Orange Juice and Cod Liver Oil Study

In this experiment (Lewin, 1947) group decision was compared with individual instruction. The subjects were mothers who had had their first baby at a state hospital. The objective of discussion and instruction was to persuade mothers to supplement their babies diet of milk with orange juice and a specified amount of cod liver oil. Seventeen mothers were given instructions in a private meeting with a nutritionist, and asked to reach a decision regarding their individual intentions of following the feeding recommendations.

Phone inquiries reveal that more of the mothers, who participated in discussions, were following instructions than those who had been given individual instructions. This difference was significant. It was concluded that the group

discussion and decision method was superior to either individual instruction or to lecture in terms of achieving permanent change.

Comparison of Lewinian Studies

A critical analysis of the Lewinian studies show that they compared a "decision about individual goals in a group setting" with other approaches. The group decisions in all cases consisted of (1) group discussions, (2) that concluded with a request for decision, (3) yielding 100 per cent positive decisions, (4) which were made public; in addition, the group decision variations included a statement of (5) a specified time period within which the requisite action was to be taken (and after which the experimental effects were measured) as well as (6) the announcement that a follow-up would be made.

The contrasting approaches, lecture and individual instruction, were equal to these treatments only in so far as the same messages were conveyed. They included no request for decision and offered, therefore, no opportunity to the member to assess reaction of others to the influence attempt. Lewin claims that the factor of knowledge of follow-up was controlled, as neither of the experimental groups knew that a second follow-up would be made.

An experiment by Levin and Butler (1952), based on the Lewinian studies offers evidence of follow-up effects. They compared the effectiveness of group decision (against group discussion, concluded with a unanimous decision) and

lecture (without a request for decision) in changing factory foreman's rating behavior. Their study included a control group, and they self-consciously eliminated the variable of knowledge of follow-up. The foreman in all three experimental groups knew, at the time of the influence treatments, that they would be rating their men several days later. This study found significant changes in the behavior of the group decision subjects, slight but insignificant changes in that of the lecture subjects, and no change in the behavior of the control subjects.

One might criticize these studies in that in all of the experiments the group method was used to influence the individual without respect to his further involvement in the group. Most of the individuals involved rarely saw one another again, though group influence may have persisted over time. In other experiments, the group method has been used to change the norms of groups which continue as groups. Bavelas (Lewin, 1947), for example, tackled the difficult problem of changing the informal norms of a work group with respect to productivity. Employees in a garment factory were given the problem of their production standards for group discussion and decision. Two other groups used as control groups also had discussion but were under no constraint to come up with a group decision about a solution. The group which reached a decision about production goals was the only one to increase its productivity. In this way the group discussion and decision method could be effective for both kinds

of groups: (1) groups having no definite norms and (2) groups which have highly developed norms.

Coch and French Garment Factory Study

Coch and French (1948), also working in the Lewinian tradition, employed the method of group discussion to gain acceptance for changes in work methods in the same garment factory where Bavelas had conducted his research. The results of the treatment were spectacular (Katz and Kahn, 1966, p. 399). The control group showed hardly any improvement over its earlier efficiency ratings after the change and displayed hostility towards management, and some members even left the company. The groups in the treatment demonstrated quick relearning, they were returned to their pre-change level within 14 days and showed some improvement thereafter, morale was high, and no one left the company. Coch and French (1948) also ran a second experiment in which they reassigned the members of the control group to new jobs after 32 days. This time the workers were introduced to their new jobs through group participation by arranging group discussions. They responded as the earlier experimental groups had done, with rapid learning, an increase in productivity, and a modification of their previous attitude of hostility to one of cooperation.

The dramatic results of the Coch and French experiment were not replicated, however, when French and others (1960) attempted a similar experiment in a footwear factory. Though more members of the experimental than the control

groups felt that they had had greater influence over the change in work methods than in previous years, there were no significant differences in production as a result of the participation procedures. All groups kept fairly close to the standard level of production. Katz and others (1966, p. 400) report that 64 per cent of the workers in this study said they knew that if they exceeded a certain standard, piece rates would be cut. Thus, this design appears to be faulty. As such this field study does not confirm Lewinian findings cross-culturally.

McKeachie Study of Changing Attitudes of Classroom Groups

McKeachie (1954) contrasted three conditions: group discussions followed by decisions, lectures followed by the announcement of the results of a secret ballot, and lectures with the votes not announced. The effects of discussion in the absence of decisions were not examined. His results indicated that members shifted their opinion in the direction that they perceived the group as a whole was changing toward. That is, a group decision technique resulted in less congruence* of attitudes but greater conformity** to the perceived group attitudes than a lecture. Thus, group decision may be more useful in working with traditional people where we want conformity to a group norm which is not likely to be against the innovation.

* Congruence refers to the relationship between the individual's attitude and his estimated (perceived) attitude of the majority.

**By conformity is meant the individual's tendency to adopt attitudes corresponding to those held by the majority of the group (i.e., the objective group norm).

Allinsmith and Others Study of Group Decision and Study Habit

Allinsmith and others (1949) tried to separate the type of influence attempt (i.e., group discussion and lecture) from the factor of request for decision, which contrasted the reported behavior of three groups exposed to equivalent lectures: one group was not asked to make a decision, and two groups were requested to make decisions of varying degree of specificity. The experimental object was the increased use by students of a self-recitation method of studying. Lectures concerning this type were given to all groups. A "no decision" group was then contrasted with a "general decision" group in which students who intended to make more use of the recommended technique than they had in the past were asked to raise their hands, and to a "specific decision" group in which students were asked to raise hands if they intended to make more specific use of self-recitation than they had in the past. Questionnaire data about study habits were collected before and after the experiment. Students in all groups reported having increased their use of self-recitation. The specific decision group reported the largest increase. The differences in increased use between the groups were not significant, however. In none of the groups were positive decisions made by 100 per cent of the group members. The reported decisions were greater than the actual decisions were made. No definite conclusion could be drawn from this study.

Beardslee and Others Study of Group Decision and Study Habits

This experiment (1950) was a duplication of that reported previously, with a single variation. Information concerning the principle of efficient study was given to a group of comparable students. The instructors in this experiment, however, led a group discussion about the topic. No decision, general decision, and specific decision groups were again contrasted. Decisions were, again, not unanimous.

This experiment yielded results almost exactly opposite to those of the previous one (Allinsmith and others, 1949). While all groups again reported having increased their use of self-recitation, the trend was in the opposite direction, the largest increase was by the no decision group and the smallest by specific decision group. The differences in increased use of the method were not significant, however.

While the Lewinian studies seemed to have indicated that the results of these experiments could be attributed to a large extent, to the factor of reaching a decision, without being necessarily tied to the group discussion technique, the Beardslee and others (1950) study failed to replicate the previous studies. Of course, they employed different populations (housewives vs. students) and were concerned with different topics (food habits vs. study habits) and they also differed in consensus for future behavior (100 per cent vs. less than 100 per cent).

The Allinsmith (1949) and Beardslee (1950) studies focused around a clarification of the first two factors of

Lewin, viz, discussion and a request for decision. Their results seemed to indicate that request for decisions was a crucial variable and that the group discussion technique per se was not an absolutely necessary component of effective group decisions. However, the fact that decisions in these two studies resulted both in significant increases (Allinsmith and others, 1949) and significant decreases (Beardslee and others, 1950) in the desired behavior, left the influence of group decision still unclarified. In a later experiment by Bond (1956) using longer time intervals for the follow-up, however, the superiority of the group method (discussion) over time was again confirmed.

Bennett's Study of Group Factors and Group Decision

Bennett's (1955) point of departure was the efficiency of group decision making in facilitating the change of behavior for ad hoc and restricted purposes, such as convincing a newly assembled and short lived collectivity of young mothers to give orange juice to their infants. In spite of the arguments for Lewinian experiments, she distinguished this ad hoc condition sharply from group decision making which has implications for participants as long-term members of a group rather than as individuals. Bennett was able to investigate the effect of the following factors: group discussion as a means of conveying information, the decision to perform an action, commitment, and the degree of consensus in the group as it affects the action of the members.

Her experimental manipulations attempted to raise the willingness of students to volunteer as subjects in behavioral experiments. Thirty-six groups of 8 to 16 students were assembled, and three groups were assigned to each of the treatments. Common lecture outlines and discussion objectives were used. Leader personality was held constant by assigning each individual to lead one of the three groups in each treatment. Her criterion variable was the intended action of the group members rather than a verbal report.

Bennett's results showed that the group discussion method was not more effective in causing members to carry out an action than was the lecture method. Neither was the discussion more effective in causing a greater number of subjects to make a positive decision, and no more actually carried out the action than those in the lecture method. While the act of making a decision resulted in increasing the probability that the action would be carried out, her study did not show that making a public decision resulted in a greater incident of action being carried out, than when the decision was made privately. A major factor in terms of determining whether the action was to be completed or not was the consensus of the group. Given a high degree of perceived consensus, the probability of the action being carried out was greater than when there was a low degree of consensus.

It was inferred that group discussion as an

influence technique and public commitment were found not to be essential to the reproduction of the previously obtained results of Lewin (1947). The factor of decision and perceived group consensus regarding the direction of such decision have been shown to be as effective alone as the group decision of the Lewinian method.

However, it is proposed that Bennett's results need not imply a blanket rejection of the usefulness of group discussion and public commitment, and that they are not in contradiction with the findings of the Lewinian experiments which typically required complete agreement in the group for a decision, as well as the self-commitment of the individual. The Bennett experiment raises the question of whether the main effects of the Lewinian studies might not be achieved through the lecture method followed by a request for information about individual opinions and a report to the lecture group of what the majority think. The research question is, then, whether the perception of group norms which emerges from a natural process of group listening and discussion is more effective than feeding the group information about the nature of the group consensus. Bennett also suggested that group decision should be defined as decision about individual goals in setting of shared norms regarding such goals. While Bennett attempted to test Lewin's hypothesis more systematically, her conclusions were not very clear.

Bennett's study is criticized on the ground that

her groups were not given problems of salience to the subjects, about which they could work out a solution of importance to them. She also did not take into account other qualitative factors, like the perceived competence of the source of the message, the value of accepting the group decision and group cohesiveness, which appear to be important in interpreting her results.

All those experiments in which group discussion was found to be related to superior results on a selected criterion had combined group discussion with the variable of decision making. When decision making was held constant across all influence attempts, group discussion per se was no longer found to be more effective than the other influence techniques (Bennett, 1952, p. 84).

Lewin (1947) stated:

Of course, there is a great difference in asking for a decision after a lecture or after a discussion. Since discussion involves active participation of the audience and a chance to express motivation corresponding to different alternatives, the audience might be more ready 'to make up its mind,' that is, to make a decision after group discussion than after a lecture. A group discussion gives the leader a better indication of where the audience stands and what particular obstacles have to be overcome.

Two interpretations of this conjecture are possible:

(1) that a decision, regardless of its direction, will be easier to reach after a discussion, and (2) that positive decisions will be reached with greater frequency after a discussion. Bennett's data negate both of these points. Bennett's data have shown that where a request for decision

leaves both alternatives of positive and negative responses open to the subject, a group discussion does not leave the audience more ready to make up its mind than does a lecture. Group discussion also failed to emerge as a more effective inducement to action than lecture or than no influence at all, in Bennett's study.

Pennington and Others Study of the
Effects of Decision and Discussion

This study (1958) is often cited in refutation of Bennett's findings. It examined some differential effects of group decision, group discussion, and their interaction on coalescence, change, and effectiveness. Twenty groups of five subjects each were assigned randomly to four treatment categories. Each subject ranked privately 10 sets of five cities in the order of population size twice. Five groups discussed the problem for three minutes, reaching a group decision announced by one of the members.

Another five groups did the same but announced no group decision. Another five groups engaged in an irrelevant task for two minutes and voted secretly on the true rank of the cities, after which the votes were counted and the group decision was announced. The remaining five groups had neither any relevant task nor any discussion and decision. The results indicated that coalescence (or the increase in agreement among members of the group) was increased by group discussion, by group decision, and most of all by the combination of both treatments. Change of opinion was significantly greater for the group permitted either discussion and

decision, although the effect was much less pronounced with group decision alone. Again, greatest change occurred when both were permitted. The effectiveness (the difference between initial and final accuracy of each member on ranking of cities in order of population size) was greater under decision and/or discussion treatments than when neither was permitted.

The Pennington study supports earlier findings concerning the efficacy of both group participation and group decision-making. The discrepancy with Bennett's (1955) results may be the consequence of differences in subject matter and criteria. Also Bennett measured propensity to act which is different than opinion change. However, the findings are consistent with the assumption that changes and effectiveness in groups primarily result from interaction among the members. They also tend to substantiate the deduction that clarifying the group decision implements the effects of more extended interaction. The Pennington study shares most of the criticism of the Bennett's study. The Pennington study is weak in choosing a very ordinary topic for discussion, and a quite different type of criterion measure, both of them being drastically different from those of Lewinian and Bennett studies.

Lewin's Interpretation of His Results

Lewin interprets his experimental results in terms of his field theory and discusses the difference in effectiveness of his treatments as being due to several factors.

He theorizes that (1) group discussion leads to greater involvement by group members in the subject matter by virtue of their active participation in the discussion, and a reduction of their resistance to change caused by focussing the discussion on "housewives like themselves" rather than on the discussion participants themselves. This minimized resistance to considering the problems, and increased possibilities of evaluating the issue in an objective manner. He postulates further, (2) that in the course of influence attempt two alternatives of action (i.e., to serve or not to serve particular foods) seem available to the subjects. The act of decision, he believes, causes the positive alternative to become dominant by reducing the potency of the other to zero. The fact that decisions were reached unanimously (3) and indicated publicly (4) (the unanimity being, thus, visible to all group members) serves, according to Lewin, to change the participants' perception of existing group standards. Lewin believes that when the influence attempts are concerned with changing the level of group action, as well as when the introduction of a new behavior pattern is involved, individual action is partially based on his belief that he/she is doing what others are doing to be acceptable to them.

Thus, Lewin refers to two major concepts, (1) involvement and (2) group pressure. Lectures leave their audience passive and unpressed by the group, while discussions are both active and pressing. The major factor conditioning

the success of group discussion and group decision in changing group norms and individual behavior is the significance of the decisions for the people involved. Another reason for the efficacy of the group method is the involvement of people, the degree to which people can work out problems of importance for themselves and make decisions about their own fate. People are generally more involved in solving their own problems of making a living and doing interesting work. The group method must, therefore, offer something of importance to them for decision making. Discussion and decision about problems of importance invoke powerful individual forces of self-expression and self-determination. Not only are people discussing important matters, but each individual is also given a chance to express his own views and persuade others, which are likely to be more satisfying than obtaining ideas from others as in a lecture session. The radio forums provide such opportunities to Indian farmers. Hence, we expect to replicate Lewin's findings in these settings.

The procedure of group decision in Lewin's studies follows a step-by-step method designed to secure high involvement and not to impede freedom of decision (to adopt or not to adopt a new food). Thus, a decision by an adopter means the potency of one alternative has become zero or so decidedly diminished that the other alternative, and the corresponding psychological forces dominate the situation.

Lecturing may lead to a high degree of subject

interest. It may also affect the motivation of the listener. But it seldom brings about a definite decision on the part of the listener to take a certain action at a specific time. A lecture is thus not often conducive to decision as is even the group discussion sometimes without group decision. All of these arguments against lecture method should be valid for group listening from radio, even with several qualifications, because radio does not have the personality influence of a lecturer. Lecturing influences just one of the human senses directly.

Coch and others (1948) saw resistance to change as partially a function of individual frustration and partially of strong group generated forces. Their methodology, therefore, was to provide opportunities for need satisfaction and to corner the group forces and redirect them toward desired change. But one wonders what would have happened if the change being urged just did not seem like a good idea to the "smaller-more intimate" work groups of Coch and French's "total participation" condition. It seems that these studies wrestled rather effectively with questions of affect and involvement, but avoided the key variable of power. If the initial lecture and discussion material comes from a radio broadcast, then this possible confounding effect of artistry of the lecturer could be eliminated. This confounding effect might be responsible for the lack of replicated results of Coch and others cross-culturally.

Two basic assumptions in the original Lewinian

method of group discussion and decision are not always made explicit but have profound implications for the radio forum: (1) the technique has been essentially limited to the peer group, to people who come together as equals with respect to authority and status, and (2) people come into group because of common interests of their own and not as representatives of other groups. They can disagree or even leave the group, without ramifying consequences. The dynamic of the peer group is in contradiction to the hierarchical principle. If authority or status figures of an Indian village are present, the spontaneous interaction of group members is likely to be inhibited. People are less free to work through their own feelings and ideas, and the resulting group decision may reflect less of their own constructive solutions and produce less internalization. This may be especially true in a peasant community.

The second assumption has received even less attention in the Lewinian method of change, which has been little concerned with the distinction between people playing formal roles and people acting as individual personalities. In many group situations, however, people represent differential interests and wishes of their constituents, or in some fashion serve as role representatives of other groups. We do not know, therefore, the generalizability of the Lewinian findings to such groups which are elected or nominated (as is the case in radio forums sometimes).

Let us now review the studies of another tradition

of group dynamics to find out the relative influence of group discussion and decision on risk taking behavior and to compare them with the Lewinian studies.

Kogan and Others Study on Group Decision and
Risk-Taking

The more recent studies of group decisions seem to have been reduced to the investigation of Kogan and others' (1967) "risky shift" phenomenon that group decisions are riskier than the average of decisions made by the individual members. The phenomenon is reminiscent of the older work on deindividuation by Festinger and others (1952) in which they found that a person was much less conservative in revealing himself in a group situation than he was when alone. Kogan and others demonstrated that group discussion of risky decisions results in the acceptance of greater risks than are accepted when the same persons arrive at their decisions on an individual basis.

Wallach and others (1965) suggest a diffusion of responsibility explanation of the risky shift phenomenon suggesting that full group participation and involvement in the decision process partially absolve the individual for possible failure. Direct support for this position is provided by Bem and others (1965). In another study Wallach and others (1964) found that while creation of responsibility for others in itself leads a person to become more conservative, creation of the same responsibility for others in a situation where discussion to consensus ensues with these

others leads to a strong shift toward greater risk-taking.

The diffusion-of-responsibility hypothesis contends that "the affective bonds formed in discussion ... may enable the individual to feel less than proportionally to blame when he entertains the possible failure of risky decision" (Wallach and others, 1965), thus leading a group to accept greater risk than an individual decision-maker who is presumably deterred by his greater feeling of responsibility for possible failure. Thus, responsibility for others coupled with group discussion and its opportunity for sharing of this responsibility not only overcomes the conservatism that results when such responsibility is created without the opportunity for discussion, but also adds a considerable push toward taking more risk. Further, Kogan and others (1967) propose that individuals are willing to assume greater risks in a group context because responsibility for failure of a risky course can be shared with others. It is suggested that group interaction concerning risk taking seems to promote the kind of affective interchange among members that would be expected to facilitate responsibility diffusion.

Brown (1965), on the other hand, attributes the risky-shift effect to a combination of valuational and informational processes. Individuals prior to interaction with others assume that they are as high risk takers as anyone else in the group. During group discussion some of the group members discover that there are others who are more

strongly inclined toward risk taking relative to one's own position. By virtue of this information exchange and the value placed on risk taking, the relatively more conservative ones find that they are not taking as much risk as they had presumed so they become more risky. In Brown's (1965, p. 702) words: "The content of the discussion, the argument pro and con, are of no importance by this theory. It is the information about other people's answers that makes individuals move toward greater risk after group discussion."

It is difficult to reconcile Brown's interpretation with results obtained by Wallach and others (1965) in a direct test of the Brown position described previously. That study included a condition in which subjects received explicit information about one another's choices, even though there was no group discussion. This was accomplished by means of a public balloting procedure in which subjects participated in as many successive rounds of balloting as were necessary to achieve consensus. According to Brown's view of the matter, a condition propitious to the occurrence of a risky shift had been created experimentally. Yet the findings of Wallach and others (1965) indicated that the foregoing consensus-without-discussion condition produced an averaging effect rather than enhanced risk taking. Such evidence clearly casts doubt upon Brown's interpretation.

In a subsequent experiment (Kogan and others, 1967) complete information about the views of other group members was provided by having subjects listen to tape recordings of

actual group discussions. While listeners showed risky shifts, they were considerably smaller than those displayed by the interacting groups themselves. Hence, even provision of complete information about others' views is not sufficient to account for the risky shifts produced by group discussion. This view also rejects Bateson's (1966) suggestion that the risky-shift effect may arise simply from increasing one's familiarity with what is discussed. Bateson noted that familiarity with the discussion materials was as great among the listeners as among the interacting groups, and yet the interacting groups showed a stronger risky shift than the listeners. Evidently there is something more in group discussion which cause the risky-shift effect than is contained in Brown's (1965) hypothesis.

Are there critical events taking place in the group decision making processes that unleash riskiness or inhibit conservatism? Wallach and others (1965) suggest that groups move toward enhanced risk taking because the members are able to pool their cognitive resources toward more national account of the probabilities and desirabilities involved in the various decision alternatives. When we examine group discussion to consensus more closely, we find that it possesses at least three distinguishable components: provision of information about others' judgement, group discussion, and achievement of consensus.

In group discussion to a consensus, information about other group members' reactions becomes available to a

person, concerning the pros and cons of the issue by his peers, thereby possibly permitting him to make judgemental comparisons with his own initial level of preferred attitude. The presentation of this information concerning changing levels of attitudes of others thus may serve to tell the subject that other individuals are willing to change more than he might have anticipated. As a result, the subject himself might change. Upon this interpretation, then, the group effect, with its presumed spreading of personal responsibility, arises from the construction of a frame of reference regarding the attitudes favored by others. The active causal ingredient in the situation is the comparison of one's individual decision with those made by the group members. If this is the case, then neither group discussion nor group consensus is a necessary causal factor; rather, they constitute means for providing each member with information that permits him to compare his decisions with those made by his peers.

It is possible, on the other hand, that the necessary causal element consists of group discussion in itself. The fact that such verbal interaction serves as a vehicle for disseminating information may be incidental. Diffusion of responsibility for change may be carried only or especially by actual discussion, with the affective give-and-take which arises from face-to-face communication. Emotional involvement of the kind that discussion can create may be the precondition of change on the part of the group.

Meaningful psychological contact with others may require such discussion, and diffusion of responsibility from one person to others may be possible only if contact of this kind has been established.

What transpires psychologically in a discussion concerning the taking of risk? Some people may say that by involving more than one person, a better decision will be made than if the individual is left solely to his own devices. It can be argued that groups exercise a "check-and-balance" function over the individual, or that groups will be more rational, critical, and judicious than the individual; or that groups will be better informed than the individual; or even that certain kinds of groups can stimulate greater imaginativeness than would be present for an individual. Others might say that group decisions will be inferior to those that individuals would make by themselves. One can say, for instance, that group decisions will be more conventional and cautious because no one in a group is willing to support a novel idea that may be wrong; or that group decisions will be less thoughtful and judicious because the members feel less responsible personally and less accountable for mistakes than if they made the decision alone. Thus, there are several possible relationships between the individual and the group decisions, which are described below.

Group Decisions as the Average of the Prediscussion Individual Decisions

The possibility that group decisions represent an average of the individual decisions is consistent with the popular view that groups exercise a "check-and-balance" effect with respect to the ideas of any individual member. According to such a view, those recommendations which deviate more extremely from a middling degree of risk taking will meet with the most objections from group members. Experimental results can, in fact, be cited that support this view (e.g. Schachter, 1951; and Cartwright and others, 1960, pp. 165-341). These studies report that attempts by group members to bring about concession and compromise are directed most strongly toward those members whose original decisions are most deviant from the group's central tendency. As the opinion of a deviant member is perceived to move toward the group's central tendency, the amount of communication directed toward him decreases. If such a principle operates in setting a group's preferred level of risk taking, the outcome patently should be an averaging effect (Kogan and others, 1967).

Group Decisions as More Conservative Than the Average of the Prediscussion Individual Decisions

It is suggested that the outcome of group discussion may not be an averaging effect but rather enhanced conservatism, which can be described in terms of greater deliberation, care, and self-criticism in fashioning a group product. In a study by Barnlund (1959), for example,

involving the drawing of logical conclusions from given arguments, syllogistic solutions reached by a group discussion to consensus were more often correct relative to performance on comparable problems of the best members of these groups as individuals or relative to the performance of "synthetic" groups formed by the combining of individual scores. Barnlund commented as follows regarding the reason for this outcome: "Knowledge that one's opinions were to be shared publicly made group members more cautious and deliberate in their own thinking. The necessity of explaining a conclusion forced many students to be more self-critical" (p. 58). And again: "Group discussion was found to stimulate more careful thinking, to lead to a consideration of a wider range of ideas, and to provoke more objective and critical testing of conclusions" (pp. 59-60).

Schein (1965), in summarizing the significance of various studies on group discussion, put the previous general point this way: "In a group setting, errors of judgement are more likely to be identified before action is taken than if the individual is attempting to think through all the alternatives himself!" (p. 79). The usual interpretation of the preceding quotations is that groups, because of greater care and self-criticism, will be more conservative than individuals.

Whyte (1956) argues that groups may produce decisions of a quality inferior to those of individuals precisely because the group situation engenders conservatism. The greater self-criticism that a person may show when in a group

setting can be described in terms of a fear of appearing foolhardy in front of others. While group discussion may help to eliminate error, it also may lead the members to censor their more unusual ideas prematurely.

Group Decisions as More Risky than the Average of the Prediscussion Individual Decisions

It has been suggested that some kind of group interaction can produce bold and imaginative solutions to problems. The group can engender and support radical new departures that no single individual would have been likely to suggest. The implication is that a willingness to tolerate greater risks of being wrong arises from the group atmosphere that provides the context within which work proceeds, which emphasizes the value of group process - the interactional give-and-take among the participants. In considering how the problem-solving group under study minimized the subjective cost of error and encouraged wild hypotheses, rejection of ideas should take place within a framework of abiding warmth and mutual regard. However, the evidence on this issue is conflicting (Thibaut and others, 1959, pp. 267-268), which is also the case in the Lewinian tradition.

Hunt and others (1960) report an experiment comparing individual decision making with that by three-person groups engaging in discussion to a consensus. No difference was found between the individuals and the groups in the riskiness of the decisions made. Such a finding is consistent,

therefore, with the averaging hypothesis. It should be pointed out, however, that the group interaction was quite brief - fifteen minutes in length. It can be argued, therefore, that the averaging effect may be a function of the insufficiency of the group interaction situation.

Direct verbal confrontation in a group discussion seems to offer the possibility of affective interdependencies which lead individuals to feel linked, to at least some extent, in a common fate. Such a sense of connectedness seems to depend crucially on the element of discussion, and very little on the factor of consensus. Not only is consensus unable to change without discussion, but consensus adds little to the causal effectiveness of discussion in producing such a change. The process of group interaction carries in itself considerable inducements toward the attainment of consensus. Discussion may itself produce the operation of interpersonal influence processes, even in the absence of an explicit consensus requirement and even though opinion diversity has been encouraged.

The origin of change seems to lie, therefore, in emotionally tinged interpersonal connections and attempts at influence which inhere in face-to-face discussion. A consensus requirement has little force if it is not rooted in full-fledged discussion, but on the other hand, it seems to emerge as a natural implication of such discussion. It is the affective bonds formed in discussion that may enable the individual to feel less than proportionally to blame when he

entertains the possible failure of a risky decision.

While the previous analysis of the Lewinian studies suggests the superiority of group decision to other methods of change, the studies on risky-shift phenomenon appear to be more conclusive in favor of group discussion as an influence technique. Also, Lewin offered a tentative hypothesis, stating that participants in a group discussion will be more ready to make a decision than will a lecture audience. He suggests that this hypothesis, in order to be maintained with any certainty, should be subjected to experimental appraisal. Lewin, however, does not clearly separate the influence of factors of group discussion, and request for group and individual decision. We propose to test this hypothesis by comparing a "no decision" group with other types of decision groups. So our hypotheses regarding group discussion and decision making are:

- H₁: Group listening followed by group discussion is more influential* than the group listening alone.
- H₂: A request for a group decision is more influential than the absence of such a request.
- H₃: Group listening followed by group decision is more influential than the group listening without the group decision.
- H₄: Group discussion followed by group decision is more influential than the group listening followed by the group decision.

*Influence is defined here as change in a person's cognition, attitude, or behavior, which has its origin in another person or group. In many cases of social influence, the changes that result involve dependence upon the source of influence, the influencing agent.

To ask a group to achieve a consensus concerning attitude change is to provide a request that may influence the type of commitment made by the group members. The requirement that a consensus be reached may engender a feeling of commitment from the group members to the group as a unit. Such an increased sense of commitment to the group might well constitute the relevant factor behind the attitude change effect, or at least a contributory factor; that is, diffusion of responsibility might be fostered or even initiated by a recentering which lifts decisional responsibility from the individual and places it squarely upon the group as a whole. A consensus requirement could well be one factor that would operate to increase an individual's degree of involvement with the decision making of other group members relative to his degree of reliance upon personal judgement. This emphasizes the value of commitment and consensus in attitude change. When the individual steps out of the group setting and is subjected to other sources of influence, he may not act on his newly acquired beliefs and attitudes unless they have been structured with a commitment to specific forms of behavior.

Commitment

Commitment has been defined in several ways. Etzioni (1961) considers it of two types. The first is moral commitment which is based on internalization of norms and identification with authority. The other is social commitment which is dependent upon sensitivity to pressures of primary

groups and their members. Lewin's conceptualization of commitment is similar to Etzioni's definition of social commitment. Bennett (1955) refined Lewin's conception of commitment and defined it as the degree to which a decision is indicated publicly. She hypothesized that a more public commitment to an action decision would be more effective in assuring the execution of the action than a less public one.

Brehm and Cohen (1962) defined commitment as the degree of voluntary choice to engage in a pattern of behavior. In their experimental studies they found a greater degree of attitude discrepant behavior under experimental conditions of voluntary choice. They attempt to elaborate the theory of cognitive dissonance by suggesting that some kind of commitment on the part of subjects is necessary for dissonance. However, none of these authors clearly defines this concept and its role in attitude formation and change.

Becker (1960, p. 33) defines commitment as being engaged in consistent lines of activity which persist over time, and which are seen by the actor as directed toward the same goal. Other feasible alternatives are rejected. The individual is in a position in his decision through his own prior actions and that the committed person is aware of the fact that he has acted in such a way to implicate other interests which have ramifications beyond these particular interests.

From this review, it is clear that the different authors have emphasized different aspects of the concept of

commitment. We define commitment as the decision to engage in a particular line of action which is considered to have the most favorable or the least favorable consequences. It is suggested that this kind of decision is dependent not only on the antecedent characteristics of the respondents and their attitudes, but it is also based on the perceived contingencies surrounding the consequences of behavior as in a radio forum discussion session. If each decision is announced publicly in presence of other group members, we classify it as public commitment. If the decision is taken silently without others knowing, we classify it as private commitment.

After a discussion has reached a kind of consensus, the group norms become clear and psychologically real to the members. Since the group has to aim at a decision if it is to be successful, members have to reach a point of crystallization in their own thinking and hence a self-commitment on the issues. The self-commitment embodying a group decision is a public commitment. For example, at the end of the group discussion, all members may be asked to stand up and be counted. This public visibility of their individual position helps to freeze the outcome of the group process. Public commitment should be even more potent in a group with a continuing life in which members mutually reinforce one another, as in a village.

Although commitment was not isolated clearly by Lewin, it is felt that such a variable might have been

involved in the dynamics of demonstrated effects. Since individual group members' decisions were always indicated publicly, in the presence of the leader and the group, it is suggested that a feeling of responsibility for carrying out a promise which had been witnessed by others might motivate the behavior of some of the subjects in the experiments, and hence also corresponding attitude change might occur.

Bennett anticipated differences between the expression of attitude (Lewin's verbal intention for action) and overt behavior (actual action). So she introduced various levels of commitment in her theoretical analysis and experimental design. But she did not find this variable of any significance in reproducing Lewin's results.

However, different degrees of efforts or commitment to an innovation are usually found among farmers, particularly in developing nations, after they have superficially or partially adopted it, due to varying degrees of their internalization of its value. Thus, if a program of change is to operate successfully, it must have a high degree of commitment from its recipients for a high degree of permanent change.

McGregor (1967) suggests that human response to information about performance varies with commitment to goals. He postulates that human beings will direct their efforts, exercise self-control and responsibility, and use their creativity in the service of goals to which they are

committed. To him the managerial task is to help the organization achieve and maintain high commitment.

Among conditions that must obtain if attitude change is actually to follow the behavior, Brehm and others (1962) stressed the role of psychological commitment to engage in the behavior. That is, the expectation of attitude change need not hold for the individual who is purely and simply coerced into an undesired activity. There must be some point of consent or personal commitment to take on the activity, even though the behavior is one that the individual would never have chosen if left to his own devices. The similarities between this kind of commitment and the public commitment in the group decision studies described earlier are quite obvious, and it seems likely that similar mechanisms contribute to attitude change.

In a study of inter-race relations, Fendrich (1965, p. 189) proposed that the best single determinant of overt behavior was commitment to future behavior in inter-race relations. The commitment scale items were structured to imply the definite possibility of future interaction with Negroes. In order to measure overt behavior, a series of small group discussions were organized. These discussions were designed to improve inter-racial understanding. The extent of wanting to become involved in improving inter-racial understanding was used as a measure of overt behavior. Commitment toward future action appears to account for more variation of the expression of overt behavior than attitude

toward race relations in his study. It is, therefore, conceivable that commitment must result in attitude change of the subject just as behavior change does.

We, therefore, suggest the following hypotheses:

- H₅: Under the private commitment condition group listening followed by group discussion is more influential than the group listening alone.
- H₆: Under the public commitment condition group listening followed by group discussion is more influential than the group listening alone.
- H₇: Public commitment is more influential than the private commitment under both the group listening, and the group listening plus group discussion conditions.

Group Consensus

In every group, a decision-making apparatus must be agreed on for its effective functioning. Whether it be consensus, majority rule, or unanimity, there must be some rule for the group to make decisions. Consensus means that everyone in a group feels that the group understands his position and his feelings about it; and he feels, then, that the group should take a particular course of action even though he does not personally agree. If the individual is not allowed to voice his own feelings and reasons for voting against the particular issue, he will, at least unconsciously, resist the efficient functioning of the group from that point on. If consensus is not required, decisions can often be made more quickly (e.g., by majority rule, but delay will probably result, due to the unacknowledged members having

various ways of resisting once the decision has been made and the action is undertaken). A social group may have as their goal simply staying together without friction; or deciding on a course of action. Such agreement without the formality of voting is referred to as perceived consensus.

Consensus is the result of careful interpersonal communication in which members subordinate some of their personal feelings and desires to demonstrate facts or necessity. The basic idea is that some personal preferences must be surrendered to the welfare of the group. The minority must not sulk in silent opposition. It must be reconciled. The final agreement must include the ideas of all. If a member can not accept the consensus, he may have to leave the group. Even if he did not agree totally he would have to accept the fact that the consensus defines the group's "culture". Thus group consensus may be perceived by the group members in a discussion or it could be determined by some objective procedure like voting.

The Lewinian group method presumes a solution which integrates rather than compromises the needs of the members; hence the demand by Lewin that the final decision be unanimous. With the representative or even a self-selective group, the usual requirement is a majority vote and the commitment of the minority to abide the majority decision until the next round of decision-making. As such the democracy of the Lewinian small group discussion and decision is not directly applicable to systems composed of many

subgroups with distinctive functions, values,, and interests, as in an Indian multicasite village radio forum.

Bennett (1955) hypothesized that a high degree of consensus in a group regarding intention to act would raise the probability of action by individual group members. She found that where a decision request yielded a high proportion of positive decisions and where members of the group perceived this high degree of consensus the data showed some probability that members would (1) carry out the action themselves, or (2) report having done so, more often than members of groups with smaller proportions of positive decisions. Based upon this and other evidence, Bennett concluded that the combination of the process of making a decision and the degree to which group consensus is obtained and perceived was alone capable of generating differences as large as those reported in the classic experiments of Lewin.

What Will be the Effect of Requesting a Group to Discuss a Topic Until a Consensus Has Been Reached?

The general finding regarding the influence of group consensus on individual risk-taking behavior, first noted by Stoner (1961), is that group consensus decisions tend to be riskier than the mean of the preferences of the individuals who make up the group. This finding, although seemingly at variance with popular conceptions of the cautious, unadventurous nature of groups (or their leveling effect), has been replicated by Kogan and others (1967), who

have shown that the risky-shift effect occurs when individuals are retested after the group discussion, and obtains even when no consensus decision is required. They also contradict the general belief that groups are more reserved and conservative in behavior than individuals (Whyte, 1956). Kogan and others (1967) also report that making a person responsible for the consequences that he and the rest of the group will experience leads to an even stronger risky-shift as a result of group discussion than takes place when he is responsible only for himself, and that responsibility for others without the opportunity for discussion leads, on the other hand, to enhanced conservatism.

When group members discuss an issue until a consensus is achieved, the outcome of the discussion is apparent to all. The level of risk that the group decides to accept is a quite explicit matter, reflected in the fact of a consensus. Wallach and others (1965) report that the consensus itself is not necessary factor in generating a risky shift. Further, the degree of risky shift obtained after discussion without a consensus requirement was about the same as that obtained under discussion-to-consensus conditions. Thus, the give-and-take present in discussion seems to be sufficient to produce the risky-shift phenomenon.

On the contrary, Bennett's post hoc and rather scanty evidence shows that objective consensus was found inferior to perceived consensus in obtaining individual action. There is a good deal of evidence that individuals

in an audience are influenced in their reactions to the persuasive message by clues as to how others are responding (Newcomb and others, 1965). Thus, perception of others' responses to a message not only can influence attitude change, but will do so more or less according to perceived attitudinal similarity between self and audience. It is likely that such influence was one important element that strengthened attitude change in some early experiments on group decision by Lewin and his associates. McKeachie (1954) found that his subjects shifted opinion in the direction they perceived the group as a whole was changing. The following hypothesis is, therefore, suggested:

H₈: Group listening followed by group discussion under group consensus condition is more influential than that under the public commitment condition.

Summary

Our review of some important experimental studies has revealed that there are two highly interrelated traditions of research in group dynamics which are very useful in understanding the effectiveness of radio forums. The first tradition was initiated by Lewin in his efforts to change food habits by group methods. The second tradition is the product of more recent studies of risk-taking by Kogan and Wallach. Both the traditions have investigated the influence of group discussion, decision, and consensus. However, none of them is conclusive regarding their relative influence. The following are the major conclusions of the review.

Group Discussion

Group discussion as an influence technique is superior to individual instructions, lectures, group consensus, or any other informational exchange technique without the interpersonal or face-to-face group interaction such as tape-recorded or video-taped presentation of the content of the discussion. Although there is general agreement regarding the superiority of group discussion, there is no consensus as to why it is so. The following are some of the arguments:

1. Group discussion members are able to pool their cognitive resources which lead to a consideration of a wider range of ideas which then may provoke more objective and critical testing of the several alternatives of an issue. In this way errors of judgement are likely to be reduced.
2. A group discussion gives the group leaders and followers a very good indication of the position of group members on each aspect of an issue and of particular obstacles which have to be overcome by them in order to achieve the group goal. Thereby they can get an idea of group consensus on the issue.
3. The informational exchange or the give-and-take group process prepares its members for very intelligent and positive group decisions which have an increased probability of translation into actions by the members.
4. Direct verbal confrontation among the members of a discussion group seems to offer the possibility of affective

interdependencies and emotionally tinged interpersonal bonds that can encourage very intensive involvement and participation such as is not possible in a lecture. These bonds might enable group members to try unusual risk and departures from group norms.

5. Group discussion offers powerful individual forces of self-expression and self-determination, since each individual can express his views, persuade others, and thereby exercise his rights as an individual.

The most serious disadvantage of a group discussion is that it is relatively more time consuming than a lecture, and that under some conditions it may lead to greater conservatism and lower quality judgements than those of the more intelligent individuals. It can censor an unusual judgement even though it may be right. However, we do not know the frequencies of such effects.

Group Decision

1. Group decision is generally more influential and of better quality than the average decisions of its group members. It is also superior to a lecture method, group discussion, and consensus in bringing about attitude change.

2. Group decision links motivation aroused by the group discussion to action. Group decision demands a kind of social commitment from the decision makers, which tends to make the decision makers generally responsible for the execution of the decisions.

Without a thorough group discussion group decisions

can be more conventional and cautious because no one in a group is likely to support a novel idea that may be wrong or that might make him the target of group ridicule. It is also felt that group decisions could be less thoughtful and judicious because the members feel less responsible personally and less accountable for mistakes than if they make the decisions alone. Our major conclusion is that group discussion and decision are very powerful techniques of attitude change.

Commitment

It is the decision to engage in a particular line of action which is considered to have the most favorable or the least favorable consequences. If a decision is announced publicly we classify it as public commitment which might induce a feeling of responsibility for carrying out a promise and a corresponding attitude change toward the issue. Although Bennett's (1955) results negate the previous proposition, Fenderich (1965) maintains that commitment may be the single best determinant of overt behavior.

Group Consensus

Group consensus means a general agreement among the group members regarding the outcome of a group decision. It could be perceived or objectively determined by the group members. One of the main functions of a group discussion is to give an opportunity to the group members to estimate group consensus on the issue. While Bennett reports consensus to be one of the two important factors for

obtaining Lewin's results, Kogan and others do not think so.

In this way our review reveals that there is a substantial disagreement in the literature on the relative influence of the various group factors on attitude change. Most of these findings have quite limited generalizability because of ad hoc choice of issues, sampling procedure, and faulty research designs in one aspect or the other.

We, therefore, propose to test the following hypotheses:

- H₁: Group listening followed by group discussion is more influential than would the group listening alone.
- H₂: A request for a group decision is more influential than the absence of such a request.
- H₃: Group listening followed by group decision is more influential than the group listening without the group decision.
- H₄: Group discussion followed by group decision is more influential than the group listening followed by the group decision.
- H₅: Under the private commitment condition group listening followed by group discussion is more influential than the group listening alone.
- H₆: Similarly, under the public commitment condition group listening followed by group discussion is more influential than the group listening alone.
- H₇: Public commitment is more influential than the private commitment under both the group listening, and group listening plus group discussion conditions.
- H₈: Group listening followed by group discussion under group consensus condition is more influential than that under the public commitment condition.

CHAPTER III

METHODOLOGY

The principal objective of the present study is to examine and explain the variation in the effectiveness of radio forums. Therefore, an experimental design involving independent manipulation of several communication and social psychological factors under controlled conditions was executed in four Indian villages during the month of April, 1968. This chapter describes the reasons for selection of an after-only design, the four villages, the topic of discussion, methods of data collection, and operationalization of the concepts.

The Field Survey vs. Laboratory Experimentation

Two quite different types of research designs have traditionally been utilized in communication research: (1) the field survey, consisting of data gathering from respondents in the field so as to obtain measures of their attitudes and behavior, which then may be correlated with other variables, and (2) the laboratory experiment, consisting of a controlled exposure to a communication message whose effects are evaluated in terms of the amount of change in attitude and behavior, in which subjects are sometimes studied before and/or after exposure to the message.

There are shortcomings and advantages of both laboratory and field survey approaches (Hovland, 1959). For example, the laboratory experiment provides the possibility of controlling on all unwanted variables, while the survey allows one to generalize his findings with greater confidence. The small group researchers, however, were the first to realize the serious limitations of a laboratory experiment. They have, therefore, started a new design which have the unique advantages of both the laboratory and survey methods. This new design is called the field experiment, which literally means conducting an experiment in the field, rather than the laboratory. In this new design, the before and after measures are usually made via survey methods, and some unwanted variables are usually controlled by the statistical methods at the time of data analysis. We have greater confidence in findings through this new design because of the natural settings of the experiment and possibilities of better sampling procedures. It is because of these reasons that researchers in diffusion of innovations have found this new design very useful and they are employing it in several cross-cultural studies. Our study may be considered a field experiment primarily because of the natural settings in which it was conducted, and the survey method of data collection it employed.

Before-After Design vs. After-only Design

The most commonly used technique for assessing amount of attitude change in response to persuasion is the

before-after design, in which a measuring instrument is administered both prior and subsequent to the presentation of persuasive material. The differences between the individuals' scores are then averaged to determine whether the subjects as a group have been influenced. Solomon (1949) considers this design far from perfect primarily because of the possibility of an interaction between the pretest and the experimental manipulations. Whatever difference there is between the experimental and control groups may be due to the experimental manipulation and the pretest. For example, the pretest may commit the subjects to their initial positions and make the experimental communication less persuasive, or the pretest may sensitize subjects to the issue and make the communication more persuasive. In agreement with Solomon, Campbell (1957) states that "strictly speaking" the before-after design offers "no basis for generalization to the unpretested population". But Campbell also criticizes Solomon's proposed four-group design by saying that it violates assumptions of independence upon which tests of significance are based. Campbell, therefore, suggests an analysis of variance of just the post-test scores and recommends an after-only design. This is relatively simple in execution and does not allow interaction to occur.

In this alternative procedure, suggested by Solomon (1949) and evaluated by Lana (1959), we measure attitudes only after the subjects have been exposed to the message. The difference between the mean score attained by the

experimental subjects and that attained by a comparable group of controlled subjects, who have not been exposed to the communication, is taken as a measure of the effectiveness of the persuasion. It is essential for the validity of this after-only procedure that both the experimental and control subjects be selected at random from the same population. But how can we be sure that the two groups are comparable in the first place? Campbell (1957) points out that if the groups were initially randomly constituted, then appropriate tests of significance allows us to legitimately draw conclusions from the results. There could be a situation in which the initial difference between individuals is so large that the effectiveness of treatments can only be detected if this difference is controlled. We decided to test this difference before proceeding to further analysis in the present study. We preferred to have the after-only design because of previous reasons.

Organization of Field Work

The organization of data-gathering field work was started in March, 1968. The author spent about three weeks visiting some Indian villages and offices of the National Extension Service and All-India Radio to seek their help in conducting the study. The experiment was actually conducted during the first week of April, 1968, with the help of the College of Agriculture, Sehore, and All-India Radio, Bhopal,, M.P., India. The cost was shared by the U.S.A.I.D.-sponsored Diffusion of Innovations Project in the Department of

Communication, Michigan State University and by the author.

Selection of Villages

Four peasant communities were purposively selected in the Sehore District of Madhya Pradesh, Central India. They are situated about 12 miles from Bhopal, the state capital. The selection criteria were: (1) proximity to facilities for conducting the experiment like presence of electricity, a local broadcasting center of All-India Radio, and trained interviewers of the Sehore College of Agriculture; (2) similarity in terms of population size and general development progress; and (3) acquaintance of the investigator with the local culture.

Sample Design

Since our major objective was to study the effects of some group factors including group discussion, we restricted the cell size to about 9 to 15 respondents as we felt that a larger size would be unrealistic for group discussion. This was also the usual cell size in most of the early studies. Too young and too old farmers were not included to maintain some homogeneity in terms of age which was thought necessary for smoother group discussion. The total sample consisted of 74 male respondents who were purposively selected on the basis of occupation, age, and residence.

Selection of the Innovation

Improved methods of storage of food grains by using modern insecticides and pesticides was the topic of the radio

program. It was selected after considering over 20 innovations and consulting several change agencies like the local Extension workers. We wanted an innovation applicable to a majority of the villages at the time of the conduct of the experiment, and suitable for group discussion, and to give the subjects a feeling of the value of both individual and group decision for mutual benefit. It was intended to be broadcast in the future by All-India Radio. In essence, it was very timely and meaningful to majority of our subjects because of its practical utility to farmers.

Development of the Interview Schedule

First, an interview schedule of about ten pages and about 50 questions was prepared in English. It was then discussed with some Hindi language experts and local Extension agents for translation. The translated version was pretested. Some changes were made to remove ambiguities. The final schedule has 36 major questions and requires about an hour to administer. The first part of the schedule included warm up and factual questions. The last part has measures of effectiveness.

Method of Data Gathering

Personal interview with a schedule was the main method of data collection. This was necessary because most of the subjects were not enough educated to respond the written questions themselves. A pretested schedule was used so that all the interviewers have the same format and wordings of the questions.

Selection and Training of the Interviewers

Interviewers were selected from the senior class of B.Sc. (Agr.) of the Sehore College of Agriculture, Nehru Agricultural University. They had some training in Rural Sociology, Social Research, and Psychology. In our judgment their performance was of very good quality. They were trained in this particular data gathering technique by the author through lectures and practicals arranged for this study.

Conducting the Experiment

The villagers were informed a day before the actual conduct of the experiment through the local Extension agent and the village shop-keeper to attend a usual farmers' meeting in a community house during the evening hours when they were free from their daily routine work. As soon as the farmers came to attend the meetings, they were welcomed by the interviewers individually and interviewed by them in privacy. In this way we eliminated the possibility of farmers' discussions on routine matters. Usually within an hour 25 to 35 farmers gathered without much persuasion. They were properly seated and a tape recorder was used to play back the recorded message on improved methods of storage of food grains for 25 minutes. The farmers were asked to listen.

When the program was over, the group was divided into two subgroups by random procedure. One group was taken over by the team of interviewers who interviewed each farmer

separately. The other group was asked to elect a leader who was made responsible for about 40 minutes of group discussion on the message. Similarly, such groups of other villages were given other treatments of commitment and consensus through verbal instructions.

Two types of influence attempt and four decision and commitment variations were combined to create eight experimental treatments, as shown in Table 1. The four variations along the vertical axis represent two of the experimental variables: (1) the decision level I (no-decision) is differentiated from the other three with reference to the factor of reaching a decision; (2) decision levels II and III differ with reference to the degree of private and public commitment with which decisions were indicated; and (3) decision level IV represents a group decision with consensus.

Eight groups each of 9 to 11 farmers were randomly assigned to each of the treatments. A tape recorder was used to relay the message, instead of the usual radio broadcast, with a view to expose all the treatment groups just before discussion but at different time in different villages. All important information about the storage of food grains by improved methods were repeated in the radio message by the usual procedure of rural broadcasting in the local dialect of Hindi language. In the discussion groups all possible expectations about adopting this innovation were elicited and discussed including fears and gains for the individual members and the group.

Decision level I groups were dismissed after the influence attempts. That is, the listening group was dismissed immediately after the completion of the radio program, and the discussion group was dismissed after the discussion. In the Type II groups, farmers were given oral instructions to make a definite private decision regarding the acceptance of the innovation and they were warned that they should disclose their decision only to their respective interviewers in privacy. In Type III groups, those who thought they would adopt the innovation in the future raised their hands publicly, and were instructed to give their names to the Extension agent at the end of their sessions, and to the interviewers at the time of interview. The Type IV involved raising hands and publicly giving their name to the interviewers when most of the participants were in favor of collectively adopting the innovation without any serious public opposition of any sort from any of the group members.

Compilation and Coding

The data compilation and coding were designed to reduce the total volume of data into a form suitable for computer analysis. The subjects' responses were coded and transferred to code sheets that were used in punching the I.B.M. cards for further analysis of the data on the C.D.C. 3600 computer of the Michigan State University.

Data Analysis

The experimental design allowed each of the hypotheses to be tested independently. It made possible, also,

Table 1. The Experimental Design With Number of Subjects in Each Cell

Villages	Decision and Commitment Variations	Influence Attempt:Group Radio Listening Plus		Total Subjects
		No Group Discussion	Group Discussion	
I	No Decision	11	10	21
II	Private Commitment	11	11	22
III	Public Commitment	12	9	21
IV	Group Consensus	**	10	10
Totals		34	40	74

**This treatment could not be completed successfully.

the isolation of effects limited to the co-presence of two or more of the experimental variables. The hypotheses are stated positively here, indicating the direction in which each variable might be expected to exert influence on attitude on the basis of the studies examined earlier. Experimental data were analyzed in terms of analysis of variance.

Some Unique Characteristics of the Design

In addition to separating the operation of group listening, discussion, decision, and commitment in the context of Indian radio forums, a very important contribution to previous research designs of group dynamics by the present study is (1) the use of Indian farmers as subjects, and (2) the issue of storage of food grains, which is very meaningful to the farmers for group discussion and decision. It is essential for the farmers to take a group decision to use any improved method of storage of food grains because its partial adoption by one or more farmers is not very effective. For instance, rats should be controlled by all the farmers to make a village community free from their damage. In this respect our choice of the subjects and the issue is superior to Lewin (1947), Bennett (1955), and Pennington (1958). For example, their subjects were Red Cross volunteers, Bennett's subjects were undergraduate students. Similarly, Bennett's issue was participation of students in behavioral research, which cannot be as meaningful and useful to the students as storage of food grains to Indian farmers. Our subjects are relatively poor, traditional, and less educated. They are

thus culturally distinct. So our study provides an opportunity for cross-cultural test of the Lewinian method.

The attitudes of the farmers in the present study were measured by the semantic differential scales (Osgood and others, 1957), which have been reported as cross-culturally valid and quite reliable as compared to those of Thurstone and Likert types. One of the weakest points in the studies by Lewin, Bennett, and Pennington was the rough measure of the dependent variables, and the statistical analysis, which is not the case in the present study, which is using analysis of variance for test of significance.

Operationalization of the Variables

Knowledge

Knowledge of innovation is defined as the amount of information a respondent has about the innovation. It was measured by a scale of nine true-false type items selected from the message played on the tape recorder. A score of one was given for each true response. The scale is included in the Appendix.

The Concept of Attitude

An attitude is defined as relatively enduring organization of beliefs around an object or situation predisposing one to respond in some preferential manner (Rokeach, 1968, p. 112). Essentially, it is the evaluative dimension of meaning of a concept. Osgood and others provided a simple procedure for the measurement of the meaning of an object, which includes assessment of its evaluation.

Fishbein (1961) has examined the relationship between beliefs and attitudes, and has provided semantic differential procedures for the measurement of the cognitive and affective components of attitudes.

Fishbein (1967) suggests that a consideration of most standardized instruments for measuring attitudes will demonstrate that the single "affective" score they obtain is in fact derived from a consideration of a subject's beliefs and the evaluative aspects of those beliefs. For example, in Thurstone Scaling and Likert Scaling the subject is confronted with a series of belief statements. In both cases, the attitude score is indexed from a consideration of the respondent's beliefs (i.e., his agreement or disagreement with each of the statements) or as Green (1954) suggests, it is abstracted from several of his statements about the attitude object.

Belief

Jastrow (Rokeach, 1968, p. 113) pointed out that the human mind is a belief-seeking rather than a fact-seeking apparatus. According to Rokeach a belief is any simple proposition, conscious or unconscious, inferred from what a person says or does, capable of being preceded by the phrase "I believe that...." The content of a belief may describe the object of belief as true or false, correct or incorrect (this may be termed as descriptive or existential belief), or advocate a certain state of existence as desirable or undesirable, probable or improbable.

Rather than starting with beliefs about an object, Fishbein and Raven (1962) first considered beliefs in the existence of the object per se. When an individual states that he "believes in God" he is asserting that, for him, there is a high probability that God exists, so belief is considered as the probability dimension of the concept, and attitude as the evaluative dimension.

Just as attitude is measured by rating a concept on a series of evaluative scales, Fishbein and Raven suggested that "beliefs" can be measured by rating a concept on a series of probability scales.

Thus, Fishbein and Raven (1962) present an instrument that operationally distinguishes between attitudes and beliefs. Belief was defined as "the probability dimension of a concept" - "Is it probable or improbable?" The instrument, called the AB Scales, is a form of Osgood's semantic differential. It contains five empirically-determined, evaluative, bipolar adjectives for measuring belief. The total instrument may be found in the Appendix. The authors report satisfactory reliability and validity of these instruments.

Behavioral Intention

Triandis (1964) conceives of attitude as consisting of several components, one of which he emphasized is the behavioral component based upon the work of Bogardus' (1928) scale of social distance. He developed an instrument called the Behavioral Differential to measure this component which he calls behavioral intention.

In order to obtain a measure of an individual's behavioral intention Triandis would ask the subject to indicate whether the subject "would" or "would not" engage in a specific set of behaviors with a given stimulus person. Triandis would, then, sum the responses of these items, and this sum would be taken as the measure of the respondents' behavioral intention.

Self Esteem

Self esteem was measured by the socio-metric method. Each respondent was asked to give number of persons in his village, whom he considers (a) nicer, (b) better helper, (c) polite, and (d) smarter. A score of one was given for each of the persons whom he considers better on each of the four criteria. His total score was the sum of scores on all the criteria. A higher score is an indication of lower self esteem.

Social Isolation

Social isolation was measured by sociometric method. Each respondent named three farmers of his village for each of the four situations: (1) intimate friendship, (2) closest seat in social meetings, (3) advice on controlling farm diseases, and (4) village representatives for village demands from his Community Development Block officials.

For each village, the total number of times each farmer was named by his peers for all of the above situations was calculated by giving a score of one for each nomination. To obtain score of each subject, the sum of such scores of

all the peers nominated by him for all the four situations was obtained.

Extension Knowledge, Attitude, and Contact

Each respondent's knowledge, liking, and frequency of contact during the past one year, for each of the seven common change agencies like village level workers (male and female), Extension officers (cooperatives, village councils, and Agricultural College), and school teacher were the measures of Extension knowledge, attitude, and contact respectively. The scoring was done by giving one point for each of the agencies' awareness and liking. For each of 10 contacts one point was given.

Political Knowledgeability

Political knowledgeability is an indication of accuracy of awareness of five important political personalities at the local and national level. A respondent was asked to name his State Legislature representative, Chief Minister, Prime Minister, and some information about Nehru-ji and Gandhi-ji. The interviewers did ratings of the contents of responses to the open ended questions on these topics.

Agricultural Knowledge, Attitude, and Adoption

A respondent's awareness, liking, and adoption of each of the fourteen selected agricultural innovations like improved seeds of wheat, potatoes, D.D.T., and rat poison, etc., were obtained and a score of one was given for each of the innovation's correct awareness, liking, and adoption. His score was computed for all the innovations together, and for each of them separately.

Social Participation

Social participation was measured by giving a score of one for each of the membership and two for each of the official positions held in the various village organizations like cooperatives.

Educational Aspiration

Educational aspiration is a measure of the level of education which the respondent desires his son to achieve. It is operationalized in terms of number of years of formal schooling a respondent desired for his eldest son.

Occupational Aspiration

It refers to the degree to which a respondent desires a job of higher socio-economic status for his oldest son. It was measured by the choice of occupation which the respondent desires for his oldest son. The traditional occupation was given lower score, while the modern ones were given higher scores.

Self Actualization

Morse and Reimer's (1955) five questions on self actualization were used, which are given in the Appendix. A score of one was given for a favorable response. The scores of last two questions ranged from one to four.

Intrinsic Job Satisfaction

Morse's (1953) following four questions were used:

- (1) How well do you like a sort of work you are doing?
- (2) Does your job give you a chance to do the things you feel you do best?
- (3) Do you get any feeling of

accomplishment from the work you are doing? (4) How do you feel about your work; does it rate as an important job with you? The scoring was the same as that of self actualization.

Achievement Motivation

It is defined as the desire to excel regardless of social rewards, to attain an inner feeling of personal accomplishment. The items are given in the Appendix. The responses to these questions were scored on a three-point scale.

Empathy

It is the capacity to see oneself in the other fellow's situation. It was measured by a five-item scale that tapped respondent's ability to suggest actions he would do if he were president of a village council, collector, minister and so on. The responses were coded on a three-point scale.

Radio Trustworthiness, Qualification, Dynamism, and Sociability

Berlo and others (1965) found in their factor analytical studies four meaningful and statistical independent dimensions for the construct, source credibility. They clarified Hovland and others (1953) conception of source credibility. Based upon these two studies, we selected the four factor solution and named them as trustworthiness, qualification, dynamism, and sociability.

The trustworthiness dimension was represented by safe-unsafe, just-unjust, kind-cruel, friendly-unfriendly,

and honest-dishonest scales. Each of them was on a five-point scale, which were summed for the total score.

The qualification dimension was represented by trained-untrained, experienced-inexperienced, skilled-unskilled, qualified-unqualified, and informed-uninformed scales.

Dynamism was represented by aggressive-meek, emphatic-hesitant, bold-timid, active-passive, and energetic-tired scales.

Sociability was represented by sociable-unsociable, cheerful-gloomy, kind-cruel, friendly-unfriendly, and congenial-quarrelsome scales.

Characteristics of the Sample

The total sample consisted of 74 male farmers whose median age was 34 years. With regard to formal schooling 45 per cent reported none of it, 33 per cent had 2 to 4 years, and the remaining 22 per cent had 5 to 11 years of schooling. The mean years of schooling was 2.5. Considering about 80 per cent of Indian rural illiteracy, this sample is rather literate. The average size of family was 8.2. This shows predominance of joint family system.

The average extension knowledge, attitude, and contact scores were 4.8, 4.77, and 20.3 respectively. This means that most of the respondents were under the positive influence of the various change agencies. The average score on a five-point political knowledgeability scale was 3.0.

Similarly the mean scores on fourteen agricultural innovations' awareness, attitude, and adoption were 6.8, 8.0, and 6.1 respectively. The modal value of membership in various village organizations was one. Sixty per cent of the respondents aspired at least post-elementary education for their sons and non-agricultural professions. This shows that our respondents are relatively more modern than many of their counterparts of other Indian diffusion studies.

Regarding consumption of mass media, the percentage of respondents with newspaper readership was 65 per cent, radio listening 97 per cent (with mean frequency of listening per month being 20.5), and cinema seen 59 per cent with a median of at least once a month. Most of the respondents had quite high positive scores on various dimensions of source credibility for radio. These statistics show that our sample is very high on consumption of mass media.

Equivalence of the Four Villages for the Treatments

In order to assess and interpret the relative influence of the treatments on the four villages properly, they were compared on several demographic and social psychological variables which could be considered relevant based on the previous research findings. This is considered important because of the use of after-only design in this study.

Analysis of variance (for unequal number) was used to test the significance of difference among the means of various variables for the four villages. Table 2 shows the

results of this analysis. Among the demographic variables age, education, farm size, and size of family show no significant difference at the 5 per cent level of significance. Similarly with regard to important social psychological variables, no significant differences were found on self esteem, social isolation, knowledge of Extension, attitude toward Extension, political knowledgeability, occupational aspiration for the respondents' sons, self actualization, empathy, intrinsic job satisfaction, newspaper exposure, letter reading, radio listening, cinema exposure, and various dimensions of source credibility of radio. These statistics quite clearly show the similarity of the four villages on several dimensions which is collaborated by various village records available at the time of the village selection. However, we were unhappy with the significant differences on such variables as Extension contact, agricultural knowledge and attitude, social participation, educational aspiration, and need for achievement. We would, therefore, take into account these findings while interpreting the results in Chapter IV.

Equivalence of the Listening and Discussion Groups
Among the Treatment Villages

The means on various demographic and social psychological variables were also tested by the single classification analysis of variance for both listening and discussion groups among each of the treatment villages. Table 3 shows the results. No significant differences were found among

Table 2. Analysis of variance results for the four villages on various demographic and social psychological variables.

Variables	Means of variables of the four villages				F
	I	II	III	IV	Value
Age	35.2	36.0	37.1	33.9	0.14
Education	1.6	3.1	2.5	3.1	1.32
Farm size	14.8	24.9	20.1	16.1	1.89
Size of family	8.0	9.6	7.5	7.4	0.78
Self esteem	39.3	32.8	45.1	32.2	1.25
Social isolation	3.5	5.2	5.3	2.7	0.78
Knowledge of extension	4.1	5.4	5.1	4.6	2.61
Attitude toward extension	4.1	5.4	4.9	4.6	2.03
Extension contact	11.6	25.7	20.8	25.2	4.02*
Political knowledgeability	2.5	3.4	3.3	2.7	1.41
Agricultural knowledge	6.0	8.9	9.9	8.7	3.80*
Agricultural attitude	5.7	8.6	9.3	8.5	3.00*
Agricultural adoption	4.4	6.5	7.0	6.6	2.06
D.D.T. knowledge	0.6	0.7	0.9	0.8	1.56
D.D.T. attitude	0.5	0.7	0.8	0.8	1.65
D.D.T. adoption	0.5	0.7	0.8	0.4	2.35
Rat poison knowledge	0.8	0.9	0.7	0.8	0.49
Rat poison attitude	0.7	0.9	0.7	0.8	0.85
Rat poison adoption	0.8	0.9	0.6	0.8	1.20
Social participation	0.8	2.4	1.1	1.0	3.87*
Educational aspiration	4.8	2.8	9.7	9.6	7.15*
Occupational aspiration	0.8	0.5	0.9	1.0	0.95
Self actualization	12.2	12.8	13.3	12.1	0.79
Intrinsic job satisfaction	11.4	11.2	11.8	10.4	1.17
Need for achievement	5.5	6.5	4.0	5.3	6.28*
Empathy	5.8	7.0	6.1	4.4	2.62
Newspaper exposure	3.3	5.4	3.5	2.7	0.38
Letter reading	0.3	0.7	0.5	0.4	2.50
Radio listening	20.7	21.9	18.4	21.7	0.37
Radio listening attitude	4.7	5.5	5.4	5.1	0.72
Cinema exposure	1.5	1.7	2.0	2.0	0.19
Radio trustworthiness	9.9	9.3	9.5	10.8	0.35
Radio qualification	10.9	8.5	10.4	12.8	2.46
Radio dynamism	12.5	11.1	12.4	14.5	1.74
Radio sociability	11.9	9.2	9.9	13.0	2.46

(N=21) (N=22) (N=21) (N=10)

*Significantly different at the 5 per cent level.

them in each of the four villages on age, education, farm size, size of family (except in village 3), social isolation, agricultural knowledge, attitude (except in village 1), and adoption; D.D.T. and rat poison knowledge, attitude, and adoption; social participation, occupational and educational aspiration, self actualization, intrinsic job satisfaction, need for achievement, empathy, newspaper exposure, radio listening, cinema exposure, and various dimensions of source credibility of radio. Again we were unhappy with these significant differences on knowledge and attitude toward Extension in the listening and discussion groups of village I, and size of family in village III respectively.

Table 4 shows a comparison of the total listening and discussion groups of all the villages on several characteristics of the respondents. The two audience groups significantly differ only on letter reading and radio dynamism.

Table 4.* Analysis of variance results for the total listening and discussion groups

Variables	Listening group	Discussion group	F Value
Letter reading	0.6	0.4	4.48**
Radio listening	19.7	21.2	0.31
Cinema seen	1.8	1.8	0.01
Radio trustworthiness	9.3	10.1	0.66
Radio qualification	9.6	10.9	1.49
Radio dynamism	11.2	13.3	5.60**
Radio sociability	10.5	10.9	0.14
	(N = 34)	(N = 40)	

* Table 4 is a part of Table 14 which is included in the Appendix.

**Significantly different at the 5 per cent level.

Table 3. Analysis of variance results comparing all listening and discussion groups

Variables	Village I			Village II			Village III		
	L ^a	D ^b	F	L	D	F	L	D	F
Age	33.8	36.8	0.39	34.9	37.1	0.09	36.0	38.7	0.23
Education	2.4	0.7	2.63	3.1	3.2	0.01	3.2	1.7	1.11
Farm Size	11.3	18.7	2.00	24.2	25.5	0.03	21.2	18.8	0.13
Size of family	7.8	8.1	0.02	8.2	11.0	0.79	5.8	9.7	6.36*
Self esteem	31.2	41.7	0.18	32.4	33.2	0.01	38.2	54.4	2.25
Social isolation	3.0	4.1	0.13	7.8	2.5	0.70	4.6	6.3	0.73
Knowledge of extension	3.2	5.1	5.50*	5.2	5.6	0.75	4.9	5.3	0.33
Attitude toward extension	3.2	5.1	5.50*	5.1	5.6	1.11	4.9	4.9	0.01
Extension contact	10.9	12.4	0.14	25.1	26.0	0.01	20.4	21.3	0.02
Political knowledgeability	2.5	2.5	0.01	3.5	3.4	0.01	3.1	3.7	0.81
Agricultural knowledge	5.6	6.3	0.13	8.4	9.5	0.37	9.2	10.9	1.06
Agricultural attitude	5.5	6.0	0.08	7.9	9.4	0.65	8.8	10.1	0.47
Agricultural adoption	4.5	4.3	0.03	5.5	7.5	1.53	6.1	8.1	1.13
D.D.T. knowledge	0.5	0.7	1.24	0.6	0.8	0.87	0.9	0.8	0.76
D.D.T. attitude	0.5	0.6	0.41	0.6	0.8	0.87	0.8	0.8	0.09
D.D.T. adoption	0.4	0.6	1.12	0.6	0.8	0.87	0.8	0.8	0.02
Rat poison knowledge	0.9	0.7	1.45	0.8	0.9	0.36	0.7	0.7	0.29
Rat poison attitude	0.8	0.6	1.17	0.8	0.9	0.36	0.6	0.8	0.83
Rat poison adoption	0.9	0.6	2.87	0.8	0.9	0.36	0.5	0.8	1.66
Social participation	1.0	0.6	1.11	2.2	2.6	0.19	1.1	1.1	0.01
Educational aspiration	6.2	3.3	1.27	3.0	2.6	0.03	3.3	8.9	0.28
Occupational aspiration	0.8	0.7	0.07	0.6	0.5	0.32	0.9	0.8	0.29
Self actualization	12.7	11.7	0.89	12.4	13.2	0.64	13.1	13.7	0.63
Intrinsic job satisfaction	11.6	11.1	0.86	11.8	10.6	1.14	11.8	11.8	0.01
Need for achievement	4.7	6.4	3.84	6.0	7.0	1.41	4.3	3.6	0.94
Empathy	5.5	6.0	0.12	6.9	7.7	2.31	6.0	6.3	0.01
Newspaper exposure	3.6	3.0	0.02	7.4	3.4	1.24	4.3	2.4	0.33
Letter reading	0.4	0.2	0.64	0.8	0.5	1.88	0.7	0.3	2.33
Radio listening	21.6	19.6	0.16	21.5	22.4	0.36	16.3	21.1	0.69
Cinema exposure	2.0	1.0	1.51	1.6	1.7	0.01	1.7	2.6	0.30
Radio trustworthiness	9.7	10.1	0.05	10.3	8.4	1.94	8.1	11.3	2.46
Radio qualification	9.3	12.7	3.72	9.4	7.6	1.14	10.2	10.8	0.07
Radio dynamism	11.5	13.6	2.07	10.5	11.6	0.46	11.4	13.8	1.35
Radio sociability	11.8	12.0	0.01	10.3	8.2	1.74	9.4	10.6	0.05

(N=11)(N=10)

(N=11)(N=11)

(N=12)(N=9)

*Significantly different at the 5 per cent level.

^aL = Listening group

^bD = Discussion group

CHAPTER IV
RESEARCH FINDINGS AND INTERPRETATION

We have seen in Chapter III that the four villages and their listening and discussion groups are quite similar with respect to the respondents' several demographic and social psychological variables. The present chapter deals with the tests of the hypotheses and interpretation of the results concerning the relative influence of group listening and group discussion under various levels of decision and commitment. The general approach in testing the hypotheses is to find out differences between the means of the listening and discussion groups on the effect variables by the one way analysis of variance with F test at the 5 per cent level of significance.

The results have been presented under each of the hypotheses proposed in Chapter II, which is followed by their interpretation and a comparison with the past researches.

Group Listening and Group Discussion

Hypothesis 1 states that group listening followed by group discussion is more influential than the group listening alone. This hypothesis was tested by comparing the means of the total listening and discussion groups of the four villages. Table 5 shows the results of analysis of variance. All the

observed F values are greater than 4.05, which is necessary for significance at the 5 per cent level. The hypothesis 1 is supported for all the effect variables. Table 4 shows that the two types of audience groups were similar with respect to several characteristics except on letter reading and radio dynamism. However, we are unable to explain the possible influence of these significant differences on our findings.

Our data, therefore, lead to the conclusion that group listening followed by group discussion, as an influence technique, is distinctly superior to group listening alone in terms of changes in knowledge, belief, attitude, and behavioral intention which is equivalent to Bennett's (1955) students' willingness to volunteer for behavioral science research. This finding, therefore, fails to support Bennett's conclusion that group discussion is not essential for replicating the Lewinian results, but it supports findings of Lewin, Pennington, Kogan, and others that group discussion is superior to group listening not only in the Western culture, but also in the Indian peasant culture. Since group discussion is an essential element in the construct of participation, our data give cross-cultural support to the participation hypothesis of March (1965).

Influence of Group Decision

Hypothesis 2 states that a request for a group decision is more influential than the absence of such a request. It is assumed that the process of decision making

Table 5. One way analysis of variance results for the means of radio listening and discussion groups on the effect variables

Effect Variables	Effect variables means for the		F Value
	Radio listening group	Radio listening plus group discussion	
Knowledge	6.41	7.81	4.92*
Attitude	7.29	9.78	4.35*
Belief	7.76	9.90	4.08*
Behavioral intention	3.00	4.13	4.75*
	(N = 34)	(N = 40)	

*Significantly different at the 5 per cent level.

Table 6. Analysis of variance results on the effect variables of subjects who were and were not asked to reach a decision

Effect Variables	Group Decision Level		F Value
	No Decision	Decision	
Knowledge	7.38	7.08	0.18
Attitude	8.05	8.68	0.37
Belief	7.76	9.38	1.86
Behavioral Intention	3.67	3.58	0.02
	(N = 21)	N = 53).	

results in changes in the effect variables. Table 6 shows a comparison between the means on the effect variables of the subjects of village I who were not asked to make any decision, and the subjects of other villages who were asked to make a decision. All the obtained F values are not significant at the 5 per cent level. Our data, therefore, do not support this decision hypothesis. Table 2 shows that the four villages are quite similar except with respect to Extension contact, agricultural knowledge and attitude, social participation, educational aspiration, and need for achievement. However, we are unable to explain the influence of these variables on this finding regarding the influence of group decision.

It is also possible that the Indian peasants do not like to make individual decisions in group settings, as March (1965) has suggested. In any case we failed to support Willerman (1943), Lewin (1947), and Bennett (1955) who report the superiority of "group decision" over "no group decision" as an influence technique.

Group Listening and Group Decision

Hypothesis 3 states that group listening followed by group decision is more influential than the group listening without the group decision. This hypothesis was tested by comparing the means on the effect variables of the subjects (listening group) of village II who were asked to make a decision to the subjects of village I, who were not asked to come to a decision. Table 7 shows the results. The means

are significantly different at the 5 per cent level of significance only in case of belief. It may be pointed out that the listening group of village II is superior to that of village I as shown in Table 3. However, we are unable to explain the influence of this difference on this finding.

We conclude that the influence of group decision on group listening could not be studied properly. However, these results tend to support the Lewinian and the Kogan's proposition that for the group decision to be effective we need to have more than group listening or lecturing. The idea is to be tested in the next hypothesis 4.

Group Decision and Group Discussion

Hypothesis 4 states that group discussion followed by group decision is more influential than the group listening followed by the group decision. To test this hypothesis the means on the effect variables of the combined listening and discussion groups of villages II and III of the decision variations treatments* were compared. Table 8 shows the results. All the means are in the predicted direction. However, the observed F values for knowledge and behavioral intention are the only ones, which are significant at the 5 per cent level.

*It may be pointed out that the treatments were allocated at random to the villages and the two types of audiences were obtained by random procedure. Because of this random procedure we are quite safe in considering that the two groups are similar for our purpose. This argument would be applicable in other hypotheses too.

Table 7. Means of listening groups with and without decision from village I and village II

Effect variables	Listening groups		F Value
	No decision (Village I)	Decision (Village II)	
Knowledge	7.64	7.45	0.03
Attitude	7.00	7.36	0.36
Belief	6.45	11.00	7.00*
Behavioral Intention	3.18	3.81	1.34
	(N = 11)	(N = 11)	

*Significantly different at the 5 per cent level.

Table 8. Means on effect variables of listening and discussion groups followed by group decision

Effect variables	Group decision followed by		F values
	Listening groups of villages II and III	Discussion groups of villages II and III	
Knowledge	5.83	8.00	6.07*
Attitude	7.43	10.00	2.36
Belief	8.39	10.45	1.88
Behavioral intention	2.91	4.15	3.94*
—	(N = 23)	(N = 20)	

*Significantly different at the 5 per cent level.

Although our data do not provide very strong evidence of the superiority of group decision with discussion as compared to group listening, we tend to accept the group discussion-decision hypothesis as we must not accept the alternative hypothesis in view of the clear trends of our data and the findings of the past research. We, therefore, tend to support Lewin, Bennett, Pennington, Kogan, and others' findings and interpretation regarding the superiority of group decision with group discussion which seems to prepare the radio listeners better for more effective decision making. There is a possibility that group discussion-cum-decision is not able to bring about significant changes in beliefs and attitudes of all types in the absence of at least some kind of commitment, as Brehm and Cohen (1962) have suggested. This is the topic of the next hypothesis.

Influence of Private Commitment on Listening and Discussion Groups

Hypothesis 5 states that under the private commitment condition group listening followed by group discussion is more influential than the group listening alone. This hypothesis was tested by comparing the means of the listening and discussion groups of village II which received the treatment of private commitment. Table 9 shows the results. None of the observed means are significantly different between the two groups at the 5 per cent level of significance.

It is, therefore, concluded that group listening followed by group discussion is not superior to the group listening alone under private commitment condition. It

Table 9. One way analysis of variance results for the listening and discussion groups under private commitment

Effect Variables	Mean on the effect variables		F Value
	Listening group	Discussion group	
Knowledge	7.46	7.72	0.80
Attitude	7.36	8.73	0.52
Belief	11.00	8.82	1.61
Behavioral Intention	3.81	3.73	0.02
	(N = 11)	(N = 11)	

Table 10. Influence of public commitment on listening and discussion groups

Effect Variables	Means on effect variables under public commitment condition		F Value
	Listening group	Discussion group	
Knowledge	4.33	8.33	8.50*
Attitude	7.50	11.56	2.02
Belief	6.00	12.44	8.90*
Behavioral intention	2.08	4.67	6.60*
	(N = 12)	(N = 9)	

*Significantly different at the 5 per cent level.

appears that for the group pressure to be effective, subjects should announce the decision publicly as private commitment may not provide enough inducement for change. This notion is tested in hypothesis 5.

Influence of Public Commitment on Listening and Discussion Groups

Hypothesis 6 states that under the public commitment condition group listening followed by group discussion is more influential than the group listening alone. Table 10 shows the comparative results between the means of listening and discussion groups of village III which had the public commitment treatment. All the means are in the predicted direction and they are significantly different at the 5 per cent level in case of knowledge, belief, and behavioral intention, but not in case of attitude.

We conclude that public commitment is more influential on the listening-cum-discussion group than on the listening group. Our results, therefore, contradict Bennett's (1955) conclusion that public commitment is not essential for replicating Lewin's finding, and support the Lewinian explanation of the superiority of his group decision method which emphasizes public commitment. We also give support to Federich's finding regarding the influence of commitment in inter-race relations. But, is the public commitment condition more influential than the private commitment among the listening and discussion groups also? An attempt has been made to answer this question in the next hypothesis.

Relative Influence of Public and Private Commitment
Among Listening and Discussion Groups

Hypothesis 7 states that public commitment is more influential than the private commitment under both the group listening and group listening plus group discussion conditions. This hypothesis was tested in two parts. First, the means on effect variables of the two listening groups of villages II and III, which received the treatments of private and public commitment respectively, were compared. The results are shown in Table 11, which are in the opposite direction of our predictions, and two of them are significant at the 5 per cent level for knowledge and belief.

Similarly, the means on effect variables of the two listening-cum-discussion groups of villages II and III were compared. The results are in the predicted direction and the means are significantly different at the 5 per cent level for belief. In this way we do not have clear evidence to prove the superiority of public commitment to private commitment as an influence technique among the listening and the discussion groups. Thus, we cannot accept hypothesis 7. It needs to be retested with more precise measure of commitment.

Influence of Group Consensus and Public Commitment

Hypothesis 8 states that group listening followed by group discussion under group consensus condition is more influential than that under the public commitment condition. We tested this hypothesis by comparing the means of the effect variables for the discussion groups of villages III and IV, which received public commitment and group consensus

Table 11. Means of effect variables in various treatments and audience types

Audience type and effect variables	Means of various effect variables in treatment groups	
	Village II Private commitment	Village III Public commitment
Listening group		
Knowledge	7.46	4.33*
Attitude	7.36	7.50
Belief	11.00	6.00*
Behavioral Intention	3.81	2.08
	(N = 11)	(N = 12)
Discussion group		
Knowledge	7.72	8.33
Attitude	8.73	11.56
Belief	8.82	12.44*
Behavioral Intention	3.73	4.67
	(N = 11)	(N = 9)

*Significantly different at the 5 per cent level.

treatments respectively. Table 12 shows the results which are neither in the predicted direction, nor are they significant at the 5 per cent level. We conclude that group consensus is not superior to public commitment as an influence technique on listening-cum-discussion groups.

It is possible that once the Indian villagers make a public commitment in a group, they do not change their attitudes in spite of the subsequent group consensus on the issue of group discussion, which might not represent their real position on it. Bennett also found that it was not the objective consensus which was influential, but the perceived consensus which made the real difference.

Table 12. Comparison of means on effect variables under public commitment and collective consensus condition.

Dependent variables	Discussion groups plus		F Value
	Public commitment	Collective-consensus	
Knowledge	8.33	8.10	0.26
Attitude	11.60	9.90	0.74
Belief	12.44	9.50	3.78
Behavioral Intention	4.67	4.00	0.45
	(N = 9)	(N = 10)	

Summary of the Major Findings

1. Group radio listening plus group discussion is distinctly superior to the group listening alone in bringing about changes in knowledge, beliefs, attitudes, and behavioral intention to adopt an innovation.
 2. A request for a group decision may not be more influential than the absence of such a request.
 3. Group listening plus group decision is not superior to the group listening alone.
 4. Group discussion plus group decision tends to be superior to group listening plus group decision.
 5. Private commitment is not more influential in group listening plus group discussion than in group listening alone.
 6. Public commitment is more influential in the listening-cum-discussion group than in the listening group alone.
 7. Public commitment is not clearly more influential than the private commitment either in listening groups or in listening-cum-discussion groups.
 8. Group consensus is not more influential than public commitment in listening-cum-discussion groups.
- The general finding is that the theoretical conceptualization of radio forums and the predicted role of group discussion, group decision, and public commitment is rather well supported by our data. We have not been able to demonstrate the usefulness of private commitment and group consensus.

CHAPTER V
SUMMARY AND CONCLUSIONS

The main objectives of the present study are:

(1) to summarize some of the main theoretical propositions and research results referring to the relationship of interpersonal and mass communication, and their individual and joint effects on attitudinal and behavioral change, with special reference to the functions of social psychological variables in the effects of mass media in the process of modernizing peasants; (2) to review some related experimental studies of group dynamics and mass media effects to develop a conceptual and analytical framework for assessing empirically factors related to the effectiveness of radio forums; and (3) to investigate the influence of group listening, discussion, decision, commitment, and consensus on knowledge, belief, attitude, and behavioral intention in the context of radio forums in India.

The focus on attitudinal changes in our study was based on the assumption that their study could be helpful in developing a general theory of modernization, and that the usefulness of radio forums in bringing about attitudinal changes has not yet been demonstrated, which could alone justify the efforts and cost involved in organizing and maintaining forums in countries like India.

Importance of Radio Forums in Modernizing Peasants

The most common method for introducing technological innovations involves the training and guidance of a large corps of change agents, each of whom is assigned the task of conveying the new technology via interpersonal channels in one of a few villages. This, however, is a discouragingly long range approach which is very unsatisfactory for many urgent problems. For example, in India, after 20 years of intensive and costly efforts, it is estimated that the total number of village level change agents is about 35,000. But the peasant audience in India constitutes a forbidding 500,000 villages! Translated to the individual level, this means that each change agent must try to somehow reach about 5,000 villagers, clearly a difficult task.

We advocate the combination of mass media and interpersonal channels. It is our belief that by incorporating the advantages of each channel into a single propelling force, more peasants can be reached with new ideas and a greater percentage of those reached can be persuaded to utilize these innovations within a relatively short time.

Interpersonal communication provides intimate interaction and immediate feedback which make it more effective when the goal is persuasion, while the mass media channels provide a potent means of spreading information quickly. There is much evidence in the United States, and corroborative support from research in less developed countries, that widespread mass media exposure alone is unlikely to effect large

changes in human behavior. Research suggests that mass media communication is more important in changing cognitions, while interpersonal communication is more likely to cause attitude change. Why not combine mass media with interpersonal communication channels so as to obtain the wide audience potential of the mass media with ability to "get through" of interpersonal communication? Used in complementary roles, mass media and interpersonal channels could prove an unbeatable force in the modernization process. In fact, this combination of mass media with interpersonal communication is utilized in radio forums in several countries, in study groups in Communist China, and in radiophonic schools in Latin America.

Our review of studies on mass media and radio forums suggests the following arguments: in favor of radio forums.

1. Ratio of change agents to clients in less developed countries is impossibly out of balance. The recruitment and training of change agents is a costly and lengthy process, which alone cannot meet the ever-increasing needs of villagers. It is not very intelligent planning to rely solely on interpersonal communication from change agents to reach the millions of peasants. If the mass media channels are used in place of the scarce and costly interpersonal channels from change agents, they can, then, function as organizers of the forums, a task which would allow them to adequately serve 50 to 100 peasant villages rather than 3 or 4.

2. The mass media seem to provide the quickest means of overcoming the isolation barrier. There are just too many villagers and too many villages in the less developed world, and the rate of other means of communication like road and transportation is too slow, to concentrate solely on this method to reach peasants.

3. We know, however, the mass media, while very effective in creating knowledge of new ideas, are relatively less effective (compared to interpersonal communication) in changing attitudes and stimulating action. A radio message usually leads only to passive listening, rather than attitudinal or behavioral change and thereby individual listening is not very effective in inducing rural development.

4. Further, the notion of radio forums squares closely with the existing patterns of values, attitudes, and social organization of peasant life. Informal discussion groups are very much a part of the daily culture of every villager, e.g., evening discussions in a grocery shop or tea restaurants. Group exposure and listening to the mass media is an accustomed part of village living. So even though the formation of a media forum is a "contrived" effort by the forum organizer, the forum seems to be perceived by most villages as "natural".

5. Media forums are more directly attuned to the needs of the peasants than are the mass media alone. Feedback from the regular meetings in the form of direct peasant response and forum secretarial reports provides a method for

adapting media programming to peasant interests.

6. Mass communication empirical research evidence strongly supports the great potential of media forums as effective means of changing peasants.

7. Radio forum as a communication technique is also considered to be both important and realistic strategy of change in terms of existing government apparatus and long-term planning for rural development. More specifically, it is feasible for government use, adaptive logistically and conceptually to existing government policy and resources, efficient in terms of a favorable ratio of cost-to-benefit, immediate visible gain to the changer and changees, applicable for wide range of ideas, and highly relevant to future communication research and theory building for rural development.

Thus, the radio forum is an attempt to combine the impact, efficiency, feasibility, economy, and range of the mass media, on the one hand, with the educative processes of personal participation and group discussion into an integrated learning experience. Radio forums seem to be uniquely effective and powerful combination of mass media and group discussion, because the latter increases the immediate and long range effects of the media messages.

Why Do Peasants Change More Due to Radio Forums?

A survey of mass communication researches shows that radio forums should be very efficient and effective in bringing about attitude change because it is an integration of formalized mass media and interpersonal communication. It is

suggested that self-selection of audience groups to consistent messages on a regular basis should eliminate the screening effect of the selective processes of mass media exposure. Intensive participation of forum members in group discussion and decision should result in greater comprehension of the message, and commitment to the groups decisions respectively. When the mass media are attached to small groups in a structured fashion, the joint function should be able to achieve basic changes in motivation and behavior on the part of the audience. The more influential characteristics of such primary groups lie in their association with leaders and their followers with established two-way communication channels permitting surveillance of the followers by the leader in the sense of informational feedback and interpersonal attraction among them.

Radio Forum Studies

Radio forums have been subjected to rigorous experimental tests in India (Neurath, 1960; Kivlin and others, 1968), Ghana (Abell, 1965), Costa Rica (Waisanen and Durlak, 1967) and several other countries. They have proven as superior techniques to radio listening, literacy and leadership training, newspaper reading, and other visual aids (e.g., Spector and others, 1963) in factual learning or gain in knowledge, behavioral change, and in some cases in developing modern attitude.

Neurath reported a striking increase in knowledge of innovations both among literate and illiterate farmers due to

the impact of radio forums, which was also the case in another comparative experimental forum study by Roy and others (1968) in India and Costa Rica, which also reported increased adoption of innovations and some changes in attitudes among the forum participants. They also concluded that the forum approach is superior to literacy and audio-visual training. Manfee and others (1965) in India, and Abella (1965) in Ghana also found increased gain in knowledge due to radio forums. There is a popular feeling that the study groups of Communist China and Soviet Union are quite effective in changing attitudes and behavior.

However, a critical review of research literature on mass media effects and forum studies indicates that the claims of success of the forum projects are far from satisfactory. Even the gain in knowledge of innovations as a result of forum broadcast listening and discussion, has not been systematically demonstrated. Heath (1960) measured only awareness of several innovations by interviewers' ratings of farmers' responses to open ended questions on several innovations discussed (not the specific contents of the broadcasts). Similarly, questions of attitude change, which was one of the major objectives of the United Forum projects, were mostly bypassed. The claim of behavioral change or action due to forums' stimulation cannot be justified completely because of the possible contamination of usual communication activities in experimental villages (Kivlin and others, 1968).

Practically speaking, the demonstrated gains are not commensurate with the cumbersome and costly process of organizing and maintaining forums. That is, the effects per unit of cost seem to be uneconomic based on data supplied by Schramm and others (1967). This may be the reason for the downfall of Canadian forums and unpopularity of Indian forum project among some individuals. But the past forum studies do not specify the factors which are associated with the effectiveness of the forums in changing attitudes. Theoretically a comparison between a forum and other communication strategy like literacy training is not very useful because they differ on several dimensions. What we need is a discovery of some specific group factors associated with the effectiveness of radio forums.

Group Dynamics Studies and Radio Forums

Our review of literature on experimental studies in group dynamics have revealed that there are two highly inter-related traditions of research which are very useful in understanding the effectiveness of radio forums. The first tradition was initiated by Lewin (1947) in his efforts to change food habits by group methods. The second tradition is the product of more recent studies of risk-taking by Kogan and Wallach (1967). Both the traditions have investigated the influence of group discussion, decision, and consensus. However, none of them are conclusive regarding their relative influence. The following are the major conclusions of our review, which we feel, are useful in understanding the group processes of the forums.

1. Group Discussion

Group discussion as an influence technique is superior to individual instructions, a lecture method, group consensus, or any other informational exchange technique without the interpersonal or face-to-face group interaction such as tape-recorded or video-taped presentation of the content of the discussion. Although there is general agreement regarding the superiority of group discussion, there is no consensus as to why it is so. The following are some of the arguments.

1. Group discussion members are able to pool their cognitive resources which lead to a consideration of a wider range of ideas that might provoke more objective and critical testing of the several alternatives of an issue and reduction in errors of judgment.

2. A group discussion gives the participants a very good indication of the position of each member on various aspects of an issue and what particular obstacles have to be overcome by them to achieve the group goal.

3. The informational exchange or the give-and-take group process prepares its members for a very intelligent and positive group decisions.

4. Direct verbal confrontation among the members seems to offer the possibilities of affective interdependencies and emotionally tinged interpersonal bonds that would encourage very intensive involvement and participation. These bonds might enable group members to take unusual risk and departures from group norms.

5. Group discussion offers powerful individual forces of self-expression and self-determination as each individual could express his views, persuade others, and thereby exercise his rights as an individual.

The most serious disadvantage of a group discussion appears to be that it is relatively more time consuming than a lecture, and that under some conditions it may lead to greater conservatism and lower quality of judgments than those of the more intelligent individuals. It can censor unusual judgements.

2. Group Decision

1. Group decision is generally more influential and of better quality than the average decisions of its individual members. It is also superior to a lecture method, group discussion, and consensus in bringing about attitude change.

2. Group decision links motivation aroused by the group discussion to action. Group decision demands a kind of social commitment from the decision makers, which tends to make the decision makers generally responsible for the execution of the decisions.

Without a thorough group discussion, the group decisions can be more conventional and cautious because no one in a group is likely to support a novel idea that may be wrong or that might make him the target of group ridicule. It could be less thoughtful and judicious because the members feel less responsible personally and less accountable for mistakes than if they make the decisions alone.

3. Commitment

It is the decision to engage in a particular line of action which is considered to have the most favorable or the least favorable consequences. If a decision is announced publicly we classify it as public commitment which might induce a feeling of responsibility for carrying out a promise and a corresponding attitude change toward the issue.

4. Group Consensus

Group consensus means a general agreement among the group members regarding the outcome of a group decision. One of the main functions of a group discussion is to give an opportunity to the group members to estimate group consensus on the issue. While Bennett (1955) reports consensus to be one of the two important factors for obtaining Lewin's (1947) results, Kogan and others (1967) do not think so. Table 13 presents a comparison among some important studies as to the innovations studied, subjects used, and major findings. It shows that there is a substantial disagreement in the literature on the relative influence of the various group factors on attitude change. Most of the findings have quite limited generalizability because of ad hoc choice of issues, sampling procedure, and faulty research designs in one aspect or the other.

Experimental Design and Methods of Data Collection

The present study has utilized the after-only design to prevent the possible interaction between the pretest measures and treatment, and to eliminate the possibility of

sensitizing the subjects. Four villages were selected purposively, which were quite similar in terms of size, availability of modern means of communication, and level of development. They were randomly assigned to each of the four levels of decision and commitment variations. Each of the villages audiences were randomly divided into two groups, and assigned at random to either "listening" or "discussion" treatment. Other treatments were given by verbal instructions, e.g., public commitment groups were instructed to raise hands and give names to change agents publicly in the group. The total sample consisted of 74 male, adult farmers of Central India.

Data were collected during the winter months of 1968 by the personal interview method. A 25 minute radio program on improved methods of storing food grains was played back by a tape recorder for each of the village audiences. The discussion group was encouraged to have usual informal discussion on the contents of the broadcast for about 40 minutes, which was followed by the decision and commitment treatments. The topic of discussion was meaningful, timely for the agricultural season, and suitable for both individual and group decisions.

Analysis of variance was the statistical test of significance (at the 5 per cent level) used in testing the hypotheses.

Table 13. A Comparison Among Important Studies on Group Discussion and Decision Making

<u>Author(s)</u>	<u>Innovation Studied</u>	<u>Subjects</u>	<u>Important Findings</u>
Willerman (1943)	Whole wheat bread	Students	Group decision is more influential than a request for change.
Bavelas and others (1947)	Unpopular meats	Red Cross volunteers	Group decision is more influential than a lecture.
Radke and Klisurich (1947)	Fresh and evaporated milk	Women neighbors	Group decision is more influential than a lecture.
Radke and Klisurich (1947)	Orange juice and cod liver oil	State hospital mothers	Group decision is more influential than individual instructions and lectures.
Coch and French (1948)	Work methods	Factory workers	Group participation is associated with job satisfaction and productivity.
AllinSmith (1949)	Self-recitation study method	Students	No significant results.
Beardslee (1950)	Self-recitation study method	Students	No significant results.
Bennett (1952)	Participation in research	Students	Group decision and perceived consensus are more influential than group discussion and public commitment.
Bond (1956)	Breast cancer detection	Women	Group discussion is very effective.
Pennington and others (1958)	Ranking of cities according to their population size	Students	Group discussion and decision are more influential than any one of them.
Brown (1965)	Risk taking behavior	Students	Group discussion is not necessary for increasing risk taking behavior.
Kogan and Wallach (1967)	Risk taking behavior	Mostly Students	Group discussion and decision are more influential than a lecture, information exchange, balloting, and consensus in increasing risk taking.

Major Findings

1. Group radio listening plus group discussion is distinctly superior to group listening alone in bringing about changes in knowledge, beliefs, attitudes, and behavioral intention to adopt an innovation.

2. A request for a group decision may not be more influential than the absence of such a request.

3. Group listening plus group decision is not superior to group listening alone as an influence technique.

4. Group discussion plus group decision tends to be more influential than the group listening plus group decision.

5. Private commitment is not more influential in group listening plus group discussion than in group listening alone.

6. Public commitment is more influential in the listening-cum-discussion group than in the listening group alone.

7. Public commitment is not clearly more influential than the private commitment either in listening groups or in listening-cum-discussion groups.

8. Group consensus is not more influential than public commitment in listening-cum-discussion groups.

The general finding is that the theoretical conceptualization of radio forums and the predicted role of group discussion, group decision, and public commitment is rather well supported by our data. We have not been able to demonstrate the usefulness of private commitment and group consensus in bringing about attitudinal changes.

Implications For Future Research

Many new questions have been raised in this study but not fully answered. We have conceptualized and studied the influence of group discussion, decision, commitment, and consensus which, we think, are the essential elements of the group process in radio forums. However, we feel that the process of group listening, decision, and discussion should be examined more carefully. An experimental investigation of each of these variables should be replicated in different villages having different types of value orientations, social cohesion, caste and occupational composition, and past developmental success.

The effect measures should include both attitudinal and behavioral types, which should be recorded immediately after the treatments and after a suitable gap of a few months by rigorous measures. The experimental design should control for pre-test and treatment interaction, acquiescence response, and sensitization of subjects. The sample should be more carefully drawn with adequate size so that we can have generalizations with greater confidence.

We should measure the participation of forum members in group discussion, decision, and action and determine the characteristics of those members who participate more and less. We do not know the relation between participation and attitudinal and behavior change. A person may enjoy making a decision, but why should he work harder to carry it out just because he participated in making it? Participation in a group discussion

and/or group decision may increase the individual's identification with or attraction to the group, particularly if he valued the group in the first place. We need to find out if participation increases group cohesiveness and its influence on attitude change.

An intriguing and problematical aspect of the information and group decision making relationship is how much information an individual requires before he makes the decision to adopt or reject some innovation. Various diffusion studies find a positive relationship between adoption and knowledge, which has been indexed as awareness of a new idea. Few attempts have been made to discern how such levels of information are distributed among the discussion participants and how such variation is related to innovative behavior and attitude toward innovations, etc. The participants' level of information could be an important factor in the quality of group discussion and decision.

Implications for Improvement of Indian Radio Forums

It is suggested that significant changes in attitudes and behavior of rural people can be brought about rapidly through mass media when the persons, who are expected to change, participate in discussing and deciding what the change should be and how it should be made. The radio forums must have intensive group discussion after radio listening before asking the forum members to make decisions regarding the innovation's acceptance or rejection. The members should be encouraged to make a public commitment of their individual

decisions in the forum. Objective group consensus may not be attempted in the forum, particularly if the issue is a novel one and the group norm is likely to be against the issue.

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APPENDIX A

PERSONAL INTERVIEW SCHEDULE

1. Name of village _____ 2. Name of farmer _____
3. Caste and subcaste _____ 4. Age _____
5. Education _____ 6. Farm size _____
7. Size of family _____
8. How many people there are in your village, who are:
 - A. Better than you ___ B. More helpful to others than you ___
 - C. More polite than you ___ D. More intelligent than you ___
9. Please let me know three persons of your village:
 - A. with whom you like to have intimate friendship _____
 - B. whom you would ask to sit closest to you in social meetings _____
 - C. whose advice you would seek on farm diseases _____
 - D. whom you would send to the C.D. Block to put up your village demands _____
10. Extension knowledge, attitude, and contact (check below):

	(A) Do you know him?	(B) Do you like him?	(C) Frequency of contacts during the past year
(1) Gram Sevak	_____	_____	_____
(2) Gram Sevika	_____	_____	_____
(3) Agricultural officer	_____	_____	_____
(4) Credit Inspector	_____	_____	_____
(5) Panchayat officer	_____	_____	_____
(6) School teacher	_____	_____	_____
(7) College professor	_____	_____	_____

11. Political knowledgeability (Probe these questions and check below):

Who was Gandhi-ji?	Right ()	Wrong ()
Who was Nehru-ji?	Right ()	Wrong ()
Who is Indira Gandhi?	Right ()	Wrong ()
Who is your Chief Minister?	Right ()	Wrong ()
Who is your M.L.A.?	Right ()	Wrong ()

12. Agricultural knowledge, attitude, and adoption (check below):

	(A) Have you heard?	(B) Do you like it?	(C) Have you used it?
i. Improved wheat seed	_____	_____	_____
ii. Improved cane seed	_____	_____	_____
iii. Improved potato seed	_____	_____	_____
iv. Line sowing	_____	_____	_____
v. Fungicides	_____	_____	_____
vi. Insecticides	_____	_____	_____
vii. Rodenticides	_____	_____	_____
viii. Ammonium Sulphate	_____	_____	_____
ix. Super phosphate	_____	_____	_____
x. Potash	_____	_____	_____
xi. Fertilizer mixture	_____	_____	_____
xii. Green manuring	_____	_____	_____
xiii. Improved plow	_____	_____	_____
xiv. Weeder	_____	_____	_____

13. Social participation (check membership in organizations):

	No ()	Yes ()	Office bearer ()
i. Credit cooperatives	()	()	()
ii. Village council	()	()	()
iii. Youth club	()	()	()
iv. Night school	()	()	()
v. Defence club	()	()	()
vi. School committee	()	()	()
vii. Any other (specify)	()	()	()

14. Aspiration:

- A. How many years of education do you desire for your eldest son? _____
- B. Do you think this is possible? _____
- C. What occupation do you desire for your eldest son? _____
- D. How many years of education do you desire for your daughter? _____

15. Self Actualization (write down responses in belief):

A. Is your job a real challenge to what you think you can do?

B. How much chance does your job give you to learn things you are interested in? _____

C. Are the things you are learning in your job helping to train you for a better job? _____

D. How much chance do you have to try out your ideas on the job? _____

E. How much does your job give you a chance to do things you are best at? _____

16. Intrinsic Job Satisfaction:

i. How well do you like the sort of work you are doing?

ii. Does your job give you a chance to do the things you feel you do best? _____

iii. Do you get any feeling of accomplishment from the work you are doing? _____

iv. How do you feel about your work; does it rate as an important job with you? _____

17. Achievement Motivation (Probe deeply all questions and write down responses):

A. What do you need for better life? _____

B. What is the greatest desire of your life? _____

C. What is your opinion about Indian farmers? _____

D. What should a good farmer possess? _____

E. Who is an honest person? _____

F. What are your plans for the coming five years? _____

18. Empathy (Write down responses);

A. What will you do if you are made chairman of the village council? _____

B. What will you do for improving agriculture if you are made A.E.O.? _____

- C. What will you do for improving your district if you are made the Collector? _____
- D. What will you do, if you are made Minister for Agriculture, to increase agricultural production? _____
- E. What should a beggar do? _____
19. Have you taken any loan from the Government? _____
20. Do you need to repay any loan to the Government? _____
21. Do you read any newspaper? _____
22. If yes (21), how often do you read the newspaper? _____
23. Can you read a letter? _____
24. Have you listened to a radio? _____
25. If yes (24), how often do you listen the radio? _____
26. What radio programs do you listen and like? _____
27. How often in a month do you listen above radio programs? _____
28. Have you seen cinema? _____
29. How often do you see cinema in a month? _____
30. Source credibility:

The following bipolar adjectives on five-point scale were used to measure various dimensions of radio credibility: Safe-unsafe, just-unjust, kind-cruel, friendly-unfriendly, honest-dishonest, trained-untrained, skilled-unskilled, qualified-unqualified, informed-uninformed, experienced-inexperienced, aggressive-meek, emphatic-hesitant, timid-bold, active-inactive, energetic-tired, sociable-unsociable, cheerful-gloomy, and congenial-quarrelsome. The respondents were given the oral instructions regarding the usual procedure of responding on these scales.

31. Knowledge Scale:

- A. What is your best estimate of damage to food grains in storage by insects, etc.? _____
- B. Is it correct to say that insects and rats spoil much more food grains than they eat? _____
- C. Is it true that clean and dry seeds can be stored longer safely? _____
- D. Is it possible that some insects start damaging the seeds even before harvest? _____
- E. Is it essential to use chemicals to prevent insects and rats in storage of food grains? _____
- F. What kind of D.D.T. should be used for storing food grains safely? _____
- G. Is it necessary to inspect stored grains several times and take care of it frequently? _____
- H. Is zinc phosphate a rodenticide? _____
- I. Is it a good practice to store new and old seeds separately? _____

32. Attitudes toward new methods of storing food grains:

Good	<u>5</u>	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>	Bad
Wise	<u>5</u>	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>	Foolish
Sick	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	Healthy
Clean	<u>5</u>	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>	Dirty
Harmful	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	Beneficial

33. Beliefs regarding new methods of storing food grains:

Existent	<u>5</u>	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>	Nonexistent
Probable	<u>5</u>	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>	Improbable
Unlikely	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	Likely
False	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	True
Impossible	<u>5</u>	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>	Possible

34. Behavioral intention to adopt the new methods of storing food grains (Rate on the following scales):

A. Appreciate new methods of storing food grains

Would 4 3 2 1 0 Would not

B. Use new methods of storing food grains

Would 4 3 2 1 0 Would not

C. Recommend to my friends about its adoption

Would 4 3 2 1 0 Would not

35. Participation (Only for discussion members. Rate on the following five point scales):

A. Passive 1 2 3 4 5 Active

B. Asking questions: Low 1 2 3 4 5 High

C. Answering questions: Low 1 2 3 4 5 High

D. Degree of leadership: Low 1 2 3 4 5 High

E. Frequency of speaking: Low 1 2 3 4 5 High

(Jai Ramji Ki)

APPENDIX B

Table 14. Analysis of variance results for the total listening and discussion groups of the four villages

Variables	Listening group	Discussion group	F Value
Age	34.9	36.6	0.25
Education	2.9	2.2	1.09
Farm size	18.9	20.0	0.08
Size of family	7.2	9.1	2.44
Self esteem	35.9	39.9	0.49
Social isolation	5.9	3.8	0.95
Extension knowledge	4.4	5.2	3.63
Extension attitude	4.4	5.1	2.68
Extension contact	19.0	21.4	0.45
Political knowledgeability	3.0	3.1	0.01
Agricultural knowledge	7.8	8.8	1.12
Agricultural attitude	7.4	8.5	1.09
Agricultural adoption	5.4	6.6	1.84
D.D.T. knowledge	0.7	0.8	0.90
D.D.T. attitude	0.6	0.8	0.92
D.D.T. adoption	0.6	0.7	0.29
Rat poison knowledge	0.8	0.8	0.01
Rat poison attitude	0.7	0.8	0.15
Rat poison adoption	0.7	0.8	0.15
Social participation	1.4	1.4	0.01
Educational aspiration	6.6	6.0	0.19
Occupational aspiration	0.8	0.7	0.14
Self actualization	12.7	12.7	0.02
Intrinsic job satisfaction	11.7	11.0	3.18
Need for achievement	5.0	5.7	1.79
Empathy	6.0	6.2	0.08
Newspaper exposure	5.1	2.9	1.46
Letter reading	0.6	0.4	4.48*
Radio listening	19.7	21.2	0.31
Cinema exposure	1.8	1.8	0.01
Radio trustworthiness	9.3	10.1	0.66
Radio qualification	9.6	10.9	1.49
Radio dynamism	11.2	13.3	5.60*
Radio sociability	10.5	10.9	0.14
	(N=34)	(N=40)	

*Significantly different at the 5 per cent level