

ADOPTION AND INTERNALIZATION OF
EDUCATIONAL INNOVATIONS AMONG
TEACHERS IN THE PILOT SECONDARY
SCHOOLS OF WEST PAKISTAN

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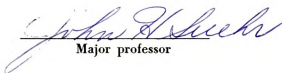
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ABSTRACT

ADOPTION AND INTERNALIZATION OF EDUCATIONAL INNOVATIONS AMONG TEACHERS IN THE PILOT SECONDARY SCHOOLS OF WEST PAKISTAN

by Anwar Khalil Khan

The purpose of this study was to examine factors related to adoption and internal acceptance of educational innovations in formal organization. This study was also designed to provide basic information concerning the four interrelated items--the innovation, its diffusion, the characteristics of the social system, and the time of adoption. In particular, the objectives of this study were:

- (i) to determine how certain educational innovations are adopted and internalized by the pilot secondary schools; and to analyze the factors related to teacher adoption and acceptance.
- (ii) to formulate, from the insight gained from the findings, suggestions for policy makers and educational administrators on how to facilitate the acceptance of innovations in the common secondary schools of West Pakistan.

A field study was conducted in a representative sample of pilot schools of West Pakistan (N = 6). All teachers in these schools were asked to fill out a questionnaire in a group situation. The innovations investigated were:

(1) introduction of vocational curricular subjects; (2) teaching of science through laboratory method; (3) employment of educational guidance; (4) use of objective tests; (5) in-service training of teachers. Twenty-six hypotheses predicting directional relationships between twenty-seven independent and two dependent variables were postulated. Independent variables included: (1) demographic; (2) institutional; (3) communication; and (4) personal disposition toward change variables. The two dependable variables were: (1) adoption; (2) internalization.

Pearsonian product-moment correlation coefficients was employed to indicate the magnitude of the relationship between independent and dependent variables.

Among the independent variables, demographic, role satisfaction, teacher's perception of student benefit from the innovations, perceived change orientation of the headmaster, self-designated opinion leadership and time of awareness of innovations were found to be significantly related to innovations adoption and internalization. Self perceived change orientation was also significantly correlated with innovations adoption and internalization.

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By

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This work is dedicated to my mother-in-law

Saida Begum

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CHAPTER I

HISTORICAL BACKGROUND

Undivided India was ruled by the Britishers over a century. India became free from the British yoke on August 15, 1947. At that time the Muslims of the sub-continent demanded separate home land where their values and culture should be safeguarded. Consequently, Pakistan came into existence on August 14, 1947.

The origin of the system of education which is prevalent today can be traced to the beginning of the nineteenth century when the government had surveys made of the prevalent systems of education with a view to reorganizing education to suit the needs of the time. Consequent on Macaulay's Minute (1835) regarding the educational policy of the future,

. . . that the great object of the British government ought to be the promotion of European literature and science among the natives of India; and that all the funds appropriated for the purpose of education would be best employed on English education alone (pp. 50-51).

The Minute of Lord Macaulay and subsequent resolutions passed by the Government in 1835 led to the establishment of schools teaching European literature and science. Macaulay felt that there was little in Indian language and culture

which could be used for education. "He wanted to sweep away everything of the past and to modernize entirely, on English lines - to write on the clean slate of the Indian mind the word 'English!'" (Andrews, 1913, p. 26). Macaulay also saw little of permanent value in beginning at the bottom with the indigenous schools and thus giving the masses an opportunity for elementary education. In other words, the indigenous schools were to be ignored, no financial aid given to them, and no efforts made to improve the instruction. The education which Indians received under the British rule was a borrowed and imitated article. It did not cooperate with the national genius of its being and hence it was powerless to enrich the likelihood of its soul.

As a consequence another unfortunate development had been that, because of the almost exclusive emphasis upon literary education, students had little preparation for anything except government or clerical service. Education had been little concerned with science, technology, and the actual doing of things. A result closely associated with the preceding was the striking uniformity of product of the educational system and the lack of much attention to individual differences. The type of education inaugurated by Macaulay's Minute also strengthened a method which emphasized memorizing rather than thinking; imitation rather than originality; and, routine rather than initiative.

Finally, the educational system which gradually resulted from Macaulay's Plan was too official, too rigid, and

too highly centralized. Personal influence and local responsibility diminished, while official dominance increased. Local experimentation and differentiation was discouraged by a rigidly controlled system centralized in a comparatively small group of people. The school curriculum and methods of instruction were largely determined by the demands of the universities. The whole educational organization had been, in many ways, as foreign to the Indian people as the Western learning it had espoused.

The education imparted in these schools became a passport for entering into Government services. The system created was designed to produce Government servants. As a result of this, education was imparted with the limited object of preparing pupils to join the services and not for life. The range of educational opportunities was limited to those who contributed to the attainment of competence in some of the skills of Government. In these schools the standard of achievement in literary subjects was from the very beginning high but little or no progress was made in training the students in the practical side of science. It may, therefore, be concluded that some of the defects persisting today owe their origin to the policy pursued in the past.

Certain specific defects grew out of the system of secondary education in vogue during the years 1854-1882: the mother tongue was completely neglected as a medium of instruction; nothing was done to train teachers; and, the

courses of study became too academic and unrelated to life mainly because there was no provision for vocational or technical courses. One further defect was that external examinations dominated the educational system.

Defects in the Present System of Education

- (1) The existing program of secondary schools was academically narrow, bookish and mechanical, stereotyped and rigidly uniform and did not cater to the different aptitudes of students. According to the Report of the Commission on National Education, Government of Pakistan (1959):

The present curricula for secondary schools lay too much stress on mental ability - particularly in literary subjects - too little on other equally important attributes of the developing boy or girl, and on developing skills or fostering a pride in dexterity and technical achievement (p. 111).

- (2) There was little diversification in the courses with the result that all the students had to study the same content irrespective of their present interest and future needs. In the words of the Report of the Commission on National Education (1959):

When in this century our society underwent a rapid series of changes our schools remained static, isolated from the social, economic and industrial revolution around them, and failed to meet contemporary demands. The main weakness of secondary education is the absence of full opportunities for training in technical and other vocational subjects, and its inflexibility and lack of diversification which

fails to correspond to social needs and individual aptitudes and interests (p. 111).

- (3) The methods of teaching were mechanical and repetitive. Prevailing teaching methods could only be described as the mechanical communication of theoretical book-learning to reluctant children. Too much stress was laid on memorization of facts without understanding the implications and far too little on initiative, inquiry, independence of thought, habits of industry and self-reliance. The Report of the Secondary Education Commission, Government of India (1953), while discussing the weaknesses in the present system reported:

Another serious defect which vitiates present day teaching is its excessive domination by Verbalism, i.e., the tendency to identify knowledge with words, the delusion that if a student is able to memorize or repeat certain words he has grasped the facts or the ideas that they are meant to convey (p. 110).

- (4) A large percentage of teachers at the secondary stage were untrained; few opportunities for in-service courses were available; the teachers were poorly paid, thus not attractive to suitable people. The Report of the Commission on National Education, Government of Pakistan (1959) described the situation as:

The teachers work to prescribed syllabuses and textbooks in over-crowded classrooms; in addition many labour under the handicap of insufficient training, low salaries, and little standing in the community; it is a small wonder that the best talents are not attracted to teaching and that these conditions have led to a deterioration of standards and sense of frustration among the teaching profession (p. 112).

(5) The system of external examination determined not only the contents of education but also the method of teaching - in fact, the entire approach to education. The matriculation examination at the end of secondary schooling determined if the candidate shall be permitted to enter college; and, the grades he obtained greatly affected his chances of employment. Commenting on the situation, Curle (1966) writes:

The purpose of these formalized examinations is, obviously, to maintain control of academic standards in a system in which the existence of a large number of institutions of varied caliber might bring about a decline in quality. Yet the very rigidity of the system has itself led to serious lapses of standards (p. 61).

The following excerpt from the Report of the Commission on National Education ¹⁹⁵⁹ (1954) well summarizes the criticism:

The present system of examination has been widely criticized. We have heard that it is responsible for many of the weaknesses in our education. For most students the examination has come to be more important than the acquisition of knowledge. Students have postponed their studying to the few weeks before the examination and, in consequence, have not learned the habit of sustained effort and application. Teachers have taught only the basic minimum of what was required by the syllabus and have substituted cramming for education (p. 23).

As the objective of colonial power differed vitally from those of National Government, the inherited system of education failed to meet the new hopes and aspirations of the people. After independence and on the establishment of Pakistan, the educational objectives of the country have undergone changes. At a conference convened in November 1947, shortly after Pakistan's independence, Mohammad Ali

Jinnah, the Father of the Nation, thus expressed the Nation's Goals:

The importance of education and the right type of education, cannot be over-emphasized. Under foreign rule of over a century, sufficient attention has not been paid to the education of our people, and if we are to make a real, speedy and substantial progress we must earnestly tackle this question and bring our educational policy and programme on the lines suited to the genius of our people. Consonant with our history and culture and having regard to the modern conditions and vast developments that have taken place all over the world. . . There is no doubt that the future of our State will and must depend on the type of education we give to our children and the way in which we bring them up as the future citizens of Pakistan. Education does not merely mean academic education. There is immediate and urgent need for giving scientific and technical education to our people in order to build up our future economic life and to see that our people take to science, commerce, trade and, particularly, well-planned industries. We should not forget that we have to compete with the world which is moving very fast in that direction. At the same time, we have to build up the character of our future generation. We should try, by sound education, to instill into them the highest sense of honour, integrity, responsibility and selfless service to the nation. We have to see that they are fully qualified and equipped to play their part in the various branches of national life in a manner which will do honour to Pakistan (p. 5).

Having pointed out the weaknesses in the educational system of Pakistan and the objectives to be aimed at, it was therefore necessary to substantially improve the existing pattern of secondary education.

The Establishment of Education Extension Center

Social institutions usually come into existence as a result of certain crises, and their primary aim is to offset

and ameliorate the conditions which give birth to them. This crisis was the genesis of the establishment of a number of pilot secondary schools in West Pakistan and Education Extension Center at Lahore in 1958.

The crisis was that the schools had become cramped in their vision and outmoded in their approach to education. Pakistan came into being to preserve certain values of life, and to work for the economic, social, and spiritual upliftment of the masses.

But the schools subsisted on outmoded objectives, practiced traditional methods, and were, therefore, unable to produce the type of persons who could meet the challenges of life and also could contribute towards the accomplishment of the ideas for which Pakistan had come into existence. This was in large part the fact that the teacher, the backbone of every school system, had not only stopped growing professionally, but had also failed to perform normal duties diligently (Jaskani, 1965, p. 1).

This was the state of affairs when the country decided to embark upon ambitious schemes for economic, social and educational development. The aspirations and needs of Pakistan would be frustrated if arrangements for the re-orientation and motivation of teachers were not immediately made. The Educational Conference, held under the aegis of the Government of Pakistan, Education Division, in December, 1951, was of the opinion that "the teacher, being the pivot of the educational system, needs to be retrained in modern techniques and in educational ideology of Pakistan (p. 435). The Conference recommended the establishment of 261 centers (80 in East Pakistan and the rest in the Provinces and States of the West Wing),

to institute comprehensive refresher courses. Each refresher course will be of three months' duration and . . . will attempt to bring the teacher's knowledge up to date in various fields of study, acquaint him with new teaching techniques . . . and train him in an appreciation of fundamental principles of Islamic ideology (p. 435).

Nothing seems to have been done regarding the opening of such a large number of Centers, though some provinces did provide in their budget paltry amounts for conducting short term refresher courses. The problem of staffing these centers might also have prevented the implementation of this proposal. While these ambitious plans did not materialize, it is significant to note that educational leaders at that time were aware of the dire need for upgrading teachers on a large scale.

Earlier planning was ambitious but haphazard, and unrealistic. The political segmentation of the West Wing into provinces and states was found to be a hindrance in the development of this idea. An important step had to be taken to integrate all provinces and states into the West Pakistan province. Political unity combined with sagacity in planning made it possible to introduce elements of realism, prudence, and comprehensiveness in developmental schemes, including those in the field of education.

When the outline of the scheme on Education and Training was prepared by the Planning Commission in May, 1956 for inclusion in the First Five Year Plan (1956-60), the number of centers previously proposed was reduced to five and a new nomenclature was used for them, namely, Education Extension Centers. These Centers were to provide

in-service education to (a) teachers, (b) educational officers, (c) vocational teachers, and (d) physical education teachers.

It was not only the reorientation of teachers and school administrators that received attention. Attempts were also initiated to improve the general pattern of secondary education by introducing "a more diversified and enriched series of courses to prepare rounded citizens in terms of their capabilities." (First Five-Year Plan, [1956-60] p. 32) The concept of multi-purpose schools providing general education with a practical bias fascinated the education planners. This type of school became the cherished goal of the educational system in Pakistan as only such schools would be expected to provide

a solid basis for specialized training, by educating pupils in principles, by assisting them to reach mental and manual maturity, and by providing them with guidance and information concerning opportunities in various occupations (Ibid., pp. 233-34).

The First and the Second Five-Year Plans provided funds for introducing diversified courses in a number of schools. But this concept has taken time to implant itself on Pakistan soil because manual dexterity and mental maturity never went together in schools. It was, perhaps, necessary to demonstrate the advantages of the multi-purpose program through some model schools.

The need for improving the quality of teaching and providing diversified courses had, however, been identified. What was now needed was to make a thorough study of the

issues involved and to discover the means for introducing the necessary changes. It also seemed expedient to profit from the experiences of other countries where such programs have been carried out successfully.

Accordingly, with the concurrence of the Central Ministry of Education, the Education Departments of East and West Pakistan requested the Ford Foundation of the United States of America to provide resources for a team of Pakistan educationists to study the program of comprehensive schools in other countries; to make available the services of U.S.A. consultants in drawing up plans suitable for conditions in Pakistan; and to provide financial aid in implementing these plans.

The Ford Foundation with an abiding faith in education as a vehicle for social change, readily responded to this request and asked the University of Chicago to organize a study tour of Pakistan educationists and to provide advisory services to the Government of Pakistan in formulating their schemes for the improvement of secondary education.

The group visited schools and training colleges and conferred with the educational leaders of Turkey, Switzerland, West Germany, France, Denmark, Sweden, Norway, Great Britain and U.S.A. They also observed the extension education techniques in operation and visited typical comprehensive schools.

The study tour lasted four months. It was in July, 1957, that the Pakistan team and the American consultants

spent a full week while in the United States of America in formulating identical schemes for each wing of Pakistan. These are known as (a) scheme for the establishment of Education Extension Center at Lahore and Dacca, and (b) scheme for the development of twenty Pilot Secondary Schools each in East and West Pakistan.

A. General Description of the Scheme

West Pakistan had decided to reorient and enrich its education to meet the growing and varying needs of its people by diversifying the school program and by introducing modern methods of teaching. These objectives could be realized only if the teachers were given the chance to improve their professional competence and skills. It was, therefore, necessary to retrain and reinspire teachers, headmasters and headmistresses, inspectors (supervisors), and other educational officers. To meet this need, it was proposed to establish an Education Extension Center with an appropriate faculty, and coordinate programs of in-service education for educational personnel.

The Center in West Pakistan was designed to perform the following functions:

1. To enable inspectors and other education officers to acquire better understanding of the present-day needs for education and greater skill in discharging their responsibilities.

2. To arrange short in-service courses for the teachers with a view to enhancing their knowledge and teaching skills.
3. To train headmasters in the democratic procedures of school administration as well as in exercising their leadership toward the improvement of classroom instruction and general tone of the schools.
4. To disseminate among educational officers and teachers knowledge of modern methods of instruction, use of audio-visual aids and other instructional materials.
5. To organize conferences for the top-ranking officers of the Education Department.
6. To stimulate and guide the proposed multi-purpose courses in the Pilot Secondary Schools (Jaskani, 1956, pp. 10-11).

B. Staff of the Center

In order to discharge the above functions, the Center should have a staff consisting of the Director, one or two Deputy Directors, and eight to ten subject specialists. The scheme further proposed that at least six members of the staff should be trained abroad in the techniques of in-service education and in one or two special areas of curriculum. It also envisaged the appointment of foreign advisers to the Center for a number of years.

C. Building and Equipment

The scheme also envisaged the construction of a campus having an academic block with conference rooms, library,

classrooms, projection rooms, offices, etc.; three hostels, a cafeteria, and residential quarters for the staff and the establishment.

D. Kinds of Activities

Some of the activities that the Center was expected to organize are:

1. Intensive courses of appropriate length of time in such areas as teaching of science, language, social studies, math, etc., general problems of curriculum development, techniques of evaluation, guidance and counseling, supervision of instruction, etc.
2. Conferences of relatively short duration for the top ranking officials to study certain aspects of planning and to consider matters of broad educational policy.
3. Seminars for small groups for making a systematic study of the common problems of the participants.
4. Workshops on specific problems requiring actions.
5. Dissemination of information about educational development to educators throughout the Province by publishing bulletins, reports, etc.
6. Follow-up study of the performance of officials who have participated in any of the courses or workshops (Ibid., p. 12).

The Scheme of Pilot Secondary Schools in West Pakistan

The study group also prepared a scheme for the development of pilot secondary schools in East and West Pakistan. The need for developing these types of experimental model

schools arose from the following factors:

1. The existing program of secondary schools was academic, narrow, and bookish and provided no opportunities to the students for inculcating manipulative skills.
2. It did not provide varied learning experiences for pupils of different abilities and aptitudes.
3. There was little diversification in the courses with the result that all the pupils had to study the same content, irrespective of their present interests and future needs.
4. The existing program did not contribute to the dignity of labor.
5. The methods of teaching were mechanical and repetitive. Students were taught merely to pass the public examinations (Ibid., p. 14).

It was, therefore, proposed to convert twenty-three existing schools into pilot secondary schools to show the way toward rectifying the weaknesses of the schools by providing diversified programs of education, and:

1. To meet the differing abilities and aptitudes of the students;
2. To provide useful experiences to those who will pursue their studies at colleges and universities as well as to those who will enter vocations after completing secondary education;
3. To offer technical and commercial courses in boys' schools in the urban areas and technical and agricultural courses in boys' schools in the rural areas;
4. To offer home economics in girls' schools with commercial courses;
5. And to offer an expanded science program in all these schools (Ibid., p. 15).

In order to meet the requirements of the diversified program, it was considered essential:

1. To set up well equipped workshops, laboratories, etc.;
2. To introduce counseling and guidance services in these schools;
3. To establish small libraries consisting of modern useful books;
4. And to give enough freedom to these schools in experimenting with new techniques of instruction and evaluation (Ibid., p. 15).

Criteria of Selection of the Pilot Secondary Schools

It should be readily apparent that the selection of specific schools to participate in the program of pilot secondary schools is a matter of utmost importance to the success of the endeavor. These are some of the following general criteria:

1. The schools should be equitably distributed throughout the province so as to be broadly representative of the economic, cultural and physical characteristics of the regions.
2. The schools as a whole should represent a diversity of communities and they should be representative of both urban and rural areas.
3. Each school should possess the potential for outstanding leadership of a modern program of secondary education.
4. Each should enjoy significant community interests and respect.
5. Each school should be so situated as to make its progress and findings readily observable and available to many other schools in its region.
6. The schools as a group should include public, private, boys' and girls' schools.

7. One or more of the selected schools should be in close proximity to the Extension Center.

Special Function of the Pilot Schools

The pilot schools have been designed to provide a pattern for re-structuring secondary education in the Provinces. They have been given both the challenge and the opportunity to demonstrate the role that the secondary schools must play in a developing nation. These schools are expected to show:

1. How to devise a school program to meet the varying needs of pupils;
2. How to improve the quality of education;
3. How to equip students for taking up useful vocations after completing secondary school education;
4. How to reduce the waste of manpower occasioned by drop-outs and failures;
5. How to involve students in their own improvement and growth;
6. How to instill qualities of leadership in the students;
7. How to bring the school and the community closer together.

Some of the other functions of the pilot schools are that they should deliberately encourage critical examination of their program by their faculties, students, and community. They should demonstrate the effectiveness

of new methods and techniques and experiment with improvements in the examination system. These schools should also

provide school situations within which deliberate experimentation with both curriculum and methods of instruction may be carried out, enabling educational policies to grow out of careful study and experimentation within our own schools under conditions typical to the country. Lastly, as the program develops it will be possible to bring headmasters and teachers of other secondary schools to the pilot schools where direct experience in the situation, face-to-face contact with the students and direct observations in classroom, laboratories and workshops will be far more significant than published materials in demonstrating the value of similar changes throughout the country. Thus, the pilot schools will be a major asset to the in-service training program of the extension services. (Government of Pakistan, Scheme for Development of Pilot Secondary Schools in Pakistan, p. 5.)

The provision of funds for the development of twenty pilot secondary schools in West Pakistan was made in the Second Five-Year Plan. As such, the phased implementation of the scheme started from the year 1960-61. However, the selection of the high schools was made earlier. The original scheme envisaged that:

1. Technical, commercial, and scientific courses be introduced in approximately ten urban schools;
2. Technical, agriculture, and scientific courses be introduced in five rural schools;
3. Home economics and scientific courses be introduced in five girls' high schools.

When this scheme was prepared and approved for West Pakistan, the federal area of Karachi, directly administered by the Government of West Pakistan, was excluded from its

purview. In 1961, the Karachi area became an administrative unit of West Pakistan province. Accordingly the Government of West Pakistan had sanctioned the development of three high schools in Karachi into pilot secondary schools - one Government school for girls and two non-Government schools for boys. Thus, the total number of pilot secondary schools being developed in West Pakistan is twenty-three - sixteen for boys and seven for girls.

The Curricula of the Pilot Secondary Schools

While these schools provided increasing opportunity for students to receive some specialized training, this was not to be carried out at the expense of the program for general education. It was proposed that pilot schools should offer a more diverse and richer series of courses, with emphasis upon areas within which there was great need of specially trained personnel. It was intended that in several schools programs would be set up to demonstrate needed developments in scientific education, in technical and pre-vocational areas, in home economics, in business and commercial education, and in agriculture education. In addition, the present general science programs should be improved with laboratory experiences to make it more realistic and to have more emphasis on science in everyday life.

The senior secondary stage (from class IX to X) would provide a wider choice of electives to enable students to

make a selection according to their interests and future goals. In addition to common core subjects like Urdu, social studies, English, religious education and physical education, the students would be provided with opportunities to select from the following groups:

- | | | |
|-----------------|---|----------|
| (1) Humanities | } | For Boys |
| (2) Science | | |
| (3) Technical | | |
| (4) Agriculture | | |
| (5) Commercial | | |

and

- | | | |
|--------------------|---|-----------|
| (1) Humanities | } | For Girls |
| (2) Science | | |
| (3) Home Economics | | |

Concluding Remarks

Although the scheme for the development of pilot secondary schools and the establishment of the Education Extension Center have been sanctioned separately, yet these are supplementary to each other and constitute a two-frontal attempt to improve secondary education. One aims at broadening the educational base and at the same time individualizing instruction. The other aims at reorienting school teachers and administrators to their new responsibilities and equipping them with such skills and competencies as may enable them to meet the new challenge. The pilot secondary schools are the educational laboratories where newer and more effective techniques of instruction, evaluation, and guidance may be treated and developed. The

Education Extension Center provides necessary guidance to these schools and acts as a clearing house for disseminating to other schools in the Province the methods and devices that are successfully tried in the pilot schools.

CHAPTER II

THEORETICAL CONSIDERATIONS

In his discussion of "bureaucracy," Weber (1947) assumed that an organization has a primary objective. To reach this objective, sub-goals must be established and specific means chosen for their attainment. This, in turn requires a differentiation into specialized tasks which must be carried out dependably in a coordinated manner. Tasks are combined into positions (offices or jobs) and individuals are assigned to these positions. Each position has a formal or informal job description which specifies what the incumbent of the position is expected to do. To have further assurance that the system will work properly, rules and policies are promulgated as guides to the behavior of the participants. Finally, a control mechanism is established whereby the various positions are linked together by a chain of command so that the authority and responsibility of each position is clear. Thus, when an innovation or change has been adopted by high-level decision-makers, especially in an authoritarian organization, adoption rate is expected to be relatively

high since the low-ranking members tend to comply in accordance to their role expectation.

For the purpose of internally comparing various types of organizations, the degree of formalization of bureaucratization may be used. A relatively high formalized organization is composed of the following elements:

1. Centralization of control.
2. Differentiation of functions.
3. Qualification for office or position - more emphasis on competence.
4. Objectivity - more clearly defined role-responsibility for each position.
5. Precision and continuity - more uniform position behavior and consistent response over time (Friedrich, 1952).

A review of literature on administration reveals two general approaches to the study of the process of administration. One approach generally attends only to the structural aspects of organization, the second attends primarily to aspects of human behavior within structured organizational settings. The former approach in its extreme assumes human behavior to be a constant; i.e., the persons inhabiting a formal organization are viewed as non-interacting entities within the organization and the focus of the study is the manipulation of structural variables in relation to organizational output. Simon (1957) attempts to refute this orientation when he suggests,

. . . if there were no limits to human rationality, administrative theory . . . would consist of a single precept: always select that alternative,

among those available, which will lead to most complete achievement of your goals (p. 240).

Parsons (1964) also supports the view that both dimensions are necessary to the study of organization:

Like any social system an organization is conceived as having a describable structure. This can be described and analyzed from two points of view, both of which are essential to completeness. The first is the 'cultural-institutional' part of view which utilizes the values of the system and their institutionalization in different functional contexts as its point of departure; the second is the 'group' or 'role' point of view which takes sub-organizations and roles of individuals participating in the functioning of the organization as its point of departure (pp. 35-36).

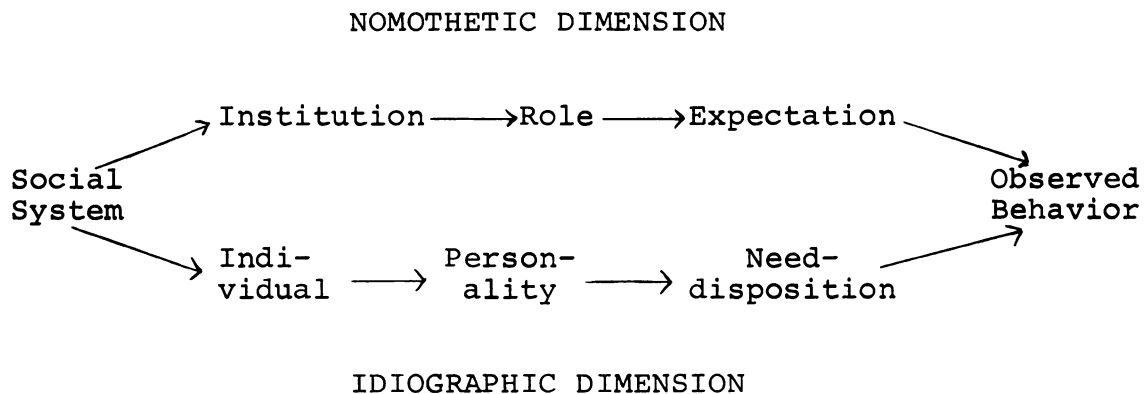
The approach taken is that the effectiveness and efficiency of a formal organization is a function of both structurally-related and behaviorally-related variables and that the interaction of the two dimensions results in a Gestalt which, as a whole, is greater than the sum of the 'two parts.'

A useful model for conceptualizing role-personality interaction in the administrative process is provided by Getzels (1958). He conceives administration as a social process in which:

we may conceive of administration structurally as the hierarchy of subordinate-superordinate - relationships within a social system. Functionally this hierarchy of relationships is the focus for allocating and integrating role and facilities in order to achieve goals of the Social System (p. 151).

. . . administration always operates in an interpersonal - or, if you will, social relationship that makes the nature of relationship the crucial factor in the administrative process (pp. 151-152).

Getzels asserts an organization may be viewed "as involving two classes of phenomena, which are at once conceptually independent and phenomenally interactive" (p. 152). The first he calls the nomothetic or normative dimension which is the institution with certain roles and expectations intended to fulfill the goals of the institution. The second he terms the ideographic dimension which is taken as the individual with a certain personality and need - disposition who "inhabits" the institution. The concepts are presented graphically as:



Getzels further asserts that the two dimensions interact in determining the observed behavior of a person in an organization and offers the equation $B = f(RXP)$; i.e., behavior is a function of the interaction of role and personality.

The system becomes a dynamic one when it is investigated over a period of time. In fact, one way to evaluate the growth, effectiveness and efficiency of an organization is to study the dynamic process of change that takes place within an organization. It is to recognize that successful efforts at planned change must take as a primary target the improvement of organization health - the school system's ability not only to function effectively, but to develop and grow into a more fully-functioning system. After examining closely the literature on the diffusion of innovations, one concludes that organization properties have often been treated peripherally. A good deal of attention is paid to the individual innovator, to when he adopts the innovation, and why. But the literature remains nearly silent on the organizational setting in which innovations take place. More recently, however, a few investigations suggest that such structural effects may be of much importance in explaining individual innovative behavior.

In an analysis of the diffusion of innovations to teachers in Thai Government Secondary Schools, Mortimore (1968) found very low correlations, most of which were not significant, between 51 independent variables, and (1) teacher's awareness of new educational innovations, (2) favorable attitudes toward these new ideas, and (3) innovativeness. One reason for these low relationships very likely is the fact that structural factors were almost entirely ignored.

Another evidence is provided by Quader's (1966) analysis of data from some 600 villages in 26 Philippine neighborhoods. He found that the compositional effects (of neighborhood mean education, mass media exposure, etc.) were about as effective as predictors of individual innovativeness as were individual variables like education, media exposure, etc.

Structural Effects

They are effects on his behavior of the social structure of the system in which the individual is a member. One can conceptualize a teacher's innovative behavior as explained by two types of effects: (1) the individual's personality, communication behavior, and attitudes; and (2) the make-up and norms of his school, i.e., its social structure. The first class of variables are individual, the second are system variables. Both are used to predict a dependent variable at the individual level.

Rogers and Jain (1968) put it in mathematical expression . . .

$$\hat{Y}_{ij} = a + b_i + x_{ij} + c_i \bar{x}_{ij}$$

Where $\hat{Y}_{ij}$ represents a teacher's (predicted) innovative behavior; x_{ij} represents a teacher's position on some predictor of his innovativeness, for example, his level of formal education; and $\bar{x}_{ij}$ represents his school's model

position on some predictor of innovativeness, for example, the average level of formal education of his fellow teachers (p. 9).

The amount of variance in Y, teacher innovativeness, explained by X,s, the system variables, is due to structural effects.

Thus, the group or the social system has norms which affect human behavior, for the system is an important reference group, influence on the individual's decisions, and exercise social control of the system over the individual behavior.

Past diffusion research have been mostly concerned with dependent variables such as the time of awareness and the time of adoption of innovations. Lin (1966) in his study, measured two new dependent variables in studying diffusion within organization: (1) innovation internalization (defined in the definition of terms) and (2) change orientation (also defined in the definition of terms).

In the few studies dealing with educational diffusion within organizations, teacher innovativeness seems to be the most commonly studied variable. A major dependent variable in studies of forced innovation decision, where the individual has no legitimate influence, should be the teacher's attitude toward the innovation(s).

Another variable in the case of forced decision which often occur in organizational settings might be studied. Innovation dissonance is the discrepancy between

the organization members' (teachers') attitudes toward the innovation and the overt behavior (adoption or rejection) of the innovation as demanded by the organization (the social system).

TABLE I - Four Dissonant - Consonant Types on the Basis of Individual Attitude Toward an Innovation and Overt Behavior Demanded by the Organization.*

Members' Attitude Toward the Innovation	Overt Behavior Demanded by the Organization	
	Rejection	Adoption
Unfavorable	I. Consonant Rejector	II. Dissonant Adopter
	↑ P to C**	↓ P to C**
Favorable	III. Dissonant Rejector	IV. Consonant Adopters

Pressures ← towards Consonance
Pressures → toward Consonance

*Source: Knowlton (1965, p. 53)

**Pressures toward Consonance

Type I and IV are consonants because their behavior is in line with their attitudes. Type II and III have cognitive dissonance (Festinger, 1957), because the attitude of the member toward the innovation is discrepant with his behavior within the organization. In short, when an individual's cognitive system is dissonant with the overt behavior toward an innovation demanded by the organization, the individual will attempt to reduce the dissonance by either changing his attitudes or his behavior.

The individual's degree of understanding and his knowledge of the innovation is another dependent variable.



Mere awareness of an innovation in an organization does not tell us much. Even if an individual has a favorable attitude toward the innovations and has adopted without understanding the consequences of the innovation, there is greater chance of its misuse.

Communication Variables

Communication is central to any social system. Katz and Kahn (1966) defined organizations from an "open system" point of view, characterizing them as both an energetic and an informational system. Diffusion, in essence, is a communication process. In organization setting, the nature of the diffusion process for an innovation will be largely determined by the nature and amount of communication among the members.

Downward communication refers to the flow of information from superiors to subordinates. Upward communication is the flow of messages ascending the hierarchical ladder. Upward communication, like downward, is essential for effective functioning of an organization. There is some evidence that upward communication is often at least as inadequate as downward communication, and is perhaps less accurate because of the selective filtering of information which subordinates feed to their superiors (Likert, 1961). Katz and Kahn (1966) observe that in coercive organizations, subordinates try to protect their position by screening

facts to accord with the perceived emotional biases of their superiors.

When upward communication in an organization is quite limited, it becomes difficult to evaluate the 'true' reactions of organizational members toward the innovations advocated by the superiors. Initial resistance to the innovation may be distorted. Likert (1961) observes that 'exploitative authoritarian' organizations are characterized by inadequate and inaccurate upward communication, whereas 'participative' organizations have a great deal of feedback information. The participative system provides an organizational climate healthy for the diffusion of innovations, as superiors have adequate and relatively accurate feedback information as to how teachers are reacting to innovations.

Horizontal communication occurs between individuals at the same hierarchical level. Katz and Kahn (1966) observe:

Communication among peers in addition to providing task orientation, also furnishes emotional and social support to the individual Hence, if there are no problems of task coordination left to a group of peers, the content of their communication can take forms which are irrelevant and destructive of organizational functioning (p. 244).

In educational organizations, there seems to be a great deal of horizontal communication, but we know less about the role horizontal communication plays in the diffusion of educational innovations. Since horizontal

communication is characterized by high 'homophily,' it provides a climate for free and frank discussion about the innovation and in this process even peers can exert some influence for adoption. Katz and Lazarsfeld (1955) have analyzed in great detail how various informal channels of communication interact with the mass media to shape opinions, attitudes and behavior. Of particular interest is their discussion of "opinion leaders" -- those individuals whose social positions, experience, and personality characteristics make them especially influential in the informal communication network of a system. The role of personal influence, persuasive or otherwise, has also been emphasized in research on the diffusion of innovation (Katz, Levin, and Hamilton, 1963). Although most of these studies of informal, persuasive influence have been conducted in communities or rural areas, the generalizations drawn from the research appear to be applicable to formal organizations.

Social System Variables

Social system norms have an important impact on the diffusion and adoption of new ideas. If a system's norms are progressive and encourage change, educational innovations are likely to diffuse rapidly. There is evidence from numerous studies that a system's norms affect the rate of diffusion (Rogers with Shoemaker, 1968).

Leadership makes an important contribution to organizational effectiveness. The style of leadership recommended by Likert (1961) is best illustrated as the,

"principle of supportive leadership," defined as "a maximum probability that in all relationships with the organization each member will in the light of his background, values, and expectations, view the experience as supportive and one which builds and maintains his sense of personal worth and importance." (p. 103)

The supportive leadership climate creates the conditions that lead to a full and efficient flow of relevant messages in all directions throughout the organization. This kind of system will facilitate the free flow of innovations and lead to adoption of innovations by the organizational members.

Decision-Making Structure

Some organizations have centralized decision-making structure that does not involve the members to make decisions. Non-participation often results in resistance, especially in educational organizations where teachers perceive themselves capable of making innovation decisions. In contrast, if the teachers are involved in innovation decisions affecting them, there will be more enthusiasm to implement the decisions.

Evidence supporting the proposition that participation of the system's members in innovation decisions

leads to a more rapid rate of adoption is provided by Gittell and Hollander (1968) in an analysis of six urban school districts. They found that,

because participants in the policy process are so limited, alternatives are also limited, and school policy choices are narrowly conceived. Innovation is rare, and creativity competition, and experimentation are discouraged (p. 197).

Consequences Variables

It has been said that "this is a time of great innovation but very little change in education." (Rogers, 1968) Many new ideas are being disseminated and adopted in educational institutions without knowing much about the consequences of the diffusion of innovations. Organizational researchers have been concerned with such dependent variables as member-satisfaction or morale. These variables, if translated in terms of educational organizations, may provide meaningful indicators of innovation consequences.

Tradition of Diffusion Research

The study of diffusion of agricultural innovations, in rural sociological approach is best represented by the Ryan and Gross study (1943) of Hybrid Seed Corn, the study of informal communication pattern by Lionberger (1949), and the Wilkening Studies (1946) of sociometric data on soil conservation. This tradition also provided for the

Figure 1 - Paradigm of Variables and Conceptual Relationships in the Diffusion within Educational Organizations



The diagram does not pretend to be a complete theoretical system; it is a summary paradigm designed to illustrate the main variable discussed in this section.

Rogers and Jain (1968)

significant summarizing document on diffusion of innovation by Rogers (1962).

Since the late 1920's, the major contribution to the study of educational innovations has come from Teachers College, Columbia University, under the guidance of Mort and best summarized by Ross (1958). The central theme of this study is the adaptability of schools to new practice. Comparatively recent efforts include Carlson's study of adoption of educational innovations (1965) and J. Coleman's study of school climates (1961).

A series of systematic investigations was made by the Columbia University Bureau of Applied Social Research in the study of diffusion of medical drugs under the leadership of Katz, Menzel and J. Coleman (1954).

Dissemination of scientific information is another approach to studying innovation diffusion. Centers to study the optimal process of dissemination of scientific information to practitioners and fellow scientists have been established at the Johns Hopkins University Center for Research in Scientific Communication, the University of the State of New York at Albany, Center on Innovation in Education, and the University of Michigan Center for Research on the Utilization of Scientific Knowledge.

In summarizing the findings of past research on characteristics of innovations as they influence rate of adoption, Rogers (1962) states:

1. The relative advantage of a new idea, as perceived by members of a social system, affects its rate of adoption (p. 126).
2. The compatability of new ideas as perceived by members of a social system, affects its rate of adoption (p. 127).
3. The complexity of an innovation as perceived by members of a social system, affects its rate of adoption (p. 130).
4. Divisibility of an innovation, as perceived by members of a social system, affects its rate of adoption (p. 131).
5. The communicability of an innovation, as perceived by members of a social system, affects its rate of adoption (p. 132).

The importance of communication to diffusion and adoption of innovations has been recognized by researchers. One concept is the differential impact of various communication media at the several adoption stages; evidence of this assertion has been found in reference to the numerous studies which have examined this variable and its relationship to diffusion and adoption. Rogers (1962) cites studies by Ryan and Gross (1943), Wilkening (1952), Rogers and Beal (1958), and Rahim (1961) to substantiate his generalization that,

Impersonal sources of information are more important than personal sources for relatively early adopters of innovations than for later adopters (p. 179).

Cosmopolite sources of information are more important than localite sources for relatively early adopters of innovations than for later adopters (p. 179).

Earlier adopters utilize information sources that are in closer contact with the origin of new ideas than later adopters (p. 181).

Finally Rogers states that "Earlier adopters utilize a greater number of different information sources than do later adopters" (p. 181).

Social system norms are now recognized as greatly influencing the probability that any given innovation will be diffused, adopted or rejected. Linton (1952) has said the following in support of the generalization:

If we know what a Society's culture is, including its particular system of values and attitudes, we can predict with a fairly high degree of probability whether the bulk of its members will welcome or resist a particular innovation (p. 74).

One particularly significant finding of past diffusion research is that, when plotted over time, adoption of an innovation follows a bell-shaped curve. When plotted cumulatively, this adoption is essentially "S" shaped. Rogers (1962) concludes that: ". . . adoption distribution follow a bell-shaped curve over time and approach normality."

Based upon the empirically determined tendency for adoption to follow a bell-shaped curve, research workers in the field of diffusion have categorized adopters by dividing the continuum into stages. Rogers (1962), has reviewed categorization systems advanced thus far and postulates five stages, as follows:

1. Awareness stage, at which the individual is exposed to the innovation but lacks complete information about it. The individual is aware of the innovation, but is not yet motivated to seek further information (pp. 81-82).

2. Interest stage, characterized by efforts of the individual to seek additional information about the innovation. The individual favors the innovation in a general way, but he has not yet judged its utility in terms of his own situation (p. 82).
3. Evaluation stage, at which the individual mentally applies the innovation to his present and anticipated future situation, and then decides whether or not to try it (p. 83).
4. Trial stage, at which the individual uses the innovation on a small scale in order to determine its utility in his own situation (p. 84).
5. Adoption stage, which represents a decision by the individual to continue full use of the innovation (p. 86).

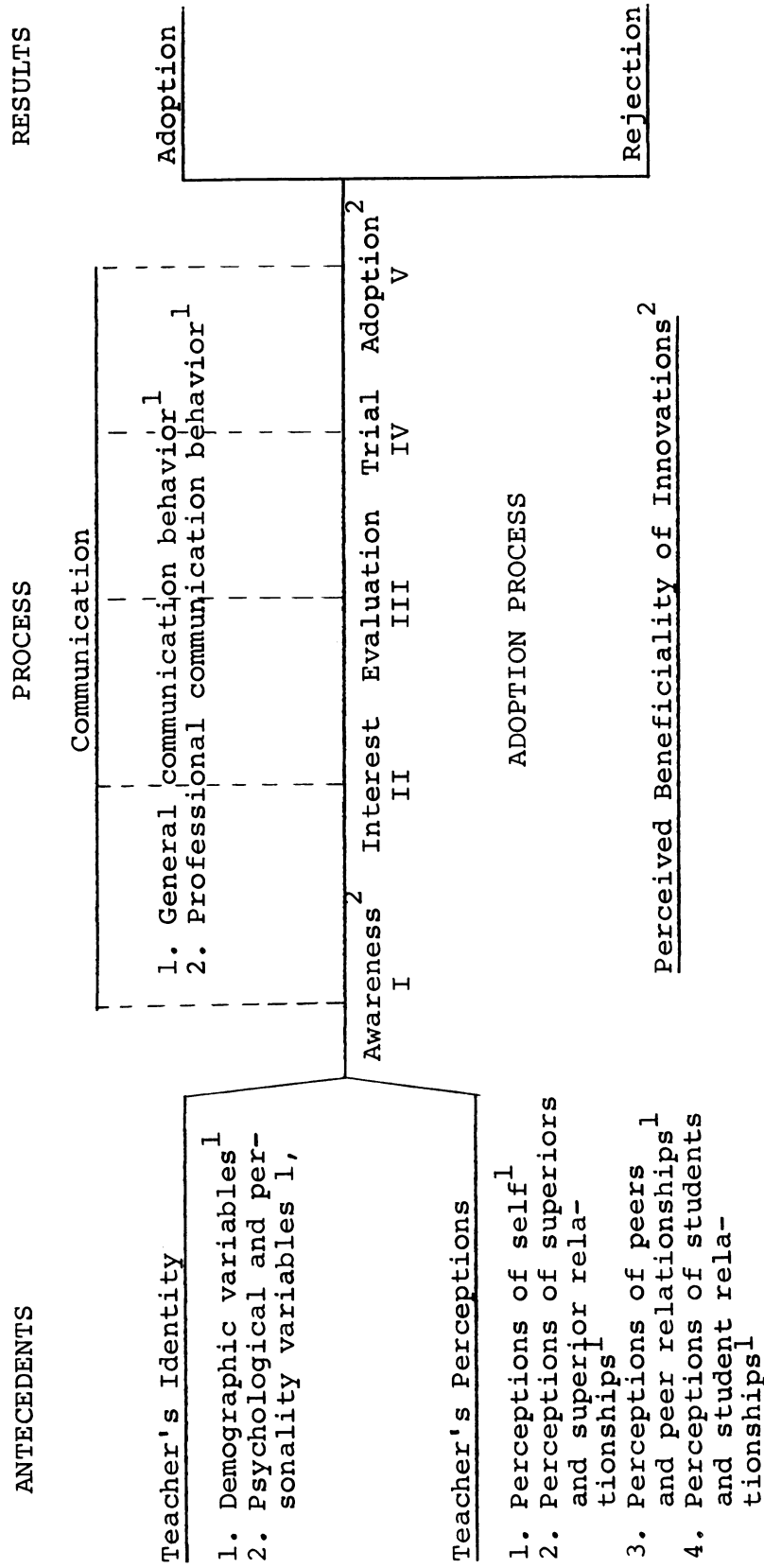
Studies by Wilkening (1952), Rogers and Beal (1958), Beal and Rogers (1960), Copp and Others (1958), Rogers and Pitzer (1960), Rahim (1961), Beal and Rogers (1957) and Katz (1961) have led Rogers (1962, p. 99) to generalize that ". . . impersonal information sources are most important at the awareness stage, and personal sources are most important at the evaluation stage in the adoption process." Substantiated by the findings of studies conducted under the auspices of Beal and Rogers (1957), Wilkening and Others (1960), Ryan and Gross (1943), and Katz (1961), Rogers (1962) further concludes that,

cosmopolite information sources are most important at the awareness stage, and localite information sources are most important at the evaluation stage (p. 102).

Rogers (1962, p. 306) developed an adoption paradigm as indicated on page 41.

In short, a systematic, comprehensive effort in summarizing and conceptualizing the findings in the various disciplines was made by Rogers (1962). It is, to date, the best documentation of empirical evidence of diffusion research.

Figure 2 - Paradigm of Innovation Adoption



¹Independent variable categories
²Dependent variables

CHAPTER III

RESEARCH DESIGN, REVIEW OF LITERATURE, AND PRESENTATION OF HYPOTHESES

A formal organization differs from other kinds of social systems in that the power structure is clearly delineated, roles and positions are well defined, and compliance in accordance with the position held and fulfillment of hierarchical demands are usually in effect. Thus, when an innovation or change has been adopted by high level decision-makers, adoption rate is likely to be relatively high since the low-ranking members comply in accordance with their role-expectations.

However, the success of an innovation or change should be measured beyond the adoption rate exhibited by the members of the organization. Different degrees of commitment to an innovation will be found among members as a result of variations of internal acceptance. As members perceive an innovation to be relevant to their role performance and personal satisfaction in the organization, adoption more likely takes place. In contrast to this internal acceptance, compliant acceptance is defined as the



use of the innovation whether the member sees the innovation as relevant or irrelevant to his role performance and personal satisfaction in the organization (Lin, 1966).

This study examines factors which are related to the degree of internal acceptance of educational innovations among teachers. The study investigates one aspect of institution building in West Pakistan, the adoption and internalization of improved educational practices among the Pilot Secondary Schools of West Pakistan. The importance of this aspect of institution-building is apparent from the definition of the term "institution-building:"

Institution building is the planning, structuring, and guidance of new or reconstituted organizations which (a) incorporate, foster, and protect normative relationship and action patterns, (b) perform functions and services which are valued in the environment, and (c) facilitate the assimilation of new physical and social technologies.*

The introduction of new educational technologies is an important function of any agency engaged in educational technical assistance in a developing country; but, for institution-building to occur, these educational innovations must be diffused and adopted. In the case of the present educational institution-building effort under study, one

*Taken from Inter-University-Research Program in Institution Building, "Description of the Research Program," Pittsburgh, University of Pittsburgh, Graduate School of Public and International Affairs, 1964. Underscoring by the writer.

measure of program impact is the extent to which teachers in "target" schools embrace and accept change; because this is the goal of the institution being built.

The objectives of this study are:

1. To determine how certain educational innovations are adopted and internalized by the Pilot Secondary Schools; and to analyze the factors related to teacher adoption and acceptance.
2. To formulate, from the findings, practical suggestions for school administrators on how to facilitate the acceptance and adoption of innovation in the secondary schools of West Pakistan.

The methodology for this study is one in which data are gathered via self-administered questionnaires to teachers at one point in time during 1968. The respondents, who are the teachers in the Pilot Secondary Schools, have been asked to recall information like time of adoption and sources of knowledge or practice on a number of recently introduced educational innovations. This method allows one to partially reconstruct the time dimension of diffusion and adoption, and past investigations suggest it is highly accurate if certain precautions are followed. This method is deemed most appropriate in the present case in terms of resources and the exploratory nature of the investigation in the West Pakistan culture. In both form and substance, the study is patterned closely after a study accomplished in Michigan State University (Lin, 1966).

The investigation will also serve as a base line for more extensive and comprehensive later studies of the

diffusion and adoption of educational practices among other schools of West Pakistan.

Importance of the Problem

A considerable body of research literature has been accumulated about the communication and adoption of innovations; Rogers (1966) reported more than one thousand different publications on this topic by October 1, 1966. Less than two hundred of these studies were concerned with the diffusion of educational ideas and all but about ten of these educational diffusion studies were conducted at one university under the direction of one man and with a rather stereotyped method.*

Only one of the educational innovation diffusion studies prior to 1968 was conducted outside the United States. Important results from these studies have aided the United States public schools in adopting innovations. For example, Mort (1946) found that average school ". . . lags 25 years behind the best practice." Comparatively speaking, educational change is a much slower process than changes which take place in agriculture or medicine (M. Miles, 1964; and Rogers, 1965).

*These studies are synthesized in Everett M. Rogers, Diffusion of Innovations, New York: Free Press, 1962.

Why is the diffusion and adoption of educational ideas and practices much slower than that of farm innovations and medical drugs (where the rate of diffusion is seldom more than five to ten years)? Eichholz and Rogers (1962) suggested the following reasons:

1. The absence of scientific sources of innovation in education.
2. The lack of change agents to promote new educational ideas.
3. The lack of economic incentive to adopt.

In addition, it should be pointed out that farmers and medical doctors are quite different from teachers in that the farmers are independent entrepreneurs, while teachers are members of complex organizations in which freedom of choice is affected by the nature of the institution as created by its leader and members. Moreover, the impact of educational change is less easily assessed and often the decision in regard to the adoption of certain changes are not made at the individual level so "adoptive behavior" as such may not be a meaningful research variable.

There is some recent data that while Mort may have been correct in describing a 25 year rate of diffusion (for the average innovation) among public schools in the 1930's and 1940's, the rate of educational diffusion has increased considerably in the post-Sputnik era. Carlson (1965), for instance, found that modern math reached 80 per cent adoption in five years among the schools of Allegheny County, Pennsylvania. His study shows that diffusion of educational practices

can be increased where a credible source of innovation-development is utilized; where audio-visual materials are prepared to accompany a new textbook; and where the organizational structure seemed to act as a facilitator rather than a resistor to change.

Thus, the present study is novel in that it investigates the adoption and internalization of educational innovations in a setting where unique social-organizational factors are of considerable importance; because Pakistan school teachers, administrators and Ministries of Education form parts of an educational bureaucracy in quite a different manner than in the United States where educational control is much less centralized, or than was the case with farmers, medical doctors, and others who have had shared the focus of most research on the diffusion of innovations.

The present research is further unique because it has been conducted in a developing country, Pakistan, where no previous studies of educational change have been completed. This void is especially significant in view of implications for institution-building in developing countries; where considerable resources are expended in changing educational institutions; but where little research has been accomplished for the development of educational institutions. Certainly, research on diffusion of educational innovations lies at the core of institution-building in the case of the Education Extension Center and the University of Chicago-Ford Foundation Project.

This research is consistent with several of the guiding concepts stated by the Inter-University-Research program in Institution Building (1964).

Four key elements in the analysis of institution-building play crucial roles in this research:

1. Leadership. The extent that administrators, consultants and change agents throughout the educational system influence diffusion and the adoption of educational innovations by Pilot Schools, and eventually by other schools in the Pakistan educational system.
2. Doctrine. Although perhaps not such a central concept in the present study as leadership, organization, and environment, doctrine is highly related. Certain doctrines of the Central Ministry of Education and the Extension Center clearly will affect the diffusion process; an example is the doctrine of centralization of decision-making on new practices.
3. Organization. This element is central to this study. "The introduction of new technologies take place in and through organization." The present study differs from almost all past diffusion research in that the major emphasis is placed upon the effects of the organizational structure on communication and adoption patterns.
4. Environment. This element is necessarily considered at all stages of the study, but does not enter directly into the research design.

Definition of Terms

Change Orientation. An individual's degree of general predisposition toward accepting change (Lin, et al., 1966).

Diffusion of Innovation. The process by which an innovation is transferred over time from one person or aggregate of persons to another person or aggregate of

persons in a social system (Rogers, 1962, p. 12). In a broader sense, diffusion is defined as the process of transmitting a message from a source system, be it a person or aggregate, through a second system, which acts first as a receiver than as a source, to a third and to later systems (Lin, 1966).

Innovation Assimilation. The extent of integration of an innovation or change in a defined social system (Lin, 1966).

Innovation Decision Process. The mental process through which an individual passes from first knowledge of an innovation to final decision to adopt or reject the innovation (Rogers and Shoemaker 1966). They redefine the five "stages" as four "functions" and conceptualize the functions as (1) knowledge (awareness), (2) persuasion (attitude formation and/or change), (3) decision (adoption or rejection), and (4) confirmation (reinforcement).

Institution Building. The planning, structuring and guidance of new or reconstituted organizations which (a) incorporate, foster, and protect normative relationship and action patterns, (b) perform functions and services which are valued in the environment, and (c) facilitates the assimilation of new physical or social technologies. (Inter-University Research Program in Institution-Building, University of Pittsburgh, 1964).

Innovation Internalization. The extent to which a teacher perceives the innovation as relevant or valuable

to his role performance in the school. In other words, the degree of a teacher's attitudinal acceptance of a specific innovation (Lin, et. al., 1966).

Organization or Institution. A system with the following attributes:

1. A number of offices with specified functions;
2. Offices structured along hierarchical lines;
3. A limited number of officers in charge of all functions and products of the system;
4. Within each office are specific positions which have specific roles in terms of the functions or products of the system;
5. Rewards and punishments are regulated according to established rules which usually specify the required competence of the occupant of the position.
6. Operational communication and interaction, except in infrequent deliberately arranged occasions, takes place along the lines of hierarchical structure (Lin, 1966).

Pilot Secondary Schools. With the help of consultants from the University of Chicago and West Pakistan Education Extension Center, twenty-three secondary schools are encouraged to experiment in curriculum developments, testing programs, audio-visual aids, and guidance programs. The schools also offer instruction in agriculture, commercial subjects, home economics, and industrial arts. The schools have selected teachers from all over West Pakistan and aim at higher quality instruction in mathematics, science, language usage, social studies and other aspects of general education. These schools are the pioneer schools and the

best equipped institutions, with the professionally best trained personnel in West Pakistan.

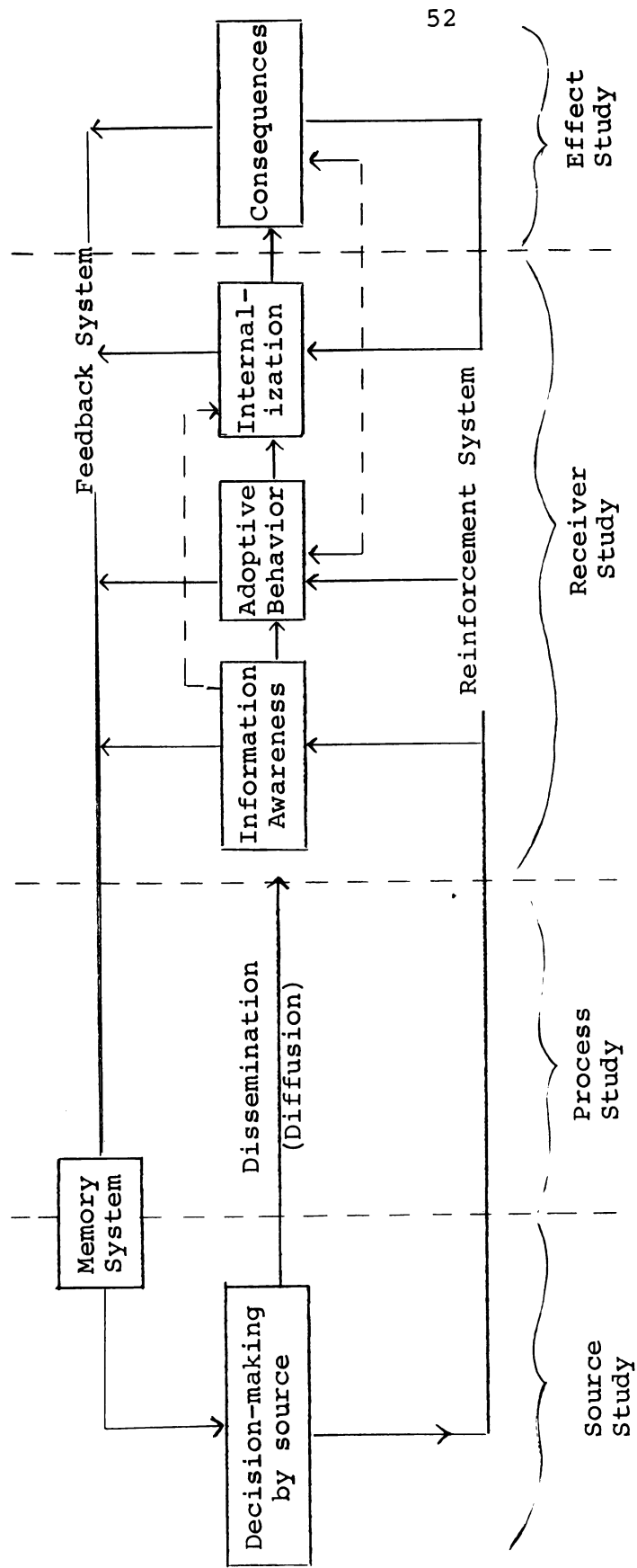
Overall Design

This study is designed to provide basic information concerning the following four interrelated elements - the innovation, its diffusion, the characteristics of the social system, and the time of adoption. The paradigm on page 52 provides a model from which hypotheses may be generated and tested.

The problem has been approached in (1) innovation diffusion studies, (2) formal organization studies, and (3) social influence studies.

Rogers (1960) suggested five stages of the adoption process: (1) awareness, (2) interest, (3) evaluation, (4) trial, (5) adoption. He also discussed disadoption and continuation phenomena after the state of adoption and rejection. In a formal organization setting, the low ranking members are generally not involved in decision-making; thus, they are usually alienated from the adoption process. Adoption by high level sources, however, does not imply the ultimate success of the innovation in a formal organization. The problem process under consideration by this study should add a new, unexplored, yet important dimension to the area of diffusion research; that is, internal acceptance of innovations. Social psychologists

Figure 3 - A Model of Innovation Dissemination in an Institution*



*Adopted from Lin (1966).

———— Time order relationships
 ----- Alternate time order relationships

(Frestinger, LePiere, etc.) have empirically demonstrated that under certain conditions behavioral change does not imply attitudinal change. A basic assumption of this study is that attitudes are related to behavior and that teachers who have a low level of internalization of an innovation will be less effective users of that innovation.

Lin et al., (1966) have formulated a paradigm of innovation decisions in formal organization which points out that the functional unit of adoption and the decision-making unit may not always be the same. The paradigm is outlined as follows:

Figure 4 - Paradigm of Innovation Decisions in Formal Organizations

- I. The Individual as the Functional Unit of Adoption.
(compliant adoption behavior is not required of all members)

Type of Innovation Decision	Decision-making Unit
A. Optional 1	Individual member
B. Contingent 1	The Organization (enabling decision)
	a. by a collective enabling decision
	or
	b. by an authority enabling decision

2. Individual members

- a. by an optional adoption
decision

- II. The Organization as the Functional Unit of Adoption
(compliant adoption behavior is required of all members)

C. Collective 1	Members as an aggregate
D. Authority 1	Officers of the organization

1. Stimulation of interest in the need for the new idea
(by stimulators)
↓
 2. Iniation of the new idea in the social system
(by initiators)
↓
 3. Legitimation of the new idea
(by power holders or legitimizers)
↓
 4. Decision to act (by members of the social system)
↓
 5. Action or execution of the new idea.*
-

*The basis for the model is Beal (1957, pp. 17-22) and Beal and others (1964), Agger and others (1964, p. 40) conceive of a series of six stages in the collective decision-making process; their stages bear striking resemblance to this model, especially to stimulation, iniation, and legitimation.

However, the success of the innovation should be measured beyond the adoptive point exhibited by the members of the organization since different degrees of effort or commitment to an innovation will be found among members after they have adopted.

Innovation Internalization

In his discussion of bureaucratic structure and personality, Merton (1957) stated:

If a bureaucracy is to operate successfully, it must obtain a high degree of reliability of behavior, an unusual degree of conformity with prescribed patterns of action . . . Disciplines can be effective only if the ideal patterns are buttressed by strong sentiments which entail devotion to one's duties, a keen sense of limitation of one's authority and competence, and methodological

performance of routine activities. The efficiency of social structure depends ultimately upon infusing group participants with appropriate attitudes and sentiments (p. 199).

Bernard (1938) in discussing authority, states:

A person can and will accept a communication as authoritative only when four conditions simultaneously obtain: (a) he can and does understand the communication; (b) at the time of his decision he believes that it is not inconsistent with the purpose of the organization; (c) at the time of his decision he believes it to be compatible with his personal interest as a whole: and (d) he is able mentally and physically to comply with it (pp. 163-171).

Thus, in a formal organization, the achievement of organizational goals has to be heavily dependent upon the sentiments and attitudes of its members; in other words, the degree of internal acceptance of a change. Parsons (1951) also emphasized the importance of internal acceptance when the organization is undergoing changes.

Hall (1947) and Mann (1957) have suggested that there are certain psychological and sociological facts which must be taken into consideration in attempting to change the attitudes and behavior of an individual or a group in an organizational setting.

Kelman (1961) discussing social influence and opinion change proposed three distinct processes from which adoptive behavior may be induced. In the "compliance" situation, he stated, "the adoptive behavior is observed only when surveillance of the influencing agent is in effect." In the "identification" situation, the adoption behavior will

persist as long as the individual's relationship with the influencing agent continues. In the "internalization" situation, the adoptive behavior will be retained as relevant to the values of the individual. In the words of Kelman:

Compliance can be said to occur when an individual accepts influence from another person or from a group because he hopes to achieve a favorable reaction from the other. He may be interested in attaining certain specific rewards or in avoiding certain specific punishments that the influencing agent controls.

Identification can be said to occur when an individual adopts behavior derived from another person or a group because this behavior is associated with a satisfying self-defining relationship to this person or group.

Internalization can be said to occur when an individual accepts influence because the induced behavior is congruent with his value system (p. 15).

Internalization of group norms can come about through identification with fellow group members who share the same common fate. People take over the values of their group because they identify with their own kind.

Katz and Kahn (1966) have suggested three factors which contribute to internalization of group objectives:

1. Participating in important decisions about group objectives;
2. Contributing to group performance in a significant way; and
3. Sharing in the rewards of group accomplishment.

The internalization of organizational goals is the most effective motive of patterns and the most difficult

to evoke within the limits of conventional organizational practice. The extent of internalization thus depends upon the character of the organizational goals and their congruence with the needs and values of the individual. It depends also on the extent to which the individual shares actively in the determination of organizational decisions and in the rewards which accrue to the organization. High internalization of organizational goals tend to result in high productivity and innovativeness.

Internal acceptance is especially important in an organization where role-monitoring is not very rigid. For instance, in an educational system, where an innovation will be carried out by the teachers, successful adoptions to a great extent depends upon internal acceptance by the teachers - as compatible to their role-expectations and their role-performance.

The degree of innovativeness of an individual has usually been measured by comparing the individual's adoption time for a given innovation to the adoption time of others in similar social systems. The paradigm of innovation decision in formal organization clearly indicates that when the organization is the functional unit of adoption, individual adoption time does not differentiate members of the organization in terms of their degree of innovativeness. For a given organization, all members "adopt" at the same time. However, when the individual is the functional unit of adoption, individual adoption time is free to vary and

can be used as a meaningful variable in organizational research. For purposes of this study one innovation (use of objective tests) has been selected so that individual adoption time may be used as a dependent variable. Other innovations have been selected for which the organization is the functional unit of adoption and in this case innovation internalization constitutes the main dependent variable.

The problem under consideration thus becomes a significant one which contributes to various research traditions. At the same time it also has some important bearing in solving various practical problems. For instance, institution-building is a central issue in any developing country and research is needed to study the processes and effects of change and innovation brought into an organization.

Selection of Innovations

For purposes of this study five educational practices new to the Pakistan educational system will be used to study the adoption process. The five types vary widely in the manner they affect individual teachers, schools, and the prevailing conception of the purpose of education in Pakistan.

1. Vocational Curricular Subjects

The main weakness of secondary education in Pakistan is the absence of opportunities for training in technical and vocational subjects; and, its inflexibility - a lack of

diversification corresponding to social needs, individual aptitudes and interests. The present curricula for secondary schools lays too much stress on literary subjects and too little on other equally important attributes of the developing boy or girl - physical well-being, personality, and fostering a pride in dexterity and technical achievement.

The Report of the Commission on National Education (1959) stressed the need for the introduction of practical arts at the secondary stage and suggested the following subjects be introduced at this stage:

- a. Workshop courses in metal work, woodwork, and applied electricity for boys who wish to take up engineering.
- b. Agriculture courses for boys.
- c. Commercial subjects for students wishing to enter clerical professions.
- d. Home economics for girls.
- e. Courses in art, artistic and ornamental crafts for both boys and girls.

2. Science Laboratories

Science has long been theoretically taught in the secondary schools of Pakistan with very few or no opportunities for doing practical experiments. Pilot schools are especially encouraged to use laboratory methods of teaching through the provision of laboratory facilities and science equipment.

3. Student Personnel Services: Educational Guidance

The program of diversification of courses at the secondary stage cannot be fully implemented unless there is provision for guidance services. The scheme of pilot schools has rightly introduced the service by providing a full time guidance teacher trained at the Education Extension Center, Lahore. This innovation is only introduced in the Pakistan pilot schools.

4. In-Service Training of Teachers

In-service teacher education assumes added significance in Pakistan where educational institutions are extremely tradition bound with a built-in cultural lag; where large numbers of teachers are without professional training and where colonial rule placed no premium on creative thinking or self advancement. The Commission on National Education (1959), recognized and recommended that:

Apart from the fact that large numbers of our teachers at all levels are untrained, and continued and vigorous efforts are thus needed to equip them professionally for their work, it must be recognized that no teacher once trained can, throughout his career, be regarded as fully competent without periodic refresher courses (p. 271).

Gilchrist (1959) suggested that "in-service education should cause people to change and to grow" (p. 18).

5. Classroom Techniques: Objective Tests

The use of objective tests as a device for evaluating the students' academic achievement were never used or thought necessary by teachers in Pakistan. Teachers relied solely on the subjective essay type of tests. Pilot Schools, for the first time, introduced the idea of objective tests, including construction and administration, as a means of pupil evaluation.

Selection of Dependent Variables

The dependent variables are time of adoption of innovations and innovation internalization. Time of adoption is used as a dependent variable only for those innovations which can be adopted by individual teachers, in this case, the use of objective tests. Innovation internalization is measured with a four-item scale relative to each of the innovations in this study. Because internalization and adoption time may be used as dependent variables for objective tests, this permits investigation of the relationship between attitudinal acceptance and use, thus providing evidence on the relationship between teacher attitudes and teacher behavior.

Selection of Independent Variables

A large number of independent variables are selected

2. Class

1900

1901

1902

1903

1904

for this investigation because of the exploratory nature of this study in Pakistan culture. The study is closely patterned after a similar investigation in the U.S. (Lin et al., 1966) with certain adaptations relevant to the school system in Pakistan.

I. The Demographic Category of Variables Includes:

1. Age
2. Educational level attained
3. Teaching salary
4. Number of courses taught
5. Length of employment

II. The Institutional Category Includes:

A. Role Perception Variables such as:

1. Role satisfaction: the extent to which the teacher is satisfied with his work and working environment.
2. Feeling of security: the extent to which the teacher feels secure in the school.
3. Self-rated teaching ability: the teacher's perception of his own teaching ability.
4. Participation: the extent to which the teacher perceives himself taking part in decision-making in the school.

B. Perception of One's Superior variables include:

1. Perceived change orientation of the Headmaster/Headmistress.
2. Perceived psychological distance between self and the Headmaster/Headmistress: the teacher's perception of the degree of psychological distance between himself and the Headmaster/Headmistress.

3. Perceived source credibility of the Headmaster/Headmistress: how the teacher perceives him/her as a source of information.
4. Reported performance feedback from the Headmaster/Headmistress, the extent to which he/she tells the teacher how he/she is doing.
5. Vertical communication: the teacher's perception of how often he/she talks with the Headmaster/Headmistress.
6. Perceived Headmaster/Headmistress's support of the innovation: the extent to which the teacher thinks his/her Headmaster/Headmistress supports the innovation.

C. Peer Relationship variables include:

1. Self-designated opinion leadership: Rogers and Carpano's (1962).
2. Perceived frequency of horizontal communication about the innovation: how often the teacher talks with other teachers about the innovations.
3. Perceived cohesiveness of teaching staff: how the teacher thinks other teachers in the school get along as a group.

D. Perception of Students variables include:

1. The teacher's perception of student benefits from the innovations.
2. The teacher's perception of student attitudes toward the innovations.

III. Communication behavior (includes two such areas)

A. General Communication Behavior variables include:

General mass media exposure: which covers radio, newspaper, magazines, etc.

B. Professional Communication Behavior variables include:

1. Number of professional journals read regularly.
2. Frequency of professional meetings attended.
3. Number of in-service education courses attended.



4. The teacher's perception of how adequate is his/her knowledge about the innovations.

5. Time of awareness of the innovations.

IV. Personal Disposition Toward Change:
includes the following variable:

Self-perceived change orientation.

Review of Literature and Presentation of Hypotheses

In this section, an attempt is made to present variables which are considered important in predicting the dependent variables:

1. Time of adoption of an innovation, and
2. Internal acceptance of innovations.
(Internalization)

For each set of hypotheses, a review of some relevant studies are presented.

1. Demographic Factors

In almost all previous innovation diffusion research a number of demographic factors have been correlated with the main variable under study. For example, Lin et al. (1966) in a study of the diffusion of an educational innovation within three U.S. secondary schools found no significant relationship between age or teaching salary and internalization, but found a positive correlation between educational level attained and internalization. Generally

speaking, diffusion research in the rural sociology tradition has found a negative correlation between age and time of adoption.

- H1: The older a teacher is the later he will have adopted an innovation and the less his internalization of an innovation.
- H2: The higher the educational level attained by a teacher, the earlier he will have adopted an innovation and the higher his internalization of the innovation.
- H3: The higher the teacher's salary, the earlier he will have adopted an innovation and the higher his internalization of an innovation.
- H4: The greater the number of courses the teacher has taught, the earlier he will have adopted an innovation and the higher his internalization of an innovation.
- H5: The longer the teacher has been employed in a school, the later he will have adopted an innovation and the less his internalization of an innovation.

II. Institutional Factors

A. Role Perception

Analysis of the study by Katz, Maccoby (1950) and Morse showed that pride in the work group was the only measure of job satisfaction "which shows a distinct relationship of productivity," that is the high production groups showed greater pride in their work than did the low production groups. Schaffer (1953) correlated an over-all job satisfaction measure for each individual with the mean of the 12 need satisfaction scores for each individual and got a correlation coefficient + .44. This is to say, knowing an individual's score on these needs it is possible to



predict his over-all satisfaction. High satisfaction, thus, may be defined as the feeling of well being experienced by the individual when his needs are being filled to his satisfaction. Thus, we may hypothesize:

H6: The more a teacher is satisfied with his work, the working environment, the earlier he will have adopted an innovation and the greater his degree of internal acceptance of the innovation.

An excellent study by Bachr and Renck (1958) revealed that job satisfaction is a component of morale. Seventy-six items attempting "to cover all the influences which affect the worker on the job" were put into fourteen categories: (1) job demands, (2) working conditions, (3) pay, (4) employee benefits, (5) friendliness and cooperation of fellow employees, (6) supervisor-employee interpersonal relations, (7) effectiveness of administration, (8) confidence in management, (9) technical competence of supervision, (10) adequacy of communication, (11) security of job and work relations, (12) status and recognition, (13) identification with the organization, (14) opportunity for growth and advancement. Lin et al. (1966) found indirect support for the relationship between a teacher's feeling of security and innovation internalization. In their study, feelings of security were positively related to level of non-teaching income and the latter, in turn, positively correlated with innovation internalization. They posit: "Perhaps when a teacher . . . feels more secure . . . the uncertainty involved in confronting change becomes less threatening."

Follows

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and to

to know

and to

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H7: The greater a teacher's feeling of security in the school environment, the earlier he will have adopted an innovation and the greater his internal acceptance of innovation.

Self-perception of teaching ability has also been found related to innovation internalization. The data in Lin et al. indicated that the better a teacher thought his own teaching ability, the more likely he was to have a positive attitude toward an innovation.

H8: The more a teacher perceives himself to be a good teacher, the earlier he will have adopted an innovation and the greater his internal acceptance of innovations.

Group participation is another important variable affecting success of change in an organization. Coch and French (1948) found that participation and group discussion were effective ways to overcome resistance to change. Mann and Neff (1961) found that participation in problem-solving is important in bringing about motivation for change. Levine, Jacob and Butler (1953) found that group decision is superior to lecture in fostering behavior change. Participation is the degree to which members of a social system are involved in the decision-making process. There is extensive empirical support for the generalization that satisfaction with a collective innovation decision is positively related to the degree of participation by members of the social system in the decision. One of the most cited evidence of this proposition is the investigation by Lewin (1947) on lecture/group discussion methods in convincing

housewives to adopt new food products. A follow-up of the women showed dramatic differences, with only 3 per cent of the lecture groups serving unpopular foods as compared to 32 per cent of the discussion group. Katz and Kahn (1966) made the observation:

Group interaction, as it reaches the point of discussion, makes salient the group norms or consensus. Norms imposed from without may vary in clarity, visibility, and psychological nearness. After a discussion has finally reached consensus, the group norms are abundantly clear and psychologically real to the members (p. 402).

Davis (1965) provides supportive evidence about member participation in collective decisions. He studied the adoption of educational innovations in an innovative and non-innovative liberal arts college. The progressive organization featured a high degree of involvement of faculty in collective innovation decision-making. Such participation built commitment to the total institution and encouraged acceptance of collective decisions. In a somewhat similar study, Quennly and Street (1965) investigated an innovative and laggardly elementary school in Chicago. They found wider teacher participation in innovation decisions in the more progressive school system. Lin et al., also found the relevancy of the importance of teachers' participation in school decision-making process for facilitating teacher acceptance of an innovation. It is thus hypothesized:

H9: The more teachers perceive themselves participating in school decision-making, the earlier they will have adopted an innovation and the greater their internal acceptance of innovations.

B. Perception of One's Superior

An important relationship in the power structure of a formal organization is that between the subordinates and superior. Mann (1957) indicated that expectations of the superior are more important forces for creating change in an individual than the expectations of his subordinates. The Hawthorne studies demonstrated that psychological rather than physiological reaction contributed to the results of constant increase of production rate (1941). Likert, in stressing the need for both upward and downward communications, stated that employee-centered rather than job-centered superior style is more likely to induce high production rate. Levinson (1965) discussed the importance of organization affiliation and introduced the concept of reciprocation which he defined as a continuous process of fulfilling mutual expectations, or carrying out a psychological contract, and/or enhancing the man-organization relationship.

Lin et al. found a relationship approaching significance between teachers' perception of their superior's change-orientation and internal acceptance of an innovation.

H10: The more change-oriented a teacher perceives his principal to be, the earlier he will have adopted an innovation and the greater his internal acceptance of the innovations.

Thus, it also seems that the relationship between a teacher and the principal should be personal rather than institutional; employee-centered rather than job-centered; and helpful rather than rigidly controlled as perceived by

the teacher, if he is to accept an innovation being diffused by the organizational hierarchy. This may be termed as "psychological distance." The shorter this psychological distance between the teacher and principal, as perceived by the teacher, the more likely is the teacher to internally accept the innovation.

H11: The greater the psychological distance between the teacher and his principal as perceived by the teacher, the later he will adopt an innovation and the less his internal acceptance of an innovation.

A communication is an interpersonal behavior event. Whether or not a communication is effective in changing attitude will depend very much upon how the communicator is perceived by his audience. Review of the research in this field shows that there is ample experimental evidence in support of this assumption. Studies have determined that among other characteristics the credibility - attractiveness and group affiliations of the communicator, as perceived by the audience, are important factors in determining effectiveness. In Hovland and Weiss (1951) marked differences in the immediate effects of trustworthy and untrustworthy communication on opinions were found. Twenty-three per cent of the subjects changed their opinions in the direction advocated by the communication when a trustworthy communicator was used; less than seven per cent changed when an untrustworthy communicator was used. Lin et al. (1966) found a positive correlation between teacher's perceptions of the

source credibility of their principal and internal acceptance of a school adopted innovation. This led to the hypothesis:

H12: The more credible the principal is perceived as a source of information by the teacher the earlier he will have adopted an innovation and the greater his degree of internal acceptance of innovations.

Mandell and Duckworth (1955) found that the overall morale of 64 trades employees in civil service was high if they said that their "superior lets them know how they are doing." Costello and Zalkind (1963) emphasized the importance of "knowledge of results" in a person's performance in his organization. They suggested that (1) the knowledge of the results of one's learning efforts almost universally increase the speed of learning and the level of proficiency achieved; (2) the more specific the knowledge of performance the more rapid is the improvement and the higher is the level of performance; (3) the longer the delay in giving the knowledge of performance, the less effect the given information has; and, (4) giving the learner knowledge of his results tends to increase his motivation to learn.

Comrey, High and Wilson found that production was correlated significantly with the amount of communication downward. These statements point out the importance of downward feedback in an organization and it led to hypothesize:



H13: The more frequently the teacher receives feedback from his principal on the adequacy of his work related performance the earlier he will have adopted an innovation and the greater the degree of his internal acceptance of innovations adopted by the school.

Likert (1961) suggested that job satisfaction may be linked with the amount of new information transmitted from a superior to his subordinates. Mann (1957) also indicated that the more meaningful and relevant the material the greater the likelihood of acceptance of change induced by the organization. It is thus hypothesized:

H14: The more frequently a teacher communicates with his principal the earlier he will have adopted an innovation and the higher the degree of the teacher's internal acceptance of innovations.

In a study of Diffusion and Innovation by Lin et al. it was found that certain relationships with administrators were related to the teachers' acceptance of the innovation. Important were teacher perceptions of the degree to which the school superintendent supported the innovation. It is hypothesized:

H15: The more the teachers perceive the principal to support innovations, the earlier they will have adopted an innovation and the greater the degree of teachers' acceptance and internalization of innovations.

C. Peer Relationships

Likert pointed out that good communication and high performance go together. The Hawthorne Studies (1941) have shown that horizontal communication is the most important factor in affecting the production rate. Guion (1958) found that morale was associated with absence of conflict in the work group. On the other hand, Guion also found that the process of successful change in a hierarchical organization will start and continue to the extent that the members perceive the behavior of superiors, peers, and subordinates to be in keeping with the norms of behavior in the larger organizations. Mechanic (1963) discussed that although there is a formal patterning of power within organizations an informal power structure may develop which is congruent with the formal organization. The influence that lower ranking personnel achieve tends to be characterized by an ability to thwart or resist change.

It appears that there are at least three elements at work in regard to the interaction of formal and informal leadership; (1) vertical communication between the subordinate and his superior; (2) horizontal communication between the subordinate and his peers in the work group, and (3) the norms of the work group. It should be pointed out that all these relationships are psychological in nature, for what the member believes to be the relationships is much more important than what the relationships actually are.

Lin et al. (1966) found a positive relationship between self-designated opinion leadership and internal acceptance of an innovation suggesting that teachers in innovative schools who see themselves as highly sought sources of information tend to be more favorable to school adopted innovations. These teachers appear to be attempting to adhere closely to the innovative norms of their schools.

From these findings the following hypotheses may be formed:

- H16: The more a teacher perceives himself to be an opinion leader for his professional peers, the earlier he will have adopted the innovation and the greater his internalization of innovation.
- H17: The more frequently the teacher engages in horizontal communication, the earlier he will have adopted an innovation and the greater his internalization of innovation.

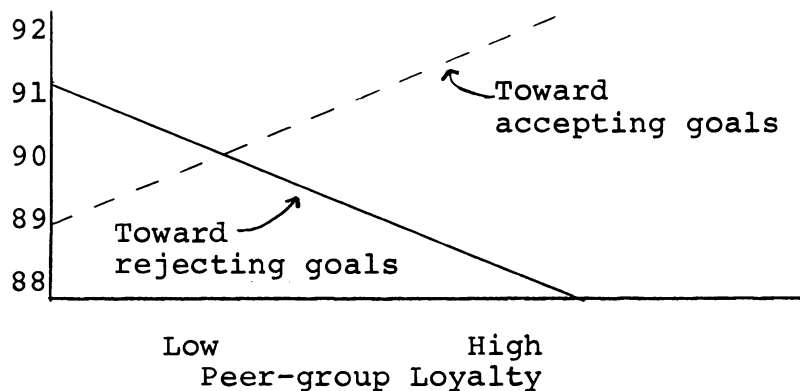
Industrial social psychology received its major impetus from the work of Leta Stetter Taylor (1911) at the Western Electric Company. The investigators demonstrated that the norms of informal work groups could affect productivity positively or negatively, depending upon the relationship of the informal norms to the goals of the organization. In their famous Hawthorne Study, they found that the result "was a clear and sustained increase in productivity."

Likert (1961) review of the research in this area concludes:

Work groups which have high peer group loyalty and common goals appear to be effective in achieving their goals (p. 30).

The most impressive demonstration of this principle comes from the study of Seashore (1954). He found that highly cohesive groups showed much less within group variation on production than low cohesive groups, but that the production variation between groups was greater for the more cohesive groups. Further, Likert (1961) found that the high cohesive groups were above average in performance when they accepted company goals and below average when they rejected company goals, whereas the low cohesive groups tended to be more average in performance.

He graphically presents:



Relationship of peer-group loyalty to productivity when motivation is toward accepting versus rejecting company goals. (From New Patterns of Management, Rensis Likert, New York: Mc-Graw Hill, 1961, p. 32).

Lin et al. in their study found a significant correlation between perceived cohesiveness of the school faculty and change orientation; and, a correlation approaching

significance between school cohesiveness and internal acceptance of an innovation. It is therefore hypothesized:

H18: The more cohesive the teacher perceives the faculty of his school to be, the earlier he will have adopted an innovation and the greater his degree of internalization of innovations.

D. Perception of Students

Taking the teacher's perceptions of the educational efficacy of an innovation as an index of the consequences of that innovation, Lin et al. (1966) the data indicate a strong positive relationship between this variable and the degree of internalization of the innovation. Teachers who think an innovation has beneficial consequences for their students tend to have a more positive attitude toward the innovation. It is thus hypothesized:

H19: The more a teacher perceives student's benefit from an innovation the earlier he will have adopted the innovation and the greater his degree of internal acceptance of an innovation.

Lin et al. also found a very high positive correlation between a teacher's perception of students' attitudes toward an innovation and the teachers' internalization of the innovation.

H20: The more favorable a teacher perceives his students to be toward innovations, the earlier he will have adopted an innovation and the greater his internalization of an innovation.

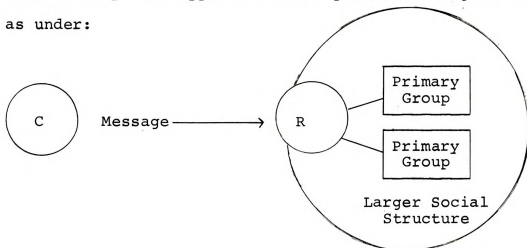
III. Communication Behavior

Among other kinds of external influences which are widely believed to be effective in changing of attitudes are those which are exerted by mass media of communication, such as the radio and the press. Intensive exposure is usually successful in acquainting a person with some topic or product, but whether or not he takes action on it depends upon several factors: (1) the strength of his attitudes pertaining to the item, (2) whether his attitudes are conducive to or opposed to the action, and (3) whether action is clearly outlined in the communication.

Rogers (1962) has summarized the literature on the diffusion of innovations and offers the following generalization: ". . . impersonal sources of information are more important than personal sources for relatively earlier adopters of innovations than for later adopters. . .". The assumption is that individuals who have greater exposure to mass media are more aware of changes occurring outside of their local social system. The framework draws its support from the research by Katz on mass communications, through which the hypothesis of the two-step flow of communication had been developed. The hypothesis proposed that

. . . influences stemming from mass media first reach 'opinion leaders' who, in turn pass on what they read and hear to those of their everyday associates from whom they are influential (p. 61).

The two-step flow hypothesis is represented diagrammatically as under:



The two-step flow hypothesis suggests that mass communication messages are mediated by the reference groups of the recipient and the social structure in which they are imbedded. When an educational leader reads or hears about guidance, for example, the hypothesis suggests that his response is not directly determined by the message but is determined largely by his relationship with other persons whom he sees as important to him.

H21: The more exposure a teacher has to general mass media, the earlier he will have adopted an innovation and the greater his internal acceptance of innovation.

H22: The more frequently the teacher attends professional meetings, the earlier he will have adopted an innovation and the greater his internal acceptance of innovations.

Lin et al. (1966) found a high correlation between teachers' perception of the adequacy of the knowledge about an innovation and innovation internalization.

H23: The more adequate the teacher's perception of the adequacy of his knowledge about an innovation the earlier he will have adopted

an innovation and the greater his internal acceptance of an innovation.

The quality of education depends upon the quality of the teacher, and the quality of the teacher in turn depends upon the quality of human material that is attracted to the profession and the quality of the preparation received. The teaching profession is one of those in which continuous training is required. Teachers have to keep themselves constantly abreast of the rapid changes that take place in society and also the developments in science and in teaching methods that call for frequent adjustment of the education system. In-service education has come to be recognized as indispensable for the healthy growth of a progressive teaching profession. If the teacher is to bring his techniques and practices in line with the latest trends in education he must continue his education throughout the period of his service; for "a teacher who does not grow tends to stagnate and become mechanical." (Kandel, 1933, p. 526)

H24: The more a teacher attends in-service courses, the earlier he will have adopted an innovation and the greater his internal acceptance of innovations.

Rogers reports a summary of data from a number of diffusion studies which indicates that the earlier an individual becomes aware of an innovation the sooner he tends to adopt that innovation. However, Lin et al. found a non-significant relationship between time of awareness and

internalization of a school adopted innovation. Thus, it is hypothesized:

H25: The earlier a teacher becomes aware of an innovation, the earlier he will have adopted an innovation and the greater his internal acceptance of innovations.

IV. Personal Disposition Toward Change

Lin et al. found a very high positive relationship ($r = .50$) between a teacher's general predisposition toward accepting change and his internalization of an innovation.

Thus, it is expected:

H26: The more change-oriented a teacher is the earlier he will have adopted an innovation and the greater his internalization of innovations.

CHAPTER IV

METHODOLOGY AND DATA COLLECTION

The field study was conducted in a sample of pilot secondary schools of West Pakistan. The unit of analysis was the teacher in the pilot schools. The process of collecting data was accomplished primarily by one instrument - response to a highly structured questionnaire. (The questionnaire is closely patterned after that of Lin et al. [1966] with adaptations appropriate to the innovations in this study and the Pakistan school situation.) In addition, personal depth interviews were used to go more deeply into certain areas of crucial need where detailed information or clarification was needed. Also, information was gathered by attending a faculty meeting at the West Pakistan Education Extension Center, Lahore, visiting the schools, and participating in the work-shop. Educational documents, records and literature were systematically analyzed. Further information in depth was gathered personally from the Director, West Pakistan Education Extension.

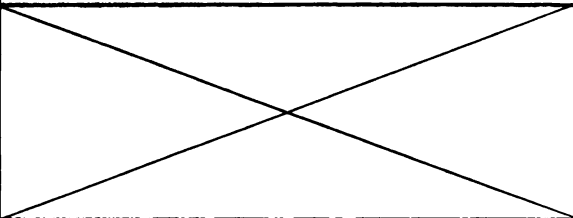
Universe and Population of the Study

The representative sample of the study consists of six pilot schools scattered at random throughout West Pakistan. The population consists of teachers from these schools.

In total, there are twenty-three pilot secondary schools in West Pakistan, twenty-one Government schools and two privately managed. In the study, only Government pilot schools were utilized as the basis for sampling. There are fourteen boys' and seven girls' pilot schools. Because in boys' schools there are mostly male administrators and teachers, and in the girls' schools mostly female administrators and teachers, the data from each type of school should be analyzed separately in order to determine if these differences affect variable relationships between the two types of schools.

Six boys' schools are classified as urban (do not teach agriculture) while eight boys' schools are classified as rural (those which teach agriculture). The criterion on which the decision to teach or not teach agriculture was made reflects the general degree of cosmopolitaness of the community in which the school is situated. The data from each type of boys' school were analyzed separately to determine if urban-rural differences in the school setting affect variable relationships within each type of school. The following figure represents the sample stratification:

Figure 5. Sample Stratification: Type of Setting

Urban		Rural	
Boys	School N = 6	School N = 8	
	School Sample N = 2	School Sample N = 2	
	Teacher Sample N = 80	Teacher Sample N = 67	
Girls	School N = 7		
	School Sample N = 2		
	Teacher Sample N = 59		

Data Gathering Instrument

The instrument was a highly structured questionnaire with multiple choice responses administered to all the subjects in the sample. The instrument consists of five selected innovations and eight independent variables categories. The independent variables are related to the demographic; institutional (includes role perception, perception of one's superiors, peer relationship and perception of student); communication behavior, and personal disposition toward change (includes self-perceived change orientation). The instrument was pretested on one non-government pilot secondary school, Karachi. Appropriate changes were made after the pretest was taken.

Five copies of the mimeographed instrument was sent to three experienced headmasters. The selection was on the basis of the researcher's perception of their cooperation.

- Step 1. Please indicate categories that do not exist as "need" for teachers in the pilot schools.
- Step 2. Please indicate items that are not clear to the average secondary school teacher in West Pakistan.
- Step 3. Please mention area on items of "need" that have not been included in the questionnaire.
- Step 4. Please indicate the "statement" and "directions" that are vague or not clear.
- Step 5. Please write your reaction and attitude to such instrument

Three of the headmasters responded and their suggestions were incorporated as much as possible.

The Questionnaire

The final questionnaire used in this study contained 109 items. In the beginning, the general purposes of the study were described in great detail, and the confidential nature of the questionnaire emphasized. The respondents were not asked to write their names. The researcher repeatedly emphasized the anonymous nature of the questionnaire. The subjects were assured that individuals or schools would not be identified and the information would be used strictly for the purpose of research.

The respondents experienced some difficulty in responding to the questionnaire. The teachers were generally unaccustomed to respond to such an instrument. They were

characterized by a sense of suspicion that the information might be used against them.

Data Collection

The researcher personally went to Pakistan in the month of November, 1967 for the collection of data. The researcher made an appointment with the heads of the schools in the sample and talked about the purpose of the study. At the scheduled time, the teachers were gathered in the library or the staff room. The headmaster/headmistress introduced the researcher to the teachers, the researcher explained the purpose of the study and thanked them for their cooperation. The researcher did his best to make them feel free, independent, and honest while responding to the instrument.

The questionnaire was passed out and pencils supplied. The teachers were also reminded not to talk or discuss among themselves. The researcher stood aside ready to help them if they experienced any difficulty in understanding the questionnaire.

The questionnaires were administered to the group for several reasons: (1) it achieved maximum control in a field situation, (2) it saved time for both the researcher and the respondents, (3) it was economical and (4) it was less disruptive of the school time-table. The test was usually completed within an hour.

The schools in the sample were visited in December, 1967 and January, 1968. The time gap was due to the fact that the schools were scattered throughout West Pakistan and it took time to travel from one school to another.

The schools 1 and 2 (Urban Girls' Schools), the first completed questionnaire, took thirty-five minutes and the last took fifty-five minutes. The teachers talked quite a bit among themselves and raised their hands for clarifications. In these schools the total number of teachers were sixty-four and fifty-nine, respectively, who took the test.

In schools 3 and 4 (Urban Boys' Schools), the first completed questionnaire took thirty-nine minutes and the last one took sixty-five minutes. Ninety-four teachers and eighty completed the test.

In schools 5 and 6 (Rural Boys' Schools), the first completed questionnaire took thirty minutes and the last took fifty-eight minutes. Seventy-six teachers and sixty-seven took the tests. In school 5, at the beginning of the meeting, there were five more teachers present and they left the room when the questionnaires were being passed out without mentioning any reasons. The possibility might be the general resentment, suspicion and skepticism regarding the researcher's purpose, because in many areas it was beyond their comprehension that fundamental research could be made based on teachers' perception, attitudes, etc.

Treatment of Data

The original questionnaire was returned to Michigan State University, coded, and punched on IBM cards. With the assistance of the MSU College of Education Research Services, the data were prepared for analysis on MSU's CDC 3600 computer.

Pearson Product-Moment zero order correlation coefficients were computed to indicate the magnitude of the relationship between each independent variable and each dependent variable for:

1. Girls' Schools
2. Boys' Rural Schools
3. Boys' Urban Schools

The hypotheses were tested on the basis of the statistical significance or non-significance of the zero-order correlation according to the size of the sample (number of teachers).

Operationalization of Concepts and Scale Construction

The conceptual and operational definitions along with some sample items used were:

1. Internalization: The extent to which a teacher perceives innovation or change as relevant to his role performance in the school. It is the sum of scores a teacher

obtains from his responses to questions concerning the significance of change to his performance as a teacher and the educational system as a whole.

e.g., I think educational guidance represents an improvement in educational practice at my school.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

2. Psychological distance: The extent of closeness a member perceives the social relationship of himself and superior in the organization. Operationally, it is the discrepancy between the perceived social distance score between "teachers" and "your headmaster/headmistress" and the perceived social distance score between "yourself" and "your headmaster/headmistress."

3. Source credibility: The perceived degree of reliability placed upon the source of a message, independent of the nature of the message. Operationally, it is the sum of scores a teacher obtains in his responses to the Berlo-Lemert-Mertz (1966) source credibility scale on the dimensions of competence and safety.

4. Feedback: The evaluative information received by a person in regard to his role performance and his attitude toward his role in the social system. Operationally, it is the sum of scores a teacher obtains in his/her responses to questions on how often his/her headmaster/headmistress talks to him/her about his/her teaching performance in the school.

e.g., He/she gives me encouragement in my work.

5. Change orientation of the headmaster/headmistress (general attitude toward change): The perceived degree of general predisposed favorable attitude toward change and innovations. Operationally, it is the sum of scores a headmaster/headmistress obtains in teachers' responses to questions relating to personal adjustment to changes in general in the school.

e.g., Personally, I feel I can adjust to changes easily.

6. Vertical communication: The extent of communication which takes place between persons of different hierarchical positions formally defined in an organization. Operationally, it is the sum of scores a teacher obtains in his responses to the questions on the frequency of his talking with the headmaster/headmistress on work-related problems.

e.g., Compared with an average teacher, the headmaster/headmistress talks to me about the problem of teaching my subject matter(s).

7. Horizontal communication: The extent of communication takes place between persons of similar hierarchical positions defined formally in an organization. Operationally, it is the sum of scores a teacher obtains in his responses to the questions on the frequencies of his talking with other teachers in the school on school activities.

e.g., Compared with an average teacher, I talk to other teachers about non-academic school activities:

1. much more frequently
2. more frequently
3. about the same amount
4. less frequently
5. much less frequently

8. Feeling of security: The extent to which the values held by a person, perceived by him as essential to his existence, are not threatened by stimuli received in the specified system. Operationally, it is the sum of scores a teacher obtains in his responses to questions dealing with how compatible he thinks his role as a teacher and his personality are, how safe he thinks he is in the school, and how much he believes others in the school like him.

e.g., Compared with an average teacher, I would say I get along well with other teachers.

9. Group cohesiveness: The extent to which a person perceives the membership of a defined group as valuable and attractive. Operationally, it is the sum of scores a teacher obtains in his responses to the questions on how much he wants

to stay in the school and how well teachers get along with one another in the school as perceived by him.

e.g., I feel I am really a part of this faculty.

10. Decision-making participation: The extent to which a person perceives himself as taking part in discussion or exchange of ideas to make decisions which affect the whole group. Operationally, it is the sum of scores a teacher obtains in his responses to questions on how often he attends decision-making discussions and how influential he perceives he is with headmaster/headmistress in making decisions.

e.g., I don't think I can influence the decisions of the headmaster/headmistress regarding things about which I am concerned (a negative statement).

Demographic and background variables such as age, educational background, income, length of service in the school, number of subjects taught, and others were also included in the questionnaire.

CHAPTER V

FINDINGS

Characteristics of the Respondents

Table 1 describes the characteristics of respondents in the three categories of schools. These categories are:

Category GU - Girls urban pilot schools

Category BR - Boys rural pilot schools

Category BU - Boys urban pilot schools

TABLE II - Characteristics of Respondents

		School Category (GU)	School Category (BR)	School Category (BU)
Age	20-24	28.8%	9.0%	8.8%
	25-29	47.5	25.4	28.8
	30-34	15.3	37.3	20.0
	35-39	3.4	11.9	15.0
	40-44	3.4	9.0	12.5
	45-49	1.7	4.5	1.3
	50-54	0	1.5	1.3
	55-59	0	1.5	2.5
		100%	100%	100%

TABLE II--Continued

	School Category (GU)	School Category (BR)	School Category (BU)
Educational Background			
High School	1.7%	9.0%	13.8%
Intermediate	6.8	14.9	15.0
Bachelor's	32.2	9.0	10.0
Master's	27.1	11.9	15.0
B.Ed.	50.5	50.7	38.8
Others	<u>1.7</u>	<u>4.5</u>	<u>7.5</u>
	100%	100%	100%
Annual Income (in Rupees)			
2500 or less	54.2	37.3	42.5
2501-3000	13.6	14.9	5.0
3001-3500	8.5	13.4	7.5
3501-4000	16.9	23.9	23.8
4001-4500	<u>6.8</u>	<u>10.4</u>	<u>11.3</u>
	100%	100%	100%

Some columns do not total 100% due to rounding error

The schools differ on the ages of the teachers; schools in GU category tend to have younger teachers than in BR and BU categories. There is a tendency for the schools in BR category to have more trained teachers than those in GU and BU categories. The teachers holding master's degrees are more in GU category than in BR and BU categories. The teachers in BR and BU categories receive more annual salary than the teachers in GU category.

TABLE III - The Distribution of Years of Experience in the Pilot Schools

Years in present school	Category (GU)		Category (BR)		Category (BU)	
	Frequency	%	Frequency	%	Frequency	%
1st year	10	16.9	16	23.9	15	18.8
2nd year	11	18.6	7	10.4	7	8.8
3rd year	5	8.5	11	16.4	13	16.3
4th year	13	22.0	8	11.9	10	12.5
5th year	6	10.2	5	7.5	8	10.0
6th year	3	5.1	4	6.0	10	12.5
7 or more	<u>11</u>	<u>18.6</u>	<u>16</u>	<u>23.9</u>	<u>17</u>	<u>21.3</u>
Median	4 years		3 years		4 years	

The median amount of teaching experience in the pilot schools in GU is 4 years; in BR 3 years; and in BU 4 years.

Scale Validation

General Procedure

1. Certain items were eliminated which correlated with other items below .20;
2. Certain items were reversed which were worded negatively; and
3. The remaining items were summed to produce the final index.

To test the hypotheses, the scales were revalidated by computing inter-item correlation coefficients for each scale. Such coefficients were computed for each of the three categories.

1. Internalization: The 90 inter-item correlation coefficients (six for each innovation for each category)

ranged from $-.05$ to $.86$. The median correlation was $.39$.

2. Psychological distance: The 45 inter-item correlation coefficients (fifteen for each category) ranged from $-.06$ to $.68$. The median correlation was $.29$. Within this variable there seemed to be two kinds of items; one relating to "involvement in decision-making," and the other relating to "personal warmth."

3. Feedback from the Headmaster/Headmistress: The 18 inter-item correlation coefficients (six for each category), all in the expected directions, ranged from $.22$ to $.73$. The median correlation was $.47$.

4. Perceived change orientation of the Headmaster/Headmistress. The 9 inter-item correlations (three for each category), all in the expected directions, ranged from $.14$ to $.54$. The median correlation was $.45$.

5. Feelings of security: The 9 inter-item correlations, (three for each category) ranged from $.05$ to $.36$. One item was weak and correlated low among each category of schools and thus eliminated. The remaining items were summed to produce the final index.

6. Group cohesiveness: The 9 inter-item correlations ranged from $.22$ to $.73$, all in the expected directions.

7. Source credibility: Since it was theoretically assumed that there were two independent dimensions of source credibility; namely, competence and safety, the two groups of correlations were investigated separately.

The 9 inter-item correlations for the competence dimension (three for each category) ranged from .23 to .8. For the safety dimension, the 9 inter-item correlations (three for each category) ranged from .09 to .73.

8. Vertical communication: The two item correlations were .48, .59 and .62 for each category of schools respectively.

9. Role satisfaction: The 18 inter-item correlations, all in the expected directions, ranged from .16 to .62. The median correlation was .37.

10. The Headmaster/Headmistress support of the innovations: The 30 inter-item correlations (ten for each category), ranged from .08 to .67. The median correlation was .28.

11. Students' attitude: The 18 inter-item correlations (six for each category), ranged from $-.90$ to $.49$; one being in the wrong direction throughout. Since one item was weak especially for category 3, the decision was reached to sum up all the items.

12. Students' benefit: The 30 inter-item correlations (ten for each category), ranged from $.03$ to $.61$. The median correlation was $.31$. Since no item was particularly weak, all were summed to produce the final index.

13. Self-rated teaching ability: The 108 inter-item correlations (thirty-six for each category), ranged from $-.05$ to $.79$. One item was weak in the GU category only, so the decision was reached that all the items be summed to produce the final index.

Preliminary Observations

Rogers (1965) suggested that educational diffusion studies should attend to decision-making process in order to determine at what level in the school system the decision to adopt or reject an innovation is made. This consideration was important in determining whether adoption time was a meaningful variable in the institutional context. Four types of decision-making (paradigm outlined in Chapter III) were specified by Rogers. The four represent a continuum ranging from voluntary individual decisions to organizational decisions demanding members (teachers) compliance. In this context, two types of decisions are taken into consideration to make the following discussion clear:

1. An optional decision is made when an individual is forced to make a final adoption - rejection choice but may be influenced by the norms of the social system in reaching the decision.
2. An authority decision is one which an individual has to adopt or reject as the result of an order by others.

In this research context, adoption of objective tests as an individually adopted innovation has been investigated where individual teachers in a school may be free to adopt this innovation. In the case of five innovations studied, individual adoption was not considered as a meaningful variable. First, it was clear that the decision to adopt four innovations was not accomplished by the teachers in the pilot schools of West Pakistan. For innovations of this type, all teachers in the school theoretically "adopted"

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the innovations at the same time. Second, because all teachers in these schools "adopted" at the same time there should have been no variability in individual adoption time. Compliant adoption behavior is expected on the part of the teachers when the school is the functional unit of adoption. In other words, when the organization (school) is the functional unit of adoption, the decision to adopt requires that all members (teachers) comply with that decision. Adoption time is simultaneous for all the members of the organization at the time the innovation is put into practice. When the individual is the functional unit of adoption, compliant adoption behavior is not required and there can be individual differences in adoption time. Thus in regard to the innovations under study, innovation internalization, defined as the degree of a teacher's attitudinal acceptance of a specific innovation is a meaningful dependent variable. It was assumed that a high internalization score should be related to a high positive attitude, i.e., a teacher who had internalized the innovations would have favorable attitude toward these innovations. The utility of the variable for studying educational change is indicated by the number of factors with which it was significantly correlated.

Testing of Hypotheses

In this section, an attempt has been made to test 52 hypotheses predicting directional relationships between twenty-six independent and two dependent variables. A

tabular summary of the predicted relationships have been provided in Table II. The Pearsonian product-moment correlation coefficient was obtained from analysis of the data from teachers' questionnaires to show which hypotheses (predicted relationships) are supported.

H1: The older a teacher is the later he will have adopted an innovation and the less his internalization of an innovation.

Categories of Schools	(Predicted Direction) +	(Predicted Direction) -
	Years of Adoption	Internalization
GU	.41**	-.36**
BR	.38**	-.28*
BU	.23	-.45**

The hypothesis says, in essence, that age will be inversely related to adoption and internalization of innovations; i.e., younger teachers tend to adopt innovation (objective tests) relatively earlier and tend to have greater internalization of innovations than do their colleagues. The predicted relationship is supported by the analysis. Thus, the hypothesis is supported.

H2: The higher the educational level attained by a teacher, the earlier he will have adopted an innovation and the higher his internalization of the innovation.

Categories of Schools	-	+
	Adoption	Internalization
GU	-.35**	.33*
BR	-.21**	.30*
BU	-.21**	.29*

*Significant at .05

**Significant at .01

The hypothesis says, in essence, that the teacher who has attained a high level of formal education adopts the innovations earlier and his attitude toward these innovations is highly positive. The relationship between dependent and independent variables is significantly correlated. Thus, the hypothesis is clearly supported.

H3: The higher the teacher's salary, the earlier he will have adopted an innovation and the higher his internalization of an innovation.

Categories of Schools	- Adoption	+ Internalization
GU	-.68**	.36**
BR	-.56**	.27
BU	-.32**	.43**

In BR category, under internalization, the r does not reach significance, yet the score is in the expected direction. The hypothesis tends to be supported. Teachers who get higher salaries tend to adopt and internalize innovations.

H4: The longer the teacher has been employed in a school the later he will have adopted an innovation and the less his internalization of an innovation.

Categories of Schools	+ Adoption	- Internalization
GU	.41**	-.24**
BR	.35**	-.29**
BU	.48**	-.23*

The hypothesis says, in essence, that the length of service in the pilot schools will be inversely related to

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adoption and internalization of educational innovations; i.e., teachers with less years of employment in the schools tend to adopt innovations relatively earlier than do their colleagues who have more years of employment. The predicted relationship is supported by the analysis. The hypothesis is thus supported.

H5: The greater the number of courses the teacher has taught, the earlier he will have adopted an innovation and the higher his internalization of an innovation.

Categories of Schools	- Adoption	+ Internalization
GU	-.31*	.30*
BR	-.18*	.20*
BU	-.22*	.27*

Significant correlation between the number of courses a teacher has taught and his adoption and internalization of innovation is found.

The hypothesis, therefore, is supported.

H6: The more a teacher is satisfied with his work and working environment, the earlier he will have adopted an innovation and the greater his degree of internal acceptance of the innovation.

Categories of Schools	- Adoption	+ Internalization
GU	-.28*	.24*
BR	-.31*	.27*
BU	-.40**	.31**

The hypothesis says that an innovative teacher is more satisfied with the school environment and thus he is the early adopter and his degree of internalization is

greater than those who are not satisfied with their working environment in their schools. The predicted relationship has been found between the role satisfaction of a teacher, his adoption, and his internal acceptance of the innovations across the three categories of schools. Thus, the hypothesis is supported.

H7: The greater a teacher's feeling of security in the school environment, the earlier he will have adopted an innovation and the greater his internal acceptance of innovation.

Categories of schools	- Adoption	+ Internalization
GU	-.133	-.03
BR	-.15	-.02
BU	.09	.22

The predicted relationship was not found between the teacher's feeling of security and his early adoption and greater internalization of innovations. This may be the result of either a poor scale, or due to the fact that the older teachers had tenure and the younger teachers who were more innovative tended to feel insecure because they were not yet permanent. The hypothesis is not supported.

H8: The more a teacher perceives himself to be a good teacher, the earlier he will have adopted an innovation and the greater his internal acceptance of innovations.

Categories of Schools	- Adoption	+ Internalization
GU	.04	.25
BR	.17	.13
BU	.19	-.01

The above correlations indicate that the predicted relationship was not found between the self-rated teaching ability and adoption and internalization of innovations.

The hypothesis, therefore, is not supported.

H9: The more teachers perceive themselves participating in school decision-making, the earlier they will have adopted an innovation and the greater their internal acceptance of innovations.

Decision-making variables were broken down into two sub-divisions: One was related to influencing the Headmaster at the time of his making decisions about the teacher; and the second was related to the concept of the headmasters' asking the opinion of the teacher at the time of decision making.

Influencing the Headmaster

Categories of Schools	- Adoption	+ Internalization
GU	.20	.13
BR	.07	.08
BU	.09	.08

The Innovative teachers across the three categories did not perceive themselves as influencing the decisions made by the headmaster. The relationship between the independent and dependent variables was found to be inverse. This part of the hypothesis is not supported.

Opinion Asked

Categories of Schools	+ Adoption	- Internalization
GU	.33**	-.24*
BR	.22*	-.21*
BU	.38**	-.12

Significant correlation was found between the teachers who perceived that their opinions were sought by the Headmaster at the time of making decisions and their early acceptance and higher internalization of innovations adopted by the school. It is interesting to note that the innovative teachers perceived themselves as more asked by the Headmaster for their opinions; but it was not possible for them to exert their personal influence on the Headmaster to alter or influence his decisions.

H10: The more change-oriented a teacher perceives his Headmaster to be, the earlier he will have adopted an innovation and the greater his internal acceptance of innovations.

Categories of Schools	- Adoption	+ Internalization
GU	-.41**	.42*
BR	-.37**	.28*
BU	-.26*	.38**

Change orientation of the Headmaster as perceived by the teacher is significantly correlated with the teacher's earlier adoption and internal acceptance of innovations. The hypothesis is thus supported across the categories.

H11: The greater the psychological distance between the teacher and his Headmaster, as perceived by the teacher the later he will have adopted an innovation adopted by school.

Categories of School	+ Adoption	- Internalization
GU	.29*	-.19
BR	.28*	-.12
BU	.23*	-.31**

The first part of the hypothesis relating to adoption was significantly correlated across the categories; but internalization scores, though in expected direction, are not significantly correlated in GU and BR categories of schools. The hypothesis tends toward rejection.

H12: The more credible the principal is perceived as a source of information by the teacher the earlier the teacher will have adopted an innovation and the greater his degree of internal acceptance of innovations.

Source credibility scales were divided into two categories; Competence and Safety dimensions.

(1) Competence

Categories of Schools	- Adoption	+ Internalization
GU	-.41**	.20
BR	-.33*	.29
BU	-.26*	.25*

(2) Safety

Categories of Schools	- Adoption	+ Internalization
GU	-.07	.08
BR	.04	-.00.7
BU	.006	.03

The teachers who perceived the Headmaster as competent tended to adopt and internalize innovations.

H13: The more frequently a teacher receives feedback from his Headmaster on the adequacy of his work related performance the earlier he will have adopted an innovation and the greater the degree of his internal acceptance of innovations adopted by the school.

Categories of Schools	- Adoption	+ Internalization
GU	-.14	.22
BR	-.36**	.18
BU	-.07	.14

Correlations, though in the expected directions, did not reach significance except in BR category where a significant relationship was found between the headmaster's feedback on the adequacy of teacher's work related performance and early adoption of innovations by the teacher. The hypothesis does not seem to have been supported.

H14: The more frequently a teacher communicates with his Headmaster the earlier he will have adopted an innovation and the higher the degree of the teacher's internal acceptance of innovations.

Categories of Schools	- Adoption	+ Internalization
GU	-.51	.14
BR	-.26*	.13
BU	-.07	.11

All correlations are in the expected directions, but they are very low. No relationship was found between vertical communication, early adoption and internalization of innovations. These low correlations may be attributed to the older teachers communicating more with the Headmaster because of their long tenure and the prestige they had. The hypothesis (predicted relationship) is rejected.

H15: The more the teacher perceives the Headmaster to support innovations, the earlier they will have adopted an innovation and the greater the degree of teachers acceptance and internalization of innovations.

Categories of Schools	- Adoption	+ Internalization
GU	-.17	.10
BR	-.26*	.16
BU	-.24*	.25*

On the whole, no strong relationship was found between the Headmaster's support of innovation and the early adoption and greater internalization of innovations by the teachers. Although all the scores across categories are in the predicted direction only in the BU category was a significant relationship found. However, the hypothesis must still be rejected.

H16: The more a teacher perceives himself to be an opinion leader for his professional peers, the earlier he will have adopted the innovation and the greater his internalization of innovation.

Categories of Schools	- Adoption	+ Internalization
GU	-.37**	.22**
BR	-.23*	.16*
BU	-.35**	.20*

Significant correlations were found between the teacher's perception of himself as an opinion leader and his early adoption and greater internalization of innovation. Thus, the hypothesis is supported.

H17: The more frequently the teacher engages in horizontal communication, the earlier he will have adopted an innovation and the greater his internalization of innovation.

Categories of Schools	+ Adoption	- Internalization
GU	-.06	-.07
BR	-.13	-.17
BU	-.01	-.05

Innovative teacher's horizontal communication behavior was negatively correlated with their earlier adoption and greater internalization of innovations. The hypothesis was not supported; in fact, the scores, while not significant, were in the opposite directions. The reason why early knowers and adopters would communicate less frequently was not readily apparent. One possibility may be that early adopters were perceived by other teachers as deviants from "traditional" educational norms and general communication with them was reduced. A methodological clue was that the horizontal communication scale was rather weak and its relationship with other variables might have been confounded. It appears that these relationships demand further investigation.

H18: The more cohesive the teacher perceives the faculty of his school to be, the earlier he will have adopted an innovation and the greater his degree of internalization of innovations.

Categories of Schools	- Adoption	+ Internalization
GU	-.04	.05
BR	-.32*	.17
BU	-.099	.05

Cohesiveness of the faculty was not significantly correlated with adoption and internalization of innovation. The hypothesis is not supported. The scores are very low and may suggest that the scale to measure this variable might be weak. One other reason could be that early adopters and greater internalizers of innovation might not perceive

cohesiveness of the faculty as a sufficient condition for early adoption and internalization.

H19: The more a teacher perceives students benefit from an innovation the earlier he will have adopted the innovation and the greater his degree of internal acceptance of an innovation

Categories of Schools	- Adoption	+ Internalization
GU	-.31*	.25*
BR	-.40**	.69**
BU	-.35**	.37**

Teachers' perception of student benefit from innovations was significantly related to early adoption and internalization. Taking a teacher's perception of the educational efficacy of an innovation as an index of the consequences of the innovation, the data indicate a strong positive relationship between this variable and the adoption and internalization. In other words, teachers who think innovations have beneficial consequences for their students tend to have a more positive attitude toward the innovations. It is evident that innovation internalization is a crucial factor in educational change research and teacher perception of student benefit from innovations are predictive of the resulting success or failure of an innovation in a school. The hypothesis is supported.

H20: The more favorable a teacher perceives his students to be toward innovation, the earlier he will have adopted an innovation and the greater his internalization of innovations.

Categories of Schools	- Adoption	+ Internalization
GU	-.46**	.24*
BR	-.35**	.53**
BU	-.23*	.39**

The hypothesis is supported.

H21: The more exposure a teacher has to general mass media, the earlier he will have adopted an innovation and the greater his internal acceptance of innovations.

The mass media sources are divided into two categories, radio and print (newspapers, etc.).

(1) Radio

Categories of Schools	- Adoption	+ Internalization
GU	.12	-.01
BR	.17	-.22
BU	.16	-.10

(2) Print

Categories of Schools	- Adoption	+ Internalization
GU	-.18	.23
BR	-.06	-.01
BU	.16	.03

The hypothesis is not supported.

Possibly educators do not utilize the mass media for information about innovations or the mass media do not adequately report educational innovations. Since the most efficient way to transmit information widely is through mass media channels, this finding suggests the need to investigate and develop mass media channels that spread

knowledge about new educational practices. The potential of mass media channels for diffusing new educational ideas and practices is far from being realized.

H22: The more frequently the teacher attends professional meetings, the earlier he will have adopted an innovation and the greater will his internal acceptance of innovations.

Categories of Schools	+	-
	Adoption	Internalization
GU	-.29	-.02
BR	.20	-.07
BU	-.25	.14

The relationship between the frequency of professional meetings and adoption and internalization of innovations was found to be inverse in the case of GU and BU for adoption and BU for internalization. The results indicate a lack of confirmation for the hypothesis. The reason for such low correlations may be attributed to the fact that older teachers might be attending professional meetings, while innovative younger teachers may not be interested or invited to these meetings.

H23: The more adequate the teacher's perception of the adequacy of his knowledge about an innovation the earlier he will have adopted an innovation and the greater his internal acceptance of an innovation.

Categories of Schools	-	+
	Adoption	Internalization
GU	-.22	.26
BR	-.33**	.36**
BU	-.19	.17

The correlations showed the expected relationships; however, they failed to reach the .05 significant level in



GU and BU categories. Significant correlations were obtained in the BR category. Teachers in the BR category perceived a relationship between their adequacy of knowledge about the innovations and early adoption and internalization. The hypothesis on the whole is not confirmed across categories.

H24: The more a teacher attends in-service courses, the earlier he will have adopted an innovation and the greater his internal acceptance of innovations.

Categories of Schools	+	-
	Adoption	Internalization
GU	.29*	-.30*
BR	.31*	-.19
BU	.39**	-.22

The correlations reached near significance; in the GU category a significant relationship was found between independent and two dependent variables. The teachers who attend in-service courses tend to adopt but whether or not they internalize is not confirmed. Thus analysis fails to support the hypothesis across categories.

H25: The earlier a teacher becomes aware of an innovation, the earlier he will have adopted an innovation, and the greater his internal acceptance of innovations.

Awareness scores have been computed separately for each innovation studied for each category of schools.

(1) Vocational subjects

Categories of Schools	+	-
	Adoption	Internalization
GU	.56**	-.46**
BR	.35**	-.23*
BU	.27**	-.24*

(2) Laboratory method of science teaching

Categories of Schools	+	-
	Adoption	Internalization
GU	.53**	-.49*
BR	.27**	-.19
BU	.42**	-.36*

(3) Educational guidance

Categories of Schools	+	-
	Adoption	Internalization
GU	.57**	-.49**
BR	.24*	-.24*
BU	.35**	-.37**

(4) Objective tests

Categories of Schools	+	-
	Adoption	Internalization
GU	.71**	-.47**
BR	.43**	-.31**
BU	.51**	-.27*

(5) In-service training

Categories of schools	+	-
	Adoption	Internalization
GU	.41**	-.29**
BR	.29**	-.23**
BU	.37**	-.36**

H26: The more change-oriented a teacher is the earlier he will have adopted an innovation and the greater his internalization.

Categories of Schools	-	+
	Adoption	Internalization
GU	-.52**	.22
BR	-.59**	.27*
BU	-.57**	.24*

The hypothesis concerning change orientation of a teacher and his early adoption of an innovation is supported. The hypothesis relating to internalization is not confirmed, although expected significant correlations are found in BR and BU categories.

Data presented in Table II makes it possible to draw profiles of those government pilot secondary school teachers in West Pakistan who (1) are innovative - adopt educational innovations earlier, and (2) assimilate (internalize) educational innovations to a greater degree.

Teachers who are the early adopters and internal acceptors of educational innovations tend to be younger and have attained a higher level of formal education. Early adopters (teachers) tend to have higher salaries; teach more numbers of courses (subjects) and have less years of service in the pilot schools. They view themselves as satisfied with their roles as educators. They perceive themselves as more asked for opinion in the decision-making process by the Headmasters and view less psychological distance between themselves and their Headmasters. They also perceive their Headmasters as change oriented. They perceive themselves as oriented or receptive to change; and, moreover, consider themselves opinion leaders on the subject of educational innovations. Communication between themselves and teaching colleagues is relatively infrequent. These teachers appear to be especially sensitive to the evaluation and attitudes which students place



TABLE IV - Predicted and Obtained Relationships Between Independent and Dependent Variables

Independent Variables	Dependent Variables					
	Predicted directional relationship of independent with dependent variables () and correlation coefficients resulting from analysis of data					
	Time of Adoption			Internalization		
	GU	BR	BU	GU	BR	BU
I. DEMOGRAPHIC VARIABLES						
	**	**		**	*	**
1. Age	(+).41	(+).38	(+).23	(-).36	(-).28	(-).45
	**	**	**	*	*	*
2. Educational level	(-).34	(-).21	(-).21	(+).33	(+).30	(+).29
	**	**	**	**		**
3. Salary	(-).68	(-).56	(-).32	(+).36	(+).27	(+).43
4. Years of teaching experience at school by which now employed	**	**	**	**	**	*
	(+).41	(+).35	(+).48	(-).24	(-).29	(-).23
5. No. of courses taught	*	*	*	*	*	*
	(-).31	(-).18	(-).22	(+).30	(+).20	(+).27
II. INSTITUTIONAL						
A. Role Perceptions						
	*	*	**	*	*	**
1. Role satisfaction	(-).28	(-).31	(-).40	(+).24	(+).27	(+).31
2. Feelings of security	(-).13	(-).15	(-).09	(+).03	(+).02	(+).22
3. Self-rated teaching ability	(-).04	(-).17	(-).19	(+).25	(+).13	(+).01
4. Perceived level of participation in work related problem-solving and decision-making						
(a) Influencing Headmaster	(-).20	(-).7	(-).09	(+).13	(+).08	(+).08

**significant at .01

*significant at .05

TABLE IV - Continued

Independent Variables	Dependent Variables					
	Time of Adoption			Internalization		
	GU	BR	BU	GU	BR	BU
II. INSTITUTIONAL (continued)						
A. 4. (cont'd. (b) Opinion asked	** (+).33	* (+).22	** (+).38	* (-).24	* (-).21	 (-).12
B. <u>Perception of Students</u>						
1. The teacher's perception of student bene- fit from the innovations	* (-).31	** (-).40	** (-).35	* (+).25	** (+).69	** (+).37
2. The teacher's perception of student atti- tude toward the innovation	** (-).46	** (-).35	** (-).23	* (+).24	** (+).53	** (+).39
III. COMMUNICATION BEHAVIOR						
A. <u>General Communi- cation Behavior</u>						
1. Mass media						
(i) Radio	(-).12	(-).17	(-).16	(+).01	(+).22	(+).10
(ii) Print	(-).18	(-).06	(-).16	(+).23	(+).01	(+).03
B. <u>Professional Communication Behavior</u>						
1. Frequency of professional meetings attended	(+).29	(-).02	-.25	(-).02	(-).07	(-).14

TABLE IV - Continued

Independent Variables	Dependent Variables					
	Time of Adoption			Internalization		
	GU	BR	BU	GU	BR	BU
III. COMMUNICATION BEHAVIOR (cont'd.)						
B. 2. The teacher's perception about adequacy of knowledge about the innovations	(-).22	^{**} (-).33	(-).19	(+).26	^{**} (+).36	(+).17
3. No. of in-service courses attended	[*] (+).29	[*] (+).31	^{**} (+).39	[*] (-).30	(-).19	(-).22
C. <u>Perception of Supervisors and Supervisor Relations</u>						
1. Perceived change orientation of the Headmaster	^{**} (-).41	^{**} (-).37	[*] (-).26	[*] (+).42	[*] (+).28	[*] (+).38
2. Perceived psychological distance between self and the Headmaster	[*] (+).29	[*] (+).28	[*] (+).23	(-).19	(-).12	^{**} (-).31
3. Perceived source credibility of the Headmaster						
(i) Competence	^{**} (-).41	^{**} (-).33	[*] (-).26	(+).20	[*] (+).29	[*] (+).25
(ii) Safety	(-).07	(-).04	(-).006	(+).08	(+).007	(+).03

TABLE IV - Continued

Independent Variables	Dependent Variables					
	Time of Adoption			Internalization		
	GU	BR	BU	GU	BR	BU
III. COMMUNICATION BEHAVIOR (cont'd.)						
C. 4. Reported performance feedback from the Headmaster	(-)-.14	^{**} (-)-.36	(-)-.07	(+).22	(+).18	(+).14
5. Vertical communication	(-).05	[*] (-)-.26	(-)-.07	(+).14	(+).13	(+).11
6. Perceived Headmaster's support of innovation	(-)-.17	[*] (-)-.26	[*] (-).24	(+).10	(+).16	[*] (+).25
D. <u>Peer Relationship</u>						
1. Self-designated opinion leadership	^{**} (-)-.37	[*] (-)-.23	^{**} (-)-.35	^{**} (+).22	[*] (+).16	[*] (+).20
2. Perceived frequency of horizontal communication	(+)-.06	(+)-.13	(+)-.01	(-)-.07	(-)-.17	(-)-.05
3. Perceived cohesiveness of teaching staff	(-)-.04	[*] (-)-.32	(-)-.09	(+).05	(+).17	(+).05
5. Time of awareness of the innovations						
(i) vocational subjects	^{**} (+).56	^{**} (+).35	^{**} (+).27	^{**} (-)-.46	[*] (-)-.23	[*] (-)-.24
(ii) science	^{**} (+).53	^{**} (+).27	^{**} (+).42	[*] (-)-.47	(-)-.19	[*] (-)-.36

TABLE IV - Continued

Independent Variables	Dependent Variables					
	Time of Adoption			Internalization		
	GU	BR	BU	GU	BR	BU
III. COMMUNICATION BEHAVIOR (cont'd.)						
D. 5. (cont'd.)						
(iii) Educational	**	*	**	**	*	**
guidance	(+).57	(+).24	(+).35	(-)-.49	(-)-.24	(-)-.37
(iv) Objective	**	**	**	**	**	*
tests	(+).71	(+).43	(+).51	(-)-.47	(-)-.31	(-)-.27
(v) In-service	**	**	**	**	**	**
education	(+).41	(+).29	(+).37	(-)-.29	(-)-.23	(-)-.36
IV. PERSONAL DIS- POSITION TOWARD CHANGE						
1. Self-perceived						
change	**	**	*	*	*	*
orientation	(-)-.52	(-)-.59	(-)-.57	(+).22	(+).27	(+).24

upon the beneficiality of educational innovations. Teachers in this group appear to attend more professional meetings and also attend in-service courses to keep themselves informed about new trends in education. Lastly, these innovative teachers tend to have early awareness of these innovations.

Early adopters of innovations do not perceive themselves as secure in their positions in the pilot schools; do not perceive themselves as good teachers (defined as to follow the text and prepare the students for the public examinations). They do not perceive themselves as influencers of Headmasters in making decisions. They do not perceive Headmasters as a credible source of information about the innovations and



infrequently receive feedback from their Headmasters about the adequacy of their work-related performance. They do not perceive themselves as more frequently communicating with their Headmasters. These teachers do not perceive the Headmasters as a strong supporter of educational innovations and change; and they do not feel the faculty is cohesive. The findings also suggest that these teachers do not perceive that mass-media plays an important role in giving them information about innovations. Another interesting characteristic of individuals comprising this group of teachers is that they do not perceive themselves as having adequate knowledge about innovations.

Differences in the Categories of Schools

Generally speaking, teachers in all three categories of schools have similar characteristics and attitudes toward change in educational practice. However, there are some differences found which are reported as follows:

1. Teachers in BU perceive less psychological distance between themselves and their Headmasters than the teachers in GU and BR categories.
2. Teachers who perceive themselves as early adopters of educational innovations in BR category also tend to receive more frequent feedback from their Headmaster.
3. Teachers in BR category tend to have more frequent communication than do the teachers in GU and BU categories.

4. Teachers who tend to adopt innovations earlier and internalize greater in BU categories perceive that their Headmaster supports educational innovations. Early adopters in BR category also perceive the Headmaster as a supporter of innovations.
5. Innovative teachers in BR category perceive the faculty as cohesive.
6. Teachers who perceive themselves as early adopters and internalizers of innovations feel they have adequate knowledge about the innovations.
7. Teachers in GU category who perceive themselves as innovators tend to feel they attend more in-service courses. Early adopters attend more in-service courses across categories.

Major Summary Findings

I. The earlier in time teachers adopt an educational innovation, the more likely they were to:

- .be younger
- .have more years of education
- .have higher teaching salaries
- .have fewer years of employment in the pilot schools
- .have taught more numbers of courses
- .feel a lack of security in the school environment
- .be more satisfied with their job
- .think the faculty of their schools lacked cohesiveness
- .think that they were not good teachers
- .think that their opinions were sought by the Headmasters
- .think their Headmasters accepted change



- .feel closer to the Headmasters
- .consider the headmaster as a good source of information
- .think the Headmaster failed to frequently discuss their teaching performance with them
- .communicate infrequently with the Headmaster
- .think that the Headmaster did not support innovation
- .think themselves opinion leaders
- .communicate infrequently with fellow teachers about general school matters
- .feel students benefited greatly from the innovations
- .feel their students liked the innovations
- .think they have an early awareness of innovations
- .think they are predisposed to accepting change and innovations in the school
- .have less exposure to mass media
- .have less attendance at professional meetings
- .perceive themselves to have inadequate knowledge about the innovation
- .have attended more in-service courses

II. The more favorable teachers' attitudes were toward a school-adopted innovation (internalization), the more likely they were to:

- .be younger
- .have more years of education
- .have fewer years of employment in the school
- .have taught more numbers of courses
- .be more satisfied with their job



- .think their Headmasters also accept change
- .think themselves opinion leaders
- .feel students benefit greatly from the innovations
- .feel their students liked the innovations
- .think they had early awareness of innovations

Awareness of Innovations

At the time the data were collected, each of the five innovations studied was familiar to most of the sample teachers. Figures 6 to 10 give the cumulative percentage of teachers' awareness reported in each category of schools.

Figure 11 shows the adoption of objective tests studied in depth in each category of teachers. Teachers were asked to recall the time when they first used the innovation. This also shows the increasing use of objective tests by teachers over the ten years prior to the collection of data.

It is important to note that these awareness figures - even to the extent that they accurately reflect reality - say little about the extent of knowledge possessed by the teachers. Numerous and extended conversations with the teachers suggest that the average pilot secondary school teacher understands very little about the innovations under study.

Few texts and/or articles dealing with these subjects have yet appeared in the Pakistani language, and while English language texts and/or articles in some numbers are to be found in the Extension Center library and offices of the Headmasters, the average teacher possesses neither ready access to such



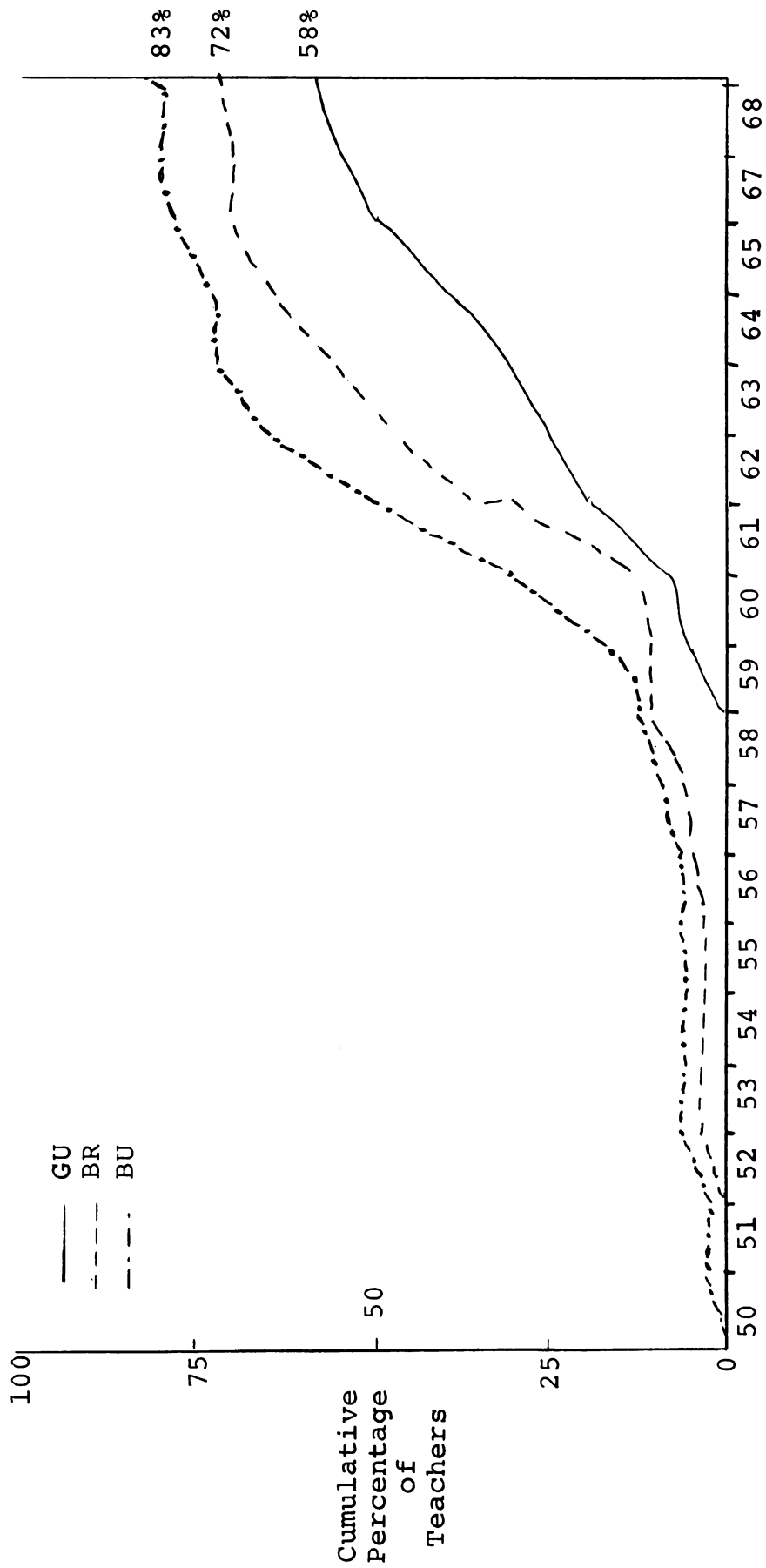


Figure 6 - Year of Awareness of Vocational Education

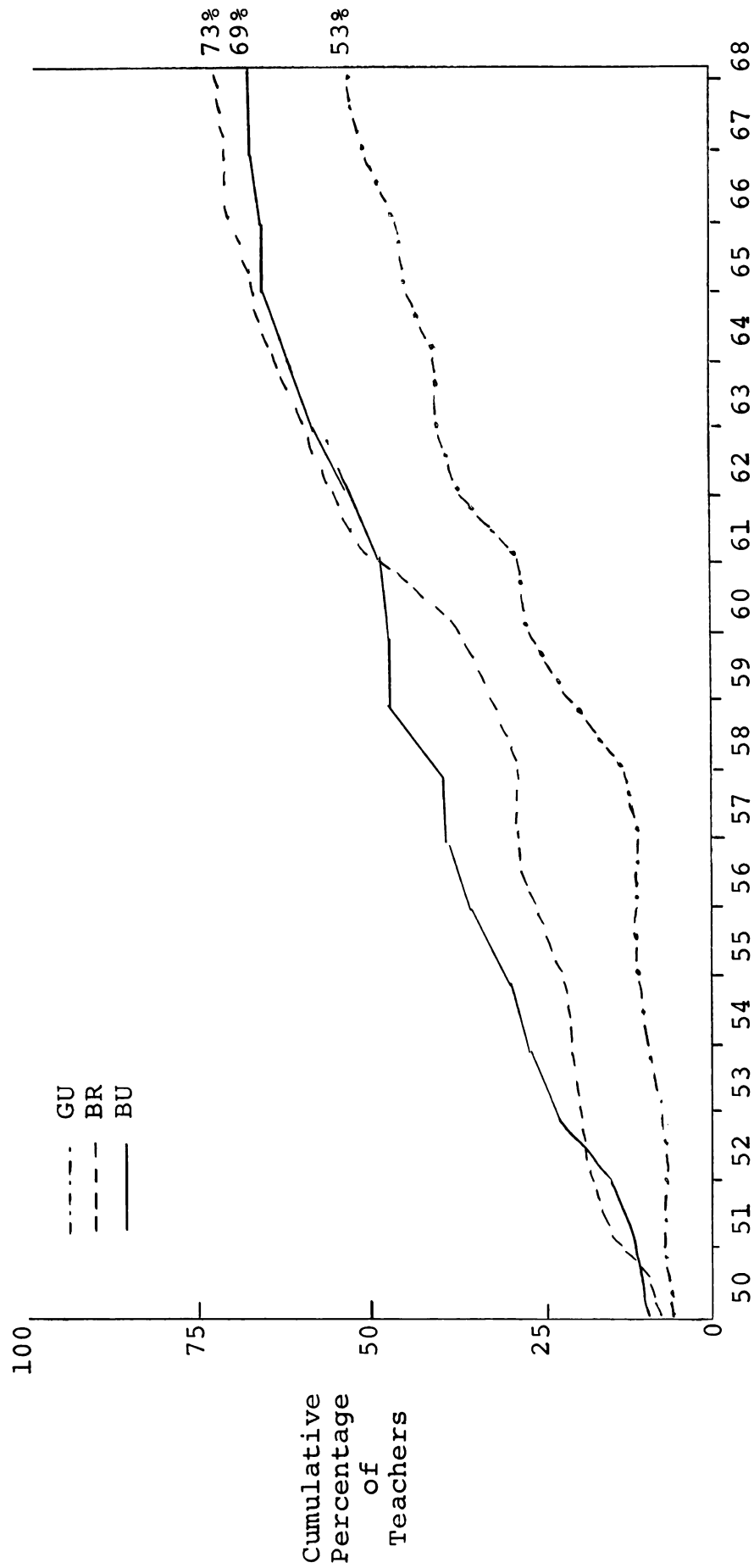


Figure 7 - Year of Awareness of Science Teaching Through Laboratory Method



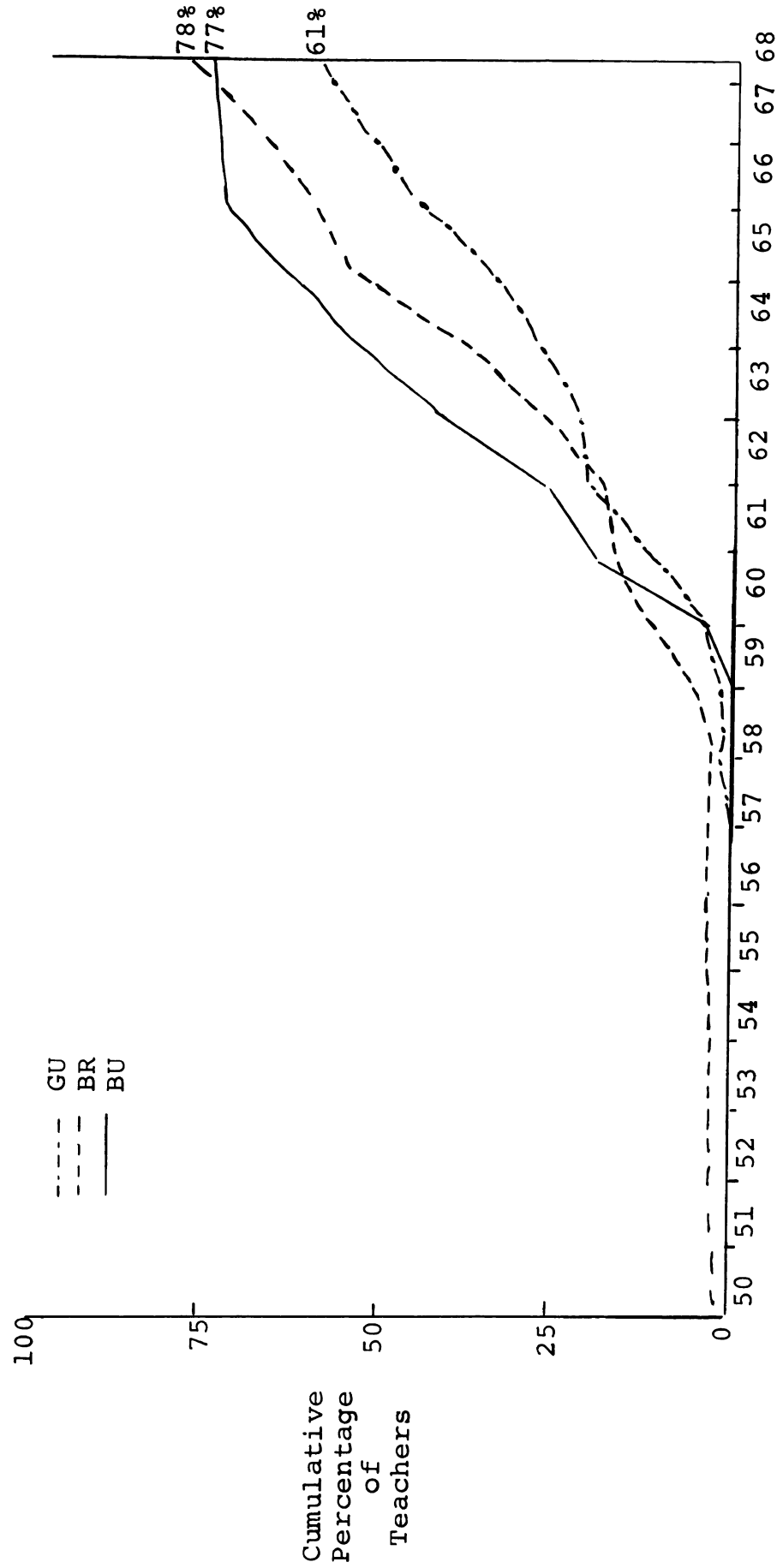


Figure 8 - Year of Awareness of Educational Guidance



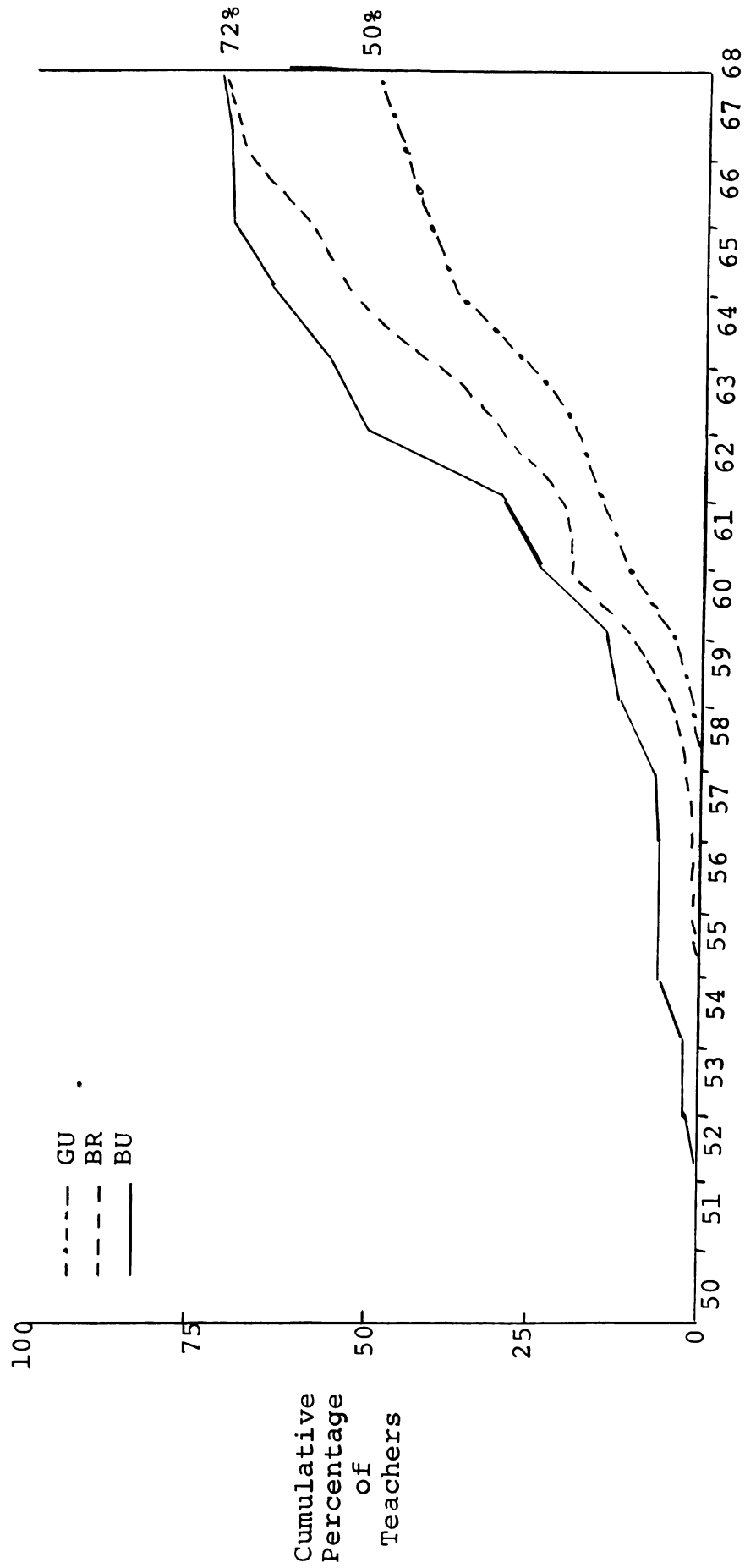


Figure 9 - Year of Awareness of Objective Tests



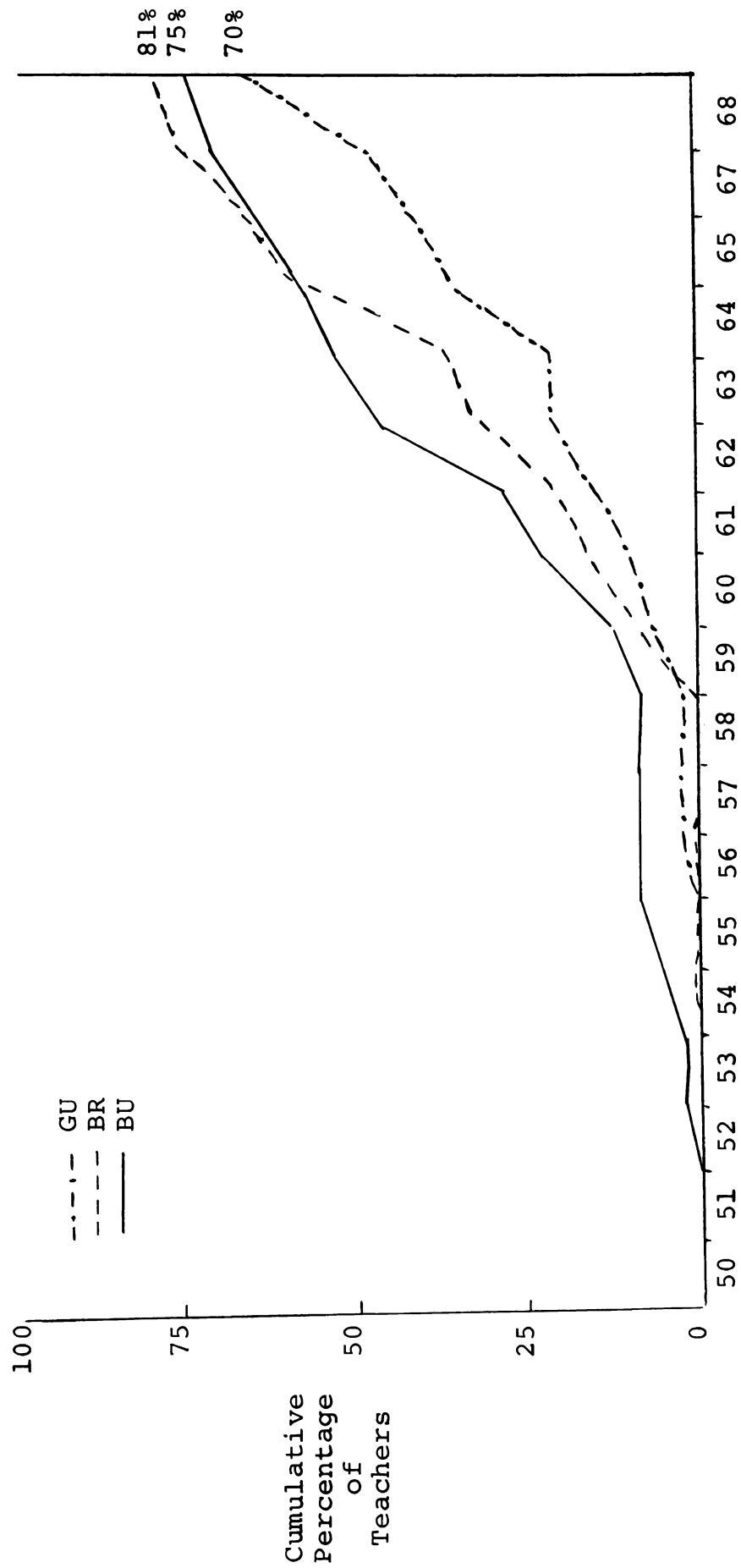


Figure 10 - Year of Awareness of In-Service Education



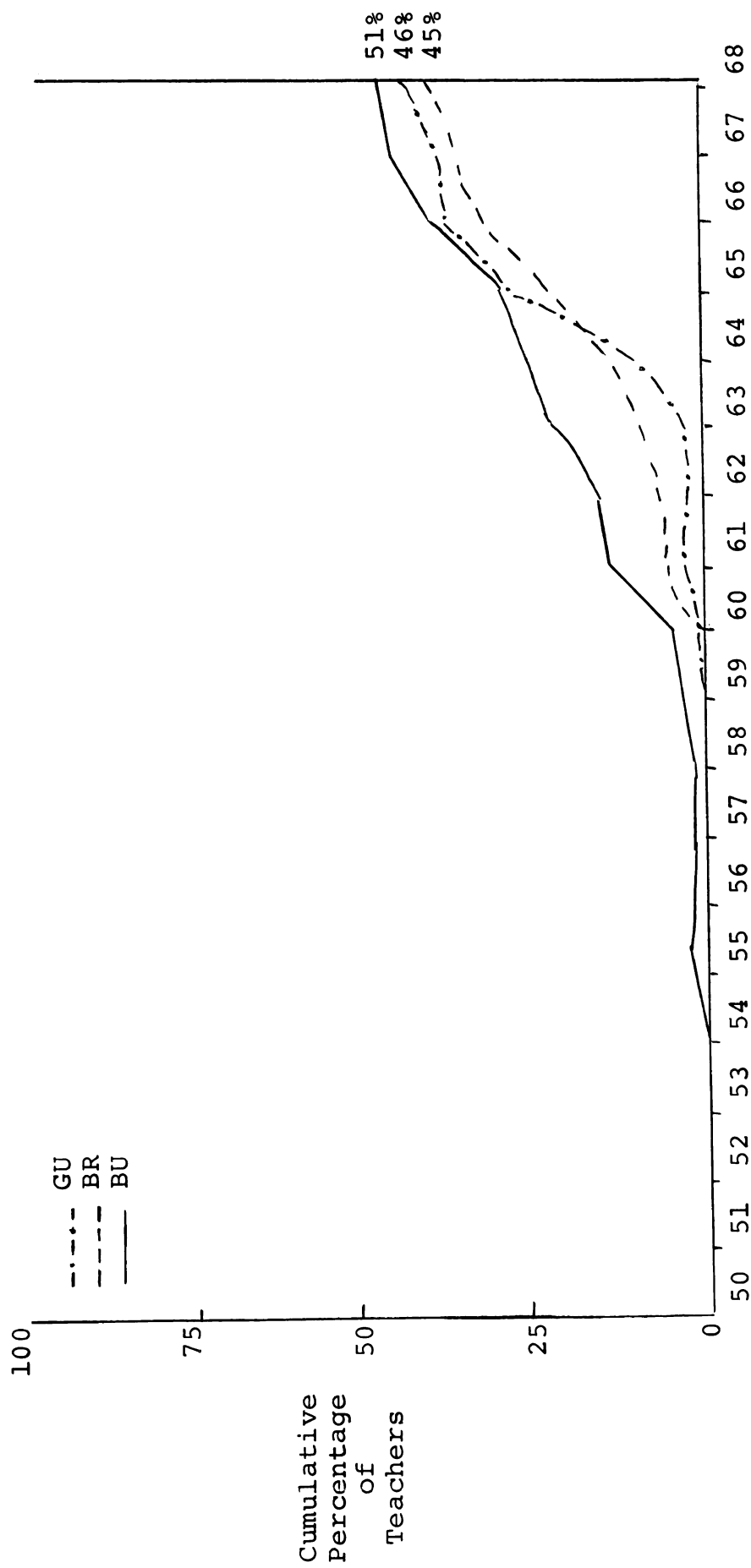


Figure 11 - Year of Adoption of Objective Tests



information sources nor do they yet have the initiative to use them.

Adoption of improved practices, as one might expect has lagged behind awareness in more or less predictable patterns. Individual teacher adoption of improved educational practices should move rather rapidly once the Ministry of Education and the Education Extension Center have been organized to provide personnel with the necessary skills and materials. Positive attitudes toward the beneficiality of change and improvement attests to the favorable organizational climate.

Reported teachers' adoption of an innovation does not coincide with impressionistic evidence obtained from observations made while visiting pilot schools in West Pakistan. Perhaps it may be seen as suggesting the potentialities of teachers to accept future changes rather than as a measure of past adoption. The impression that adoption falls far short of observed adoption also suggests that some objective measures of adoption, frequency, intensity, and/or competency of use be included in future research designs conducted in the pilot schools of West Pakistan. Mortimore (1968) observed that "survey research methodology in developing areas would perhaps prove much more reliable were it wedded or combined with observation" (p. 142).



CHAPTER VI

CONCLUSIONS AND GENERAL RECOMMENDATIONS

In previous chapters the historical background of the need for the establishment of pilot schools in West Pakistan was discussed; the theoretical considerations and the diffusion research traditions were reviewed and both research design; methodology and the correlational analysis to test the hypotheses were reported. In this final chapter there remains the need to examine insights from the questionnaire responses of teachers, the literature, and personal depth interviews with the personnel of the Educational Extension Center with the intent of determining their implications for educational change and future research.

Recommendations For Educational Change

The following recommendations for educational change in the pilot secondary schools are offered with the hope that these changes will bring about improvement in the system of education and thereby life for all in Pakistan.

1. Greater attention should be given to the desired outcomes of educational innovations. While rapid diffusion



may in some instances be a worthy goal, the insight gained from the present study indicates that although awareness and use of five innovations diffused at a fairly rapid pace, most of the innovations were not effectively employed in pilot schools. Lacking in the research design was a precedence for collecting data on the qualitative aspects of innovation and internalization. The awareness of the innovations' existence was measured, but not the degree to which respondents possessed adequate knowledge to properly use the innovations. Both personal observation and discussions with teachers in the sample suggest that only a small minority of pilot school teachers possess an understanding of these innovations in sufficient detail to permit effective utilization.

Few reforms in the content and method of teaching are of any value until they are understood by the teachers who are to apply them. Understanding must accompany acceptance; the travesty that can result from misinterpretation by teachers can do more to discredit innovation than does direct opposition. A teacher who has accepted an innovation but does not understand it can do great harm. The best innovation will fail in the hands of uncomprehending practitioners.

A particular educational innovation may fail to be introduced into an area because of any one or all of several reasons:

1. because the teachers do not know about it,



2. because the necessary material and equipment are not available or costs too much to install or maintain,
3. because the innovations call for knowledge and understanding that people do not possess,
4. because teachers and administrators are conservative and/or suspicious of innovations.

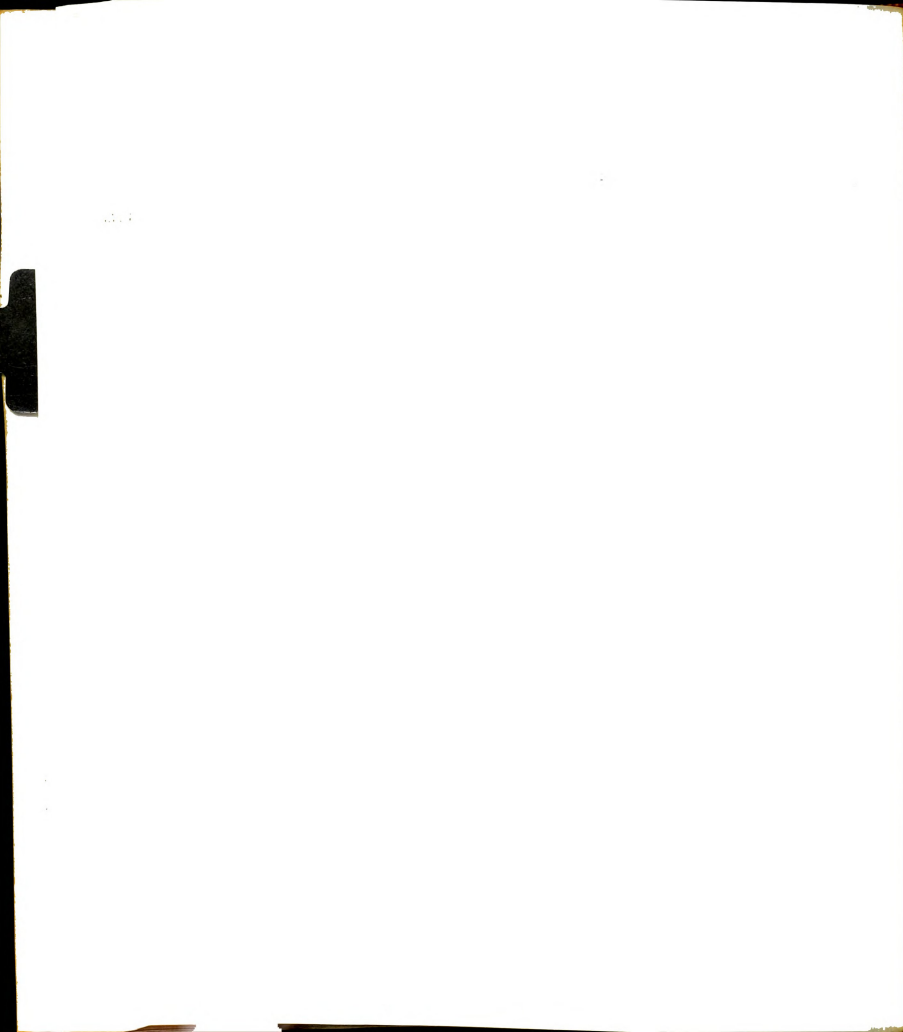
One is inclined to assume if pilot schools show that selected teachers can successfully use the innovations then plans may be safely made for diffusion all over Pakistan. Yet, many administrators know that it is just at this point where an innovation must spread from the few to the many, that real problems begin. Bruner (1961) has taken as a working hypothesis "that any subject can be taught effectively in some intellectually honest form to any child." (33). There may be some basis for this hypothesis, but administratively speaking, the vital question is, "Can it be taught by any teacher?" If Pakistan must rely on the services of a high proportion of "low-paid, poorly educated, and unqualified" teachers, it is important to know if their failure to use new techniques is due to conservatism or because they call for knowledge, understanding, or qualities that the average teacher does not possess. To remedy this situation and to bring about change in the educational system of Pakistan involves better education, higher qualifications, and consequently higher pay for the service as a whole.



2. Change in the Behavior Patterns of Teachers

Understanding of innovations are not enough unless it is accompanied by a change in the behavior pattern of teachers. Change in a behavior pattern usually implies a change of some depth in the values, attitudes, and skills of the teacher; and, a deeper involvement in adopting the innovations, and increased problems of relearning and dealing with internal resistance to change. This type of adoptive behavior requires a deeper understanding on the part of pilot school teachers as well as greater awareness of the principles underlying the new practice.

Most significant adoptions of new educational practices really are adaptation rather than adoption. What is passed on is a new pattern of behavior for a new educational system. One implication of this principle is that the dissemination of new practices must include orientation of the adopters (teachers) to the basic principles and conceptions involved in the new educational practice in order to make creative adaptations possible. Adaptation calls upon the teacher to use creative insight. If adoption means adaptation, then a rather different model will result from one teacher to another rather than mere imitation of a model. Certain variations of performance are required by different types of students, but particularly by the personal style of teachers. Because an innovation is not



an imitative process, the teacher must understand the goals and principles involved rather than just the form of the practice. Thus, it is suggested that the Education Extension Center should do everything possible to ensure that the innovations are understood by the teachers in the pilot schools.

- (i) Most significant adoption of new educational practices require significant changes in the values, attitudes and behaviors of the educators.
- (ii) The concept of "educational invention" has not been developed adequately in the field of education. There are very few adequate procedures for identification and validation of really new practices. This means that there is often a large volume of "poorly described, nonvalidated" practices tempting uncritical adoption efforts by educators. Or, there is a large supply of creative practices which remains invisible and also inaccessible to review and consideration by teachers.

3. In-service Education of Teachers

Change in educational practice is produced through in-service education which develops new perceptions and skills. Thus, it is suggested that:

- (i) In-service education courses should be organized by the Education Extension Center for key teachers in the pilot schools who then may become resource persons and leaders for other teachers on the staff.
- (ii) Workshop opportunities should be provided for headmasters/headmistresses which may produce change in their work style.
- (iii) Because of teacher transfer, a continuous program of in-service education in the skills necessary to implement innovations must be available for new teachers brought into the pilot schools.



- (iv) Young teachers should be encouraged to attend in-service courses organized by the Education Extension Center because they tend to be potential early adopters of innovations. Successful completion of the training should be accompanied by suitable increments in salary. Selected innovative teachers from among the pilot schools should be selected and sent to the Center for in-service training. These teachers when they go back to their respective schools should serve as agents for change.
- (v) Professional pride depends largely upon professional competence, and for this reason the continuing education of teachers should be three months (preferably during the summer vacation). The accreted experience of years can change them into master teachers. There is another factor in professional pride: the sense of belonging to the group. This can be fostered by encouragement and support (but not control) to pilot school teachers' professional organizations. At the present such of these as exist at all are chiefly concerned with improvement of teachers' living conditions. In the future they will constitute a forum for an exchange of professional experience.
- (vi) Adopters, despite the fact that they made more effort to acquire information by attending in-service courses and seminars, nevertheless were somewhat more likely to feel that information available to them was inadequate. Apparently, they might be measuring it against their need which may be expected to increase once the teachers seriously consider adopting a new educational innovation. It is thus suggested that the staff of the Center should pay more attention and give more emphasis to this aspect.
- (vii) The Extension Center with the help of the State Department of Education should encourage the formation of teachers' associations for the different pilot school subjects with the hope that they will stimulate initiative, openness to experience, and a willingness to experiment with new teaching practices. The Extension Center and the Department of Education should jointly assist the subject teachers' association with periodic seminars and the publishing of journals in the regional languages. The Center should coordinate the work of each regional association to all West Pakistan subject teachers' associations and help in running journals at the national level for the use of teachers all over Pakistan.

To sum up, it is necessary to help teachers in the pilot schools understand the primary features of the innovations with a view of developing improved teacher competence and more sensitive awareness of the learning process. In view of the lack of relationship found between teacher's adequacy of knowledge and his adoption and internalization behavior, it is imperative that such in-service programs for teacher suggested above be strongly encouraged.

Innovations in education require great emphasis on the amount and type of support which the teacher receives during the trial period before consolidating it as a part of his internal repertoire of values and skills. This means that pilot schools should have an institutionalized, continuing in-service training program for teachers to keep them abreast of innovations. The in-service program so designed will provide the Center with continuous feedback from the teachers concerning their commitment and evaluation of the program. Schools in Pakistan have lagged in institutionalizing in-service training as a function of the manpower recruiting and development program. There has been very few innovations in the techniques of identifying and recruiting such manpower or in providing the type of continuous in-service training and involvement in goal-setting and program development which are needed to provide an adequate sense of personal fulfillment and social significance to the role of the teacher.

Jung, Fox and Lippitt (1967) have suggested three categories of training, which are considered important, and may be adopted in the case of pilot school systems in West Pakistan:

1. The first involves training teachers to use, and to demonstrate to other teachers, action-research skills for developing and adopting innovations in their classroom.
2. The second category involves training teachers to contribute to research within the system.
3. The third class involves training school administrators to research utilization and application, in using action research skills to provide leadership for change in the larger system (p. 84).

4. Support of Innovation

What actions of the headmaster/headmistress facilitates or inhibits the innovativeness of teachers? The substantiated assumption is that the headmaster (leader) plays an important role in stimulating creative classroom teaching and the adoption of educational innovations. Cheser, Schmuck and Lippitt (1963) report that there is a high and significant correlation between the amount of staff innovativeness, as measured by the mean number of new practices developed by each teacher, and the staff's perception of the principal's support for innovative teaching. The finding substantiates the notion that the principal can have a direct influence upon his staff; he may encourage a climate where the staff publicly supports innovation. Thus, the



principal's attitude toward innovations influence staff norms; and, both his orientation and peer standards combine to influence actual staff innovativeness.

The work of the best teacher can be crippled if they are not permitted, encouraged and helped to go beyond the departmental prescriptions. The success of the pilot schools will depend upon a flexible approach, where these schools and the innovative teachers in them are allowed to experiment. If the headmasters in these schools are not perceived as change-oriented, it is very likely that the teachers will not attempt to adopt and utilize innovations.

Certain general conditions are necessary to promote this dynamism in the pilot schools, some of the more important are:

- (i) The individual teacher is more likely to adopt innovations in education and to try changes in the teaching practice if there is a feeling of experimentation all over the system; and, if he sees his small contribution as part of a major social revolution.
- (ii) The innovative teacher must have much more than the passive acquiescence of the school inspector who visits schools under their jurisdiction for the purpose of inspection. He must feel that officers of the Education Department are personally eager to see experimentation and they are willing to accept a proportion of failures as part of the price.
- (iii) The inspectors, as mentioned above, are key figures in any reform of classroom practice. They should be consulted from the very beginning. Pilot schools can be no more dynamic than the inspectors will let them be. This is why it is also suggested that the Center should organize in-service educational programs for inspectors of schools.



- (iv) The sympathy and support of the headmasters and influential teachers must be present if youthful ardor to experiment and to explore is to prevail. Teachers will adopt and internalize innovations if they feel that they have the general support of the profession.
- (v) Teacher's inner sense of security should be strengthened. The research conclusively demonstrated that no adoption and internal acceptance of innovations is possible unless the teacher feels secure enough in the school.

If measures like those described above can be taken, the pilot schools will become "Schools for Inquiry" and will put dynamism into the system, and help raise flexible standards for a continually adapting system to meet the demands of a changing society. Structurally, there is need to provide for a degree of teacher autonomy which supports innovativeness of classroom teachers. Particularly the headmaster needs skills to assess the nature of the support climate needed by individual teachers. The teachers need explicit influence in the system--both horizontally and vertically--in order that innovativeness may emerge.

5. The Organizational Climate of Schools

Pilot schools differ from each other in their "feel." Each school seems to have a "personality" of its own. This may be viewed from "open" to "closed." To use Lewin's terms, the Open climate is described as marked by "functional flexibility," and the closed climate as distinguished

by "functional flexibility," and the closed climate as distinguished by "functional rigidity." (1935, pp. 194-238).

Hapin (1966) writes that the Open Climate depicts a situation in which the members enjoy extremely high "Esprit." The teachers work well together without "bickering and griping" (low disengagement). They are not burdened by routine work; the group members enjoy friendly relations with each other. The teachers experience considerable job satisfaction and are proud to be associated with their school. The principal sets an example by working hard himself. He can either criticize the actions of the teachers or go out of his way to help a teacher. He is flexible; the rules which he sets up are not inflexible and impersonal. He does not have to "emphasize production"; not does he need to closely monitor the teachers' activities. He encourages and appreciates leadership behavior that emerge from the teachers.

In contrast, the Closed Climate describes a situation in which teachers experience little satisfaction in respect to either task-achievement or social needs. The teachers are not cohesive; consequently, group achievement is minimal. To secure some sense of achievement, the major outlet for the teacher is to do "housekeeping" duties. The principal is highly reserved and impersonal in controlling and directing the activities of the teachers. He emphasizes



production. He sets up arbitrary rules and regulations about how things should be done. He fails to motivate the teachers by example. He is not concerned with the social needs of the teachers. He does not provide adequate leadership for the group.

These two climates have been contrasted to make a distinction for the pilot schools. The creation of an open climate is conducive and supportive of educational change, and adoption and acceptance of innovations. This dynamic climate largely and mainly depends on the leadership style of the headmaster.

Following are some of the suggestions for the creation of an educational climate to facilitate innovations' diffusion among the pilot schools:

- (i) There must be created a social, political and educational climate, among the people who are in a position to influence and control decision-making on educational matters, that is conducive and supportive of educational change.
- (ii) The people who are to make such changes in such a supportive climate must themselves be living examples who understand the reasons for change; who are sympathetic to the trial of new programs and practices; who have personal disposition and desire to improve the quality of education.
- (iii) This climate must be created at all levels at which decisions are made. Change cannot be brought about unless those occupying top positions in the hierarchy of the pilot schools deliberately and overtly set about to build a climate through advocacy, initiating proposals, explanations, definitions and clarifications that will be conducive to change. Administrators will need to play a more active part, with something that comes nearer to persuasion than



to pressure, but which still leaves no doubt in the teachers' mind that the Education Department and its officers favor change and innovation. But behavior must be sensitive and moderate, or the teachers will regard the innovations as the department's latest fad and may apply them with apathetic misunderstanding.

- (iv) The headmaster can certainly help build a staff climate with norms for experimentation and freedom to observe and help the development of staff teams to work on the innovation trial.

6. Feedback

By feedback, we mean information that comes from the receiver to the sender and tells him how well he is doing. Teachers, at the time of talking informally with them, disclosed that the majority of teachers received very little feedback about whether their new practices were highly successful, moderately successful, or failing. The farmer quickly knew how much corn per acre was being produced by the hybrid seed; the doctor gets quick feedback as to whether his intervention reduced an epidemic; and, the physical engineer receives objective records about the output of a machine. But the teacher, typically lacks standards for his performance, and criteria for checking the effectiveness of his efforts. Neither competitive challenge nor good channels of communication were present to stimulate sharing and improvement of educational practice. There is another characteristic of the situation where teachers get very little feedback about the effectiveness of their



adoption efforts. The teacher typically lacks the criteria and the tools to make this type of check.

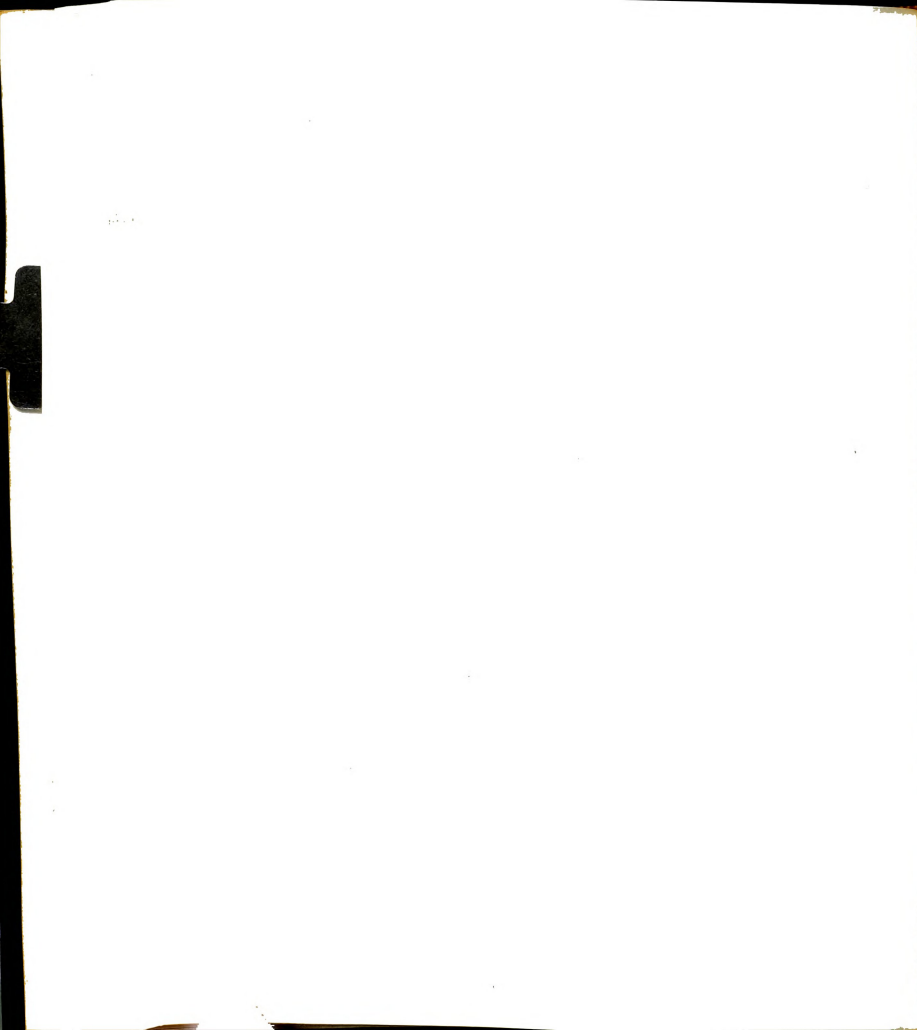
We must find effective and appropriate ways of linking creative innovators to other teachers in the system to provide for the spread and successful adaptation of educational innovations. There is also a closely related need for continuous evaluative feedback throughout the system, to identify growth needs, and to support objective problem-solving and decision-making. Lack of timely feedback to teachers is most critical and one of the reasons why many adoption efforts are unstable. There should be feedback to reinforce change efforts, to tell the teacher whether his tryouts are successful, and in the direction he had hoped for. In the classroom, teachers are usually in the dark about whether there is any evidence that tells them that there has been any payoff at the level of learning efficiency.

There should be open channels of communication and an effective system of feedback to disseminate accounts of the methods and results of change programs to non-pilot schools, to the Ministry of Education, and to training colleges. Communication from the Center, and from the state headquarters, to the regions as the key unit of administration is defective. Directives move from the higher to the lower units in the hierarchy, but the flow of information in the reverse direction is not equally well provided for.



Within the bureaucracy, status structure is a barrier to the flow of information from the lower to the higher levels. Many officials do not have sufficient tolerance for suggestions coming from those below. The strategy for a change should begin with the central administrative group. Using a self-study approach with feedback, the intent should be to free that group for more open, collaborative, systematic problem-solving that will deepend their motivation for change. To the degree that the administrative group has experienced a genuine change in its own climate, they will provide for further problem solving and feedback efforts both downward and upward in the system. The system, as a result, will experience a climate change that will initiate the structural changes needed to support comprehensive self-renewal efforts.

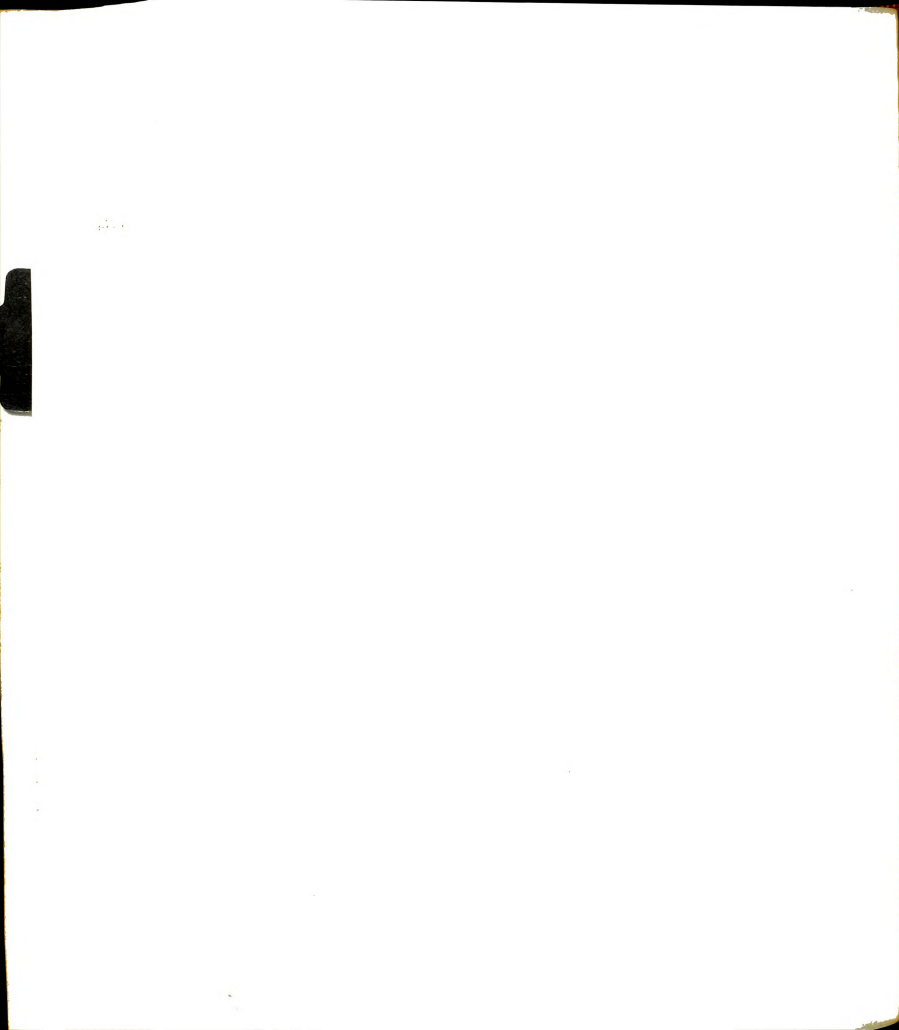
A focal administrative group is needed that will work together with teachers on an equal-status, problem-solving basis. An open climate will develop a climate for inquiry. When people are more open and authentic they trust others to be the same; they also become more committed to change. These norms will form an organizational climate for continued change and improvement in the system of education in Pakistan.



7. Student Feedback and Evaluation

The data in this study indicate a strong positive relationship between teacher's perception of student attitude and beneficiality of innovations resulting in the early adoption and the greater degree of internalization of innovations. This finding suggests that the teacher should try to get continuous feedback from students regarding the effects of innovation upon them; and, he should attempt a long-term objective evaluation as to whether or not the innovations have improved the classroom learning environment. A pre-requisite to obtaining feedback is the creation of an atmosphere in which free communication can flow from students to teacher and vice versa. Feedback from the student is invaluable for the classroom teacher trying to judge the effectiveness of educational innovations. In the Pakistan educational system teachers view feedback as something that should proceed from teacher to student only. When they do solicit feedback from the students, it is in a forced way that encourages the students to give the reaction that he thinks the teacher wants him to give.

If the teacher is interested in receiving honest feedback from the students about the innovation (new practice in the classroom), he should ensure that the communication atmosphere is open, where students have the freedom to



honestly express their feelings. This climate may help set the stage that would involve the students even more in the process of change, self-development and growth. Therefore, the classroom atmosphere should be supportive, yet confronting.

The teacher's objectivity is a critical element in his attempt to validly evaluate his innovative practices. The more objective his method of evaluation is, the more certain he can be about how worthwhile the new teaching techniques have been. One of the evaluation techniques may be for the teacher to bring in a colleague to observe him while teaching. If his evaluation shows his teaching innovation failed completely in its purpose or had very little effect, the teacher should review the phases in the problem-solving sequence to see whether the fault lay in problem identification, diagnosis, plan development, adaptation and execution, or feedback. Teachers usually avoid observing each other at work and frequently hesitate to innovate new practices because they assume that their deviancy would be negatively evaluated by their peers. The importance of internal feedback cycle in relation to one's own conception of one's role on the job should also be emphasized.

8. The Diffusion of New Methods

Elasticity and dynamism of the pilot schools in itself is obviously of limited value unless the innovations practiced and developed by these schools are spread more widely through the system as a whole. There is no doubt that it takes a great deal of administrative skill and perseverance to get innovations understood and accepted by the body of average teachers, even when such innovations have proved their value. The difficulties are multiplied tenfold when teachers are expected to accept, not just a new technique for achieving the old ends, but methods that employ in themselves a new concept of the very purpose of education. This is why it is such a long and burdensome task to convert a school system based primarily on memorization into one involving active thinking, understanding and problem-solving.

Thus, the usual devices for in-service training courses and visits of long duration to see the pilot schools in action should be adopted on a large scale. Pilot schools must find effective and appropriate ways of linking creative innovators to their teachers to provide for the diffusion and successful adoption of educational innovations.

9. Information--Affiliate System

The purpose of suggesting this affiliate relationship would be the active exchange of information between



the pilot schools and the Education Extension Center concerning innovations in educational content, methodology, and models of change procedure. The pilot school, it is suggested, should be responsible for contributing information concerning the use of innovations. The responsibility of the Center should be to send news letters containing information from other pilot schools that are collaborating more intensively in developing and studying change procedures. The pilot schools should also be invited to periodic regional conferences of secondary schools to review the activities of the Center, and to consider dissemination and adaptation of innovations to other schools in Pakistan. The Center should be responsible for soliciting information concerning innovations, reporting it in the news letters, conducting the periodic conferences, and coordinating the dissemination efforts.

10. Involvement in Decision-making

Teachers who will implement decisions should be involved in making them. The effectiveness of improvement efforts in the teaching-learning process is enhanced when they take place under the following conditions: The efforts are planned (a) by the teachers, (b) in response to needs which they identify from analysis of their school situation, (c) under conditions of mutual trust and respect, and (d)



where feedback concerning the effectiveness of their efforts is available.

Decisions to adopt or reject the innovations should be made more and more on the basis of knowledge and competence, and less and less because someone with more formal authority says so. Shared decision-making should be more typical. This will have two basic effects: (a) decisions are usually of higher quality, since more relevant information has fed into them, and more importantly, (b) teachers are committed to carrying them out. Group decisions to accept result in group norms to adopt.

11. Self-Renewal

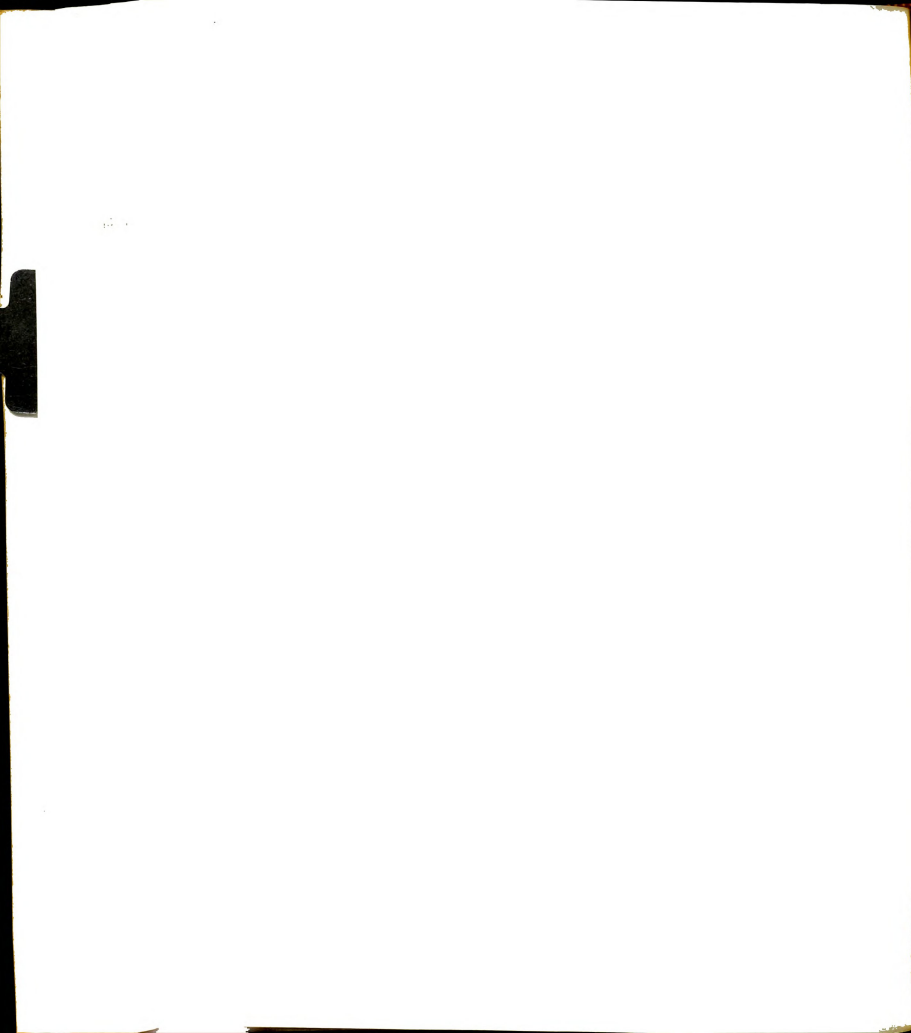
A self-renewing school system has the ability to continuously sense and adapt to its changing external and internal environment in such a manner as to strengthen itself to fulfill the goals of providing quality education for students that is suited to their aptitudes, interests and goals. This statement has some important implications:

- (a) The kind of change we seek should be growth and development of the school as a social system--growth toward increased problem-solving effectiveness and greater capacity for adaptation and change.
- (b) The focus should be upon the school as a socio-technical system. What happens in the classroom and to the students, is to a large extent influenced by what happens in the larger system. Thus, to be able to effect enduring change at the classroom level, it is necessary to effect concurrent changes at higher echelons where top policy decisions are made.

- (c) The fundamental criterion of the success of these innovations in pilot school and their diffusion to other secondary schools in Pakistan should be improvement in the kind and quality of learning experiences which the schools provide.
- (d) A crucial issue is: Has the pilot school system become self-renewing, continuing to improve and develop under its own initiative after the consultant's encouraged change effort is terminated?

In short, the essence of all the recommendations contained herein is that only an elastic and dynamic system of education can provide the needed conditions to encourage initiative, experimentation and creativity among teachers and thereby lay the foundation of educational progress. The policy-makers and administrators relating to pilot schools should learn to delegate authority and responsibility to trust teachers; to involve teachers in the decision-making process; to encourage the capacity for leadership amongst teachers; to treat each pilot school as having a developing personality of its own. This would need dynamic leadership at all levels. Leadership, determined to give education a new deal; to free teachers, educational officers and administrators, that they may become integral forces in a great cooperative endeavor.

In compiling some generalization on innovations in education, Miles (1964) noted that characteristics of the school system, of the innovating persons or groups and of other relevant outside (the school) group were important factors influencing innovation in the schools. A favorable



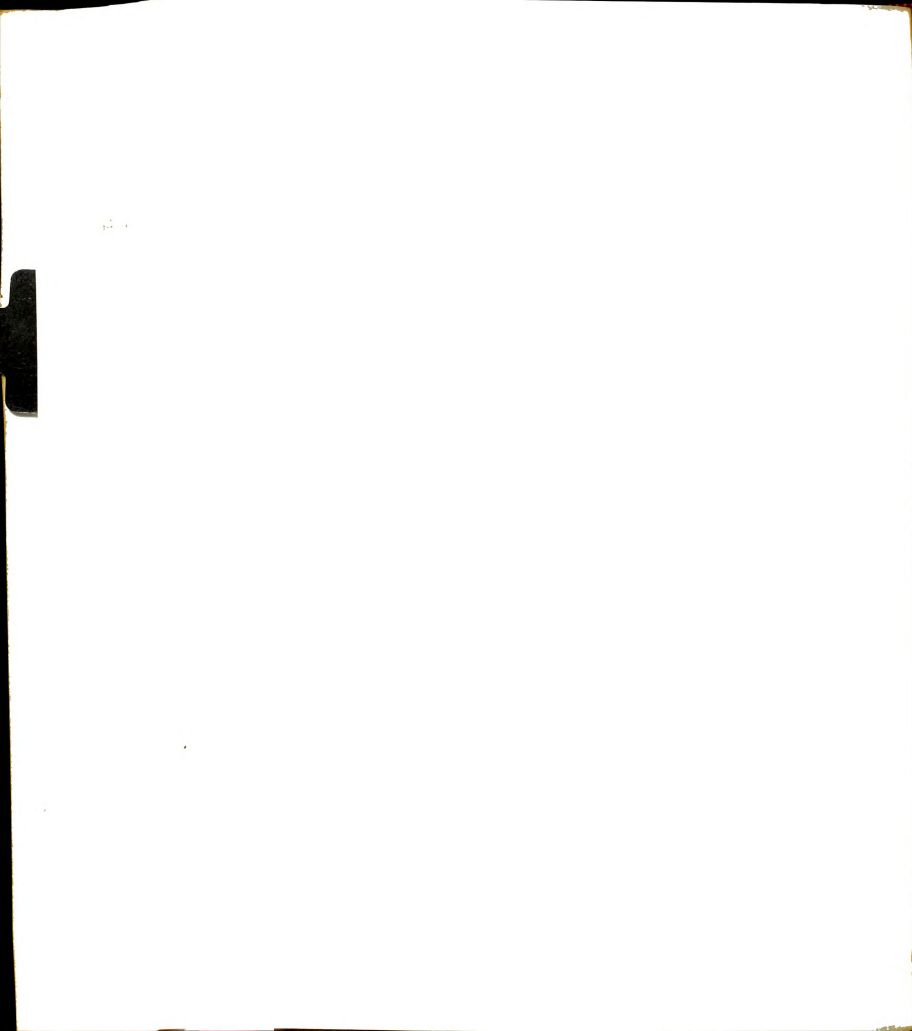
environment, progressive community norms, availability of resources, and innovative administrators, facilitated innovation in the schools.

Recommendations for Future Research

The present study, as pointed out in Chapter III, is novel because it is one of the few studies of educational diffusion attempted in a cross-cultural setting. As such, some of the methodological experiences may be useful to future diffusion researchers. The present thesis is one attempt at understanding the complex processes of educational innovation diffusion in the pilot schools--a beginning of a possible research program to be extended over several years. The organization of such research programs should be interdisciplinary in nature.

The first research methodology which deserves more consideration than it has thus far been given should entail the continuous study of selected educational changes from the time of their introduction in the social system. Studies should be conducted "before" and "after" to identify those factors influencing various members of the educational hierarchy to react favorably or unfavorably to innovation.

If further research is to be undertaken in Pakistan, it is suggested that greater results might be obtained from employment of intensive action research rather than survey



research methodology. The result will be a more accurate understanding of the qualitative aspects of innovation diffusion in a social system like the Pakistan Ministry of Education. A detailed, comprehensive study involving a national sample of pilot and non-pilot secondary schools in Pakistan would be both theoretically and socially significant. Further investigation into the process of innovation diffusion and assimilation among teachers in innovative secondary schools are anticipated which will contribute to the development of theory and practice in institution-building through change.

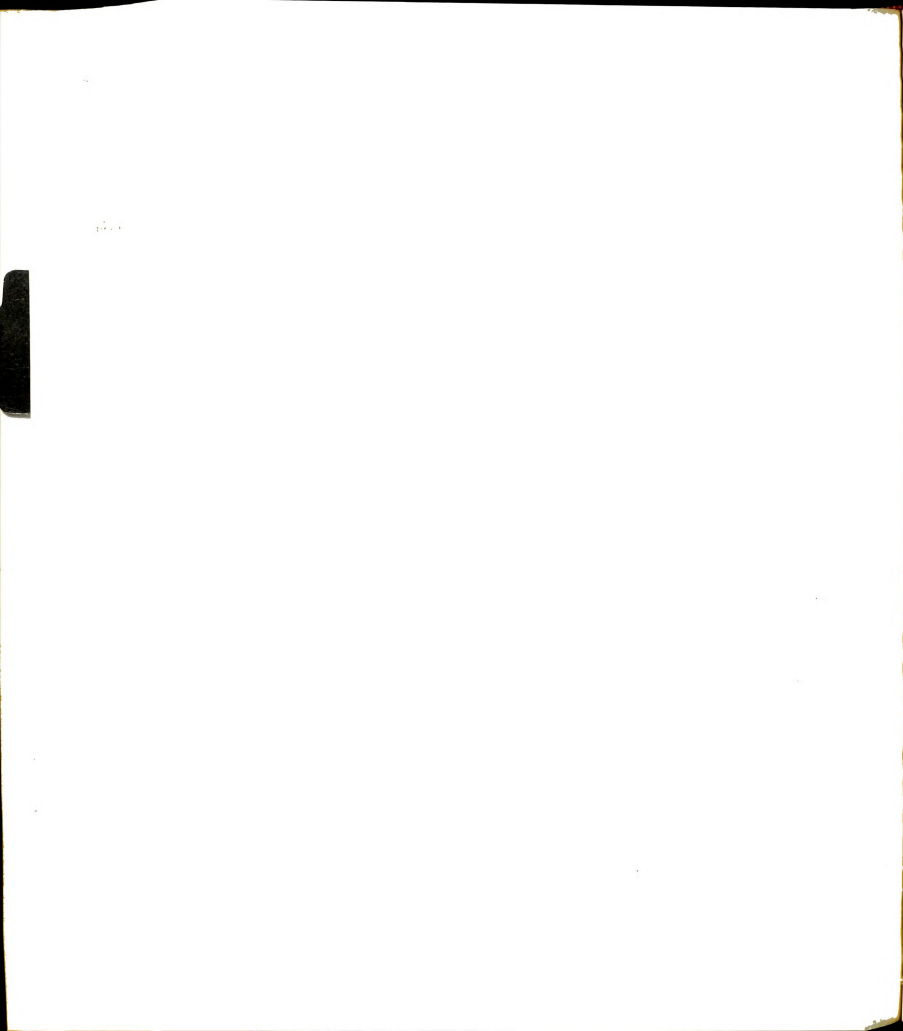
Emphasis should be put on study of the consequences resulting from adoption of innovations in an institution, as well as on the components and functions of institutional feedback and reinforcement system. The latter largely have been ignored in previous diffusion research.

1914

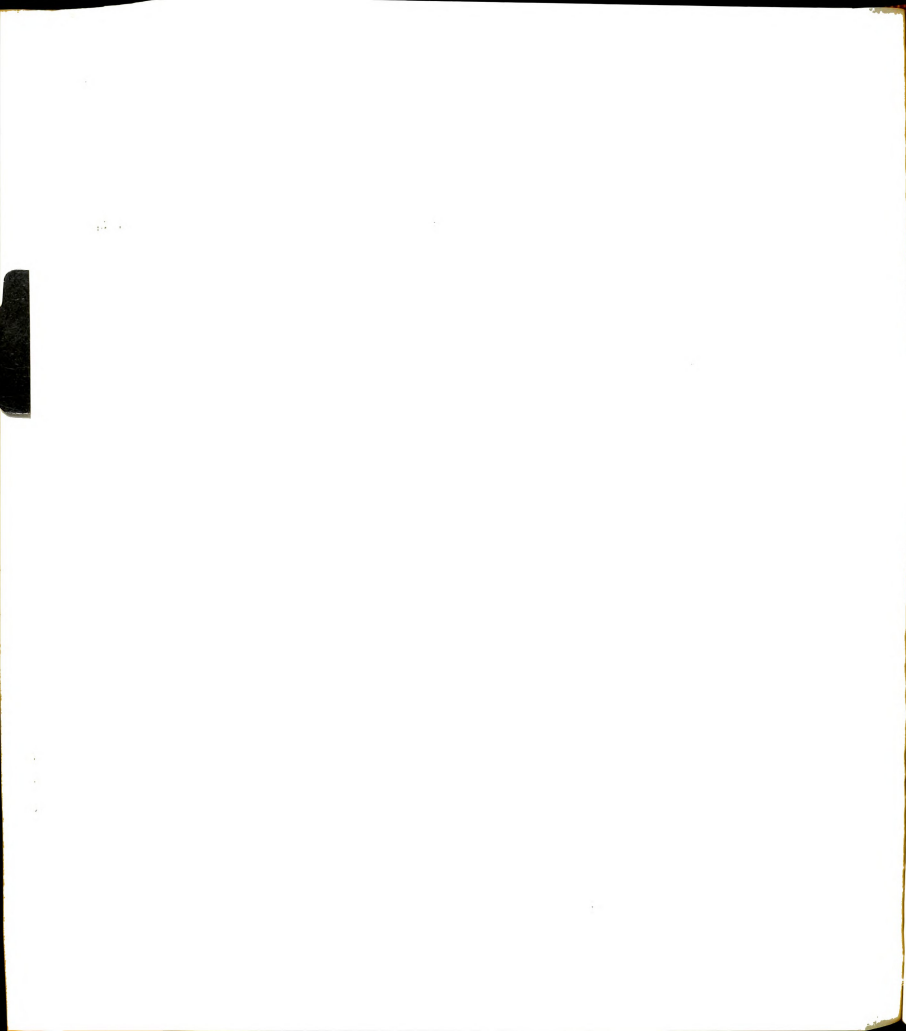
B I B L I O G R A P H Y

BIBLIOGRAPHY

- Andrews, C. F. The Renaissance in India. Madras: Christian Library Society, 1913.
- Bachr, Melany and Richard Renck. "The Definition and Measurement of Employee Morale," Administrative Science Quarterly, Vol. 3, 1958, pp. 157-184.
- Barnard, Chester I. The Functions of the Executive. Cambridge, Mass.: Harvard University Press, 1938.
- Beal, George M. and Everett M. Rogers. "Informational Sources in the Adoption Process of New Fabrics," Journal of Home Economics, Vol. 49, 1957, pp. 630-634.
- Berlo, David K., Lemert, James B., and Robert J. Mertz. "Dimensions for Evaluating the Acceptability of Message Sources," unpublished paper, Department of Communication, Michigan State University, 1966.
- Carlson, Richard O. Adoption of Educational Innovations. Eugene, Oregon: The Center for the Advanced Study of Educational Administration, University of Oregon, 1965.
- Chirol, Sir Valentine. India--Old and New. London, Macmillan and Company, 1921.
- Coch, Lester and John R. P. French, Jr. "Overcoming Resistance to Change," Human Relations, Vol. 1, 1948, pp. 512-532.
- Coleman, James S. The Adolescent Society. New York: Free Press, 1961.
- Comrey, Andrew L., High, Wallace, and Robert C. Wilson. "Factors Influencing Organizational Effectiveness, VI. A Summary of Aircraft Workers," Personnel Psychology, Vol. 8, 1955, pp. 79-100.
- Copp, James H., et al. "The Function of Information Sources in the Farm Practice Adoption Process," Rural Sociology, Vol. 23, 1958, pp. 146-151.



- Costello, Timothy W. and Sheldon S. Zalkind. Psychology in Administration. New Jersey: Prentice-Hall, 1963.
- Curle, Adam. Planning for Education in Pakistan. Cambridge: Harvard University Press, 1966.
- Davis, Richard H. Personal and Organizational Variables Related to the Adoption of Educational Innovations in a Liberal Arts College. Unpublished Ph.D. Dissertation, University of Chicago, 1965.
- Festinger, Leon. A Theory of Cognitive Dissonance. Evanston, Illinois: Row, Peterson, 1957.
- Friedrich, Carl J. "Some Observations on Weber's Analysis of Bureaucracy," in Robert Merton (ed.), Reader in Bureaucracy. New York: Free Press, 1952, pp. 27-33.
- Getzels, Jacob. "Administration As A Social Process," in Andrew Halpin (ed.), Administrative Theory in Education. Chicago, 1958.
- Gilchrist, Robert S. "Highway to Quality Teaching," National Education Association Journal, VLVII (May 1959), pp. 18-19.
- Gittell, Marilyn and T. E. Hollander. Six Urban School Districts: A Comparative Study of Institutional Response. New York: Praeger, 1968.
- Government of India. The Report of the Secondary Education Commission. Delhi: Government of India Press, 1953.
- Government of Pakistan. Report of the Commission on National Education. Karachi: Government of Pakistan Press, 1959.
- Government of Pakistan, Planning Commission. The Second Five-Year Plan (1960-65). Karachi: Pakistan Government Press, 1960.
- Guion, Robert M. "Industrial Morale: The Problem of Terminology," Personnel Psychology, Vol. 11, 1958, pp. 59-64.
- Hall, Milton. "Supervising People--Closing the Gap between What We Think and What We Do," Advanced Management, Vol. 12, 1947, pp. 129-135.



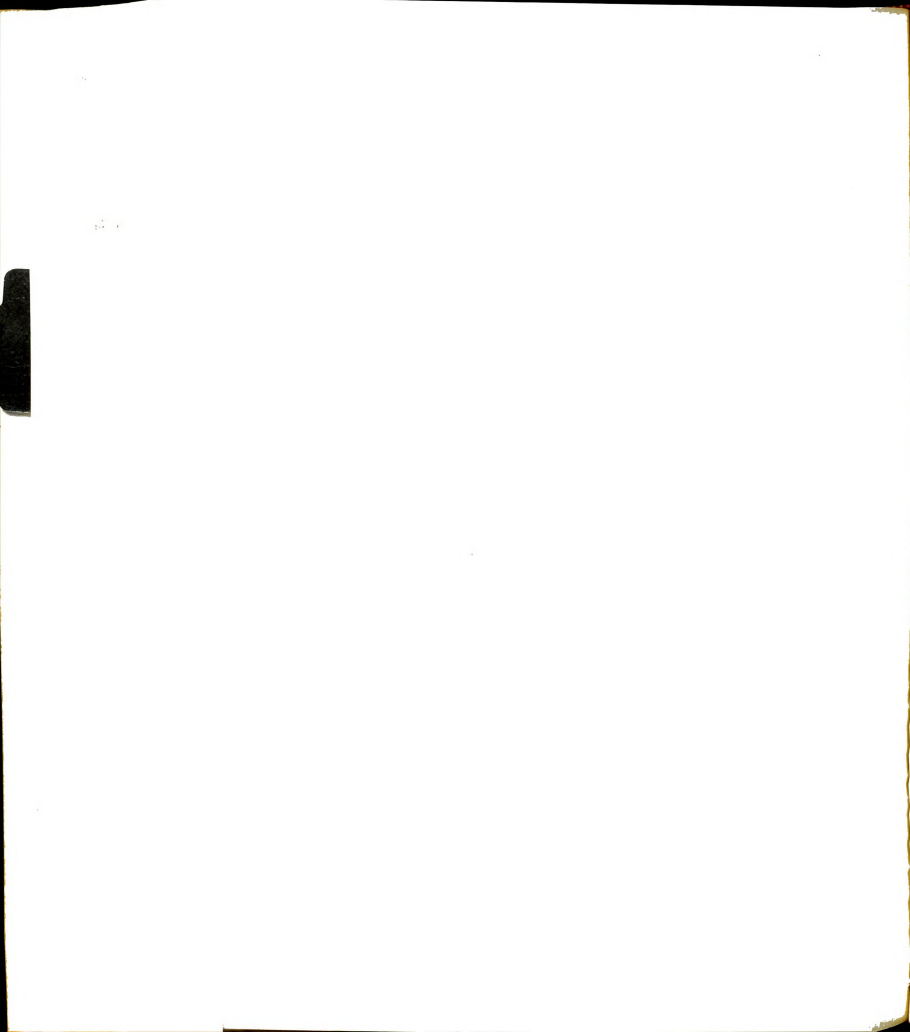
- Hovland, C. I. and W. Weiss. "The Influence of Source Credibility on Communication Effectiveness," Public Opinion Quarterly, Vol. 15, 1951, pp. 822-832.
- Jaskani, Gul Muhammad. Progress Report (1959-64). Lahore: Education Extension Center, 1965.
- Jung, Charles C., et al. "An Orientation and Strategy for Working on Problems of Change in School Systems," in Goodwin Watson (ed.) Change in School Systems. New Jersey: Co-operative Project for Educational Development by National Training Laboratories, NEA, 1967.
- Katz, Daniel and Robert L. Kahn. The Social Psychology of Organizations. New York: John Wiley, 1966.
- Katz, Elihu. "The Social Itinerary of Technical Change: Two Studies on the Diffusion of Innovation," in W. Schram (ed.), Studies of Innovation and of Communication to the Public. Stanford, California: Stanford University Institute for Communication Research, 1962.
- _____. "The Two-Step Flow of Communication: An Up-to-Date Report on an Hypothesis," Public Opinion Quarterly, Vol. 21, 1957, p. 61.
- Katz, Elihu and Paul F. Lazarsfeld. Personal Influence. New York: Free Press, 1955.
- Kandel, I. L. Comparative Education. New York: Houghton Mifflin Company, 1933.
- Kelman, Herbert C. "Process of Opinion Change," Public Opinion Quarterly, Vol. 25, 1961, pp. 57-58.
- Knowlton, James Q. Studies of Patterns of Influence in the School Situation as They Affect the Use of Audio-Visual Materials. Bloomington: Indiana University, Division of Educational Media and Audio-Visual Center Report, 1965.
- Levine, Jacob and John Butler. "Lecture versus Group Decision in Changing Behaviors," in D. Cartwright and A. Zander (eds.), Group Dynamics. Evanston, Illinois: Row Peterson, 1953, pp. 280-287.
- Lewin, Kurt. "Group Decision and Social Change," in E. E. Maccoley, T. M. Newcomb, and E. L. Hartley (eds.), Readings in Social Psychology. New York: Holt, Rinehart and Winston, 1958, pp. 235-238.



- Likert, Rensis. New Patterns of Management. New York: McGraw-Hill, 1961.
- Lin, N. Innovation Internalization in a Formal Organization. Unpublished Ph.D. Dissertation, Department of Communication, Michigan State University, 1966.
- Lin, N., et al. The Diffusion of an Innovation in Three Michigan High Schools: Institution Building Through Change. East Lansing, Michigan: Institute for International Studies in Education and Department of Communications, Michigan State University, 1966.
- Linton, Ralph. "Cultural and Personality Factors Affecting Economic Growth," in Bert F. Hoselittle (ed.) The Progress of Underdeveloped Areas. Chicago: The University of Chicago Press, 1952.
- Lionberger, Herbert F. Adoptions of New Ideas and Practices. Ames, Iowa: Iowa State University Press, 1960.
- Maculay's famous Minute in favour of English Education, dated February 2, 1835, is extensively quoted in Syed Mehmood's A History of English Education in India (1781-1893). Aligarh, 1895.
- Mandell, Milton M. and Pauline Duckworth. "The Supervisor's Job: A Survey," Personnel, Vol. 31, 1955, pp. 456-62.
- Mann, F. C. "Studying and Creating Change: A Means to Understanding Social Organization," in C. Arensberg et al., Research in Industrial Human Relations. New York: Harper and Row, 1957.
- Mann, F. C. and F. W. Neff. Managing Major Changes in Organizations. Ann Arbor: Foundation for Research on Human Behavior, 1961.
- Mechanic, David. "The Power to Resist Change Among Low Rank Personnel," Personnel Administration, Vol. 26, 1963, pp. 5-11.
- Merton, Robert K. Social Theory and Social Structure. New York: Free Press, 1957.
- Miles, Mathew B. (ed.). Innovation in Education. New York: Bureau of Publications, Teachers College, Columbia University, 1964.
- Moot, Paul R. Principles of School Administration. New York: McGraw-Hill Book Company, 1946.

- Mortimore, Frederic J. Diffusion of Educational Innovations in the Government Secondary Schools of Thailand. Ph.D. Dissertation, East Lansing, Michigan State University, 1968.
- Parsons, Talcott. "Suggestions for Sociological Approach to the Theory of Organization," in Amitai Etzioni (ed.) Complex Organizations: A Sociological Reader. New York: Holt, Rinehart, Inc., 1964.
- _____. The Social System. New York: Free Press, 1951.
- Queeley, Mary and David Street. "Innovation in Public Education--The Impact of the Continuous Development Approach," Chicago: University of Chicago, Center for Social Organizational Studies, 1965.
- Rahim, S. A. The Diffusion and Adoption of Agricultural Practices: A Study in a Village in East Pakistan. Comilla: Pakistan Academy for Village Development, 1961.
- Rogers, Everett M. Diffusion of Innovations. New York: Free Press, 1962.
- _____. "Toward a New Model for Educational Change," Paper presented at the Conference on Strategies for Educational Change, Washington, D.C., Department of Communication, Michigan State University, 1965.
- Rogers, Everett M. and George M. Beal. "The Importance of Personal Influence in the Adoption of Technological Changes," Social Forces, Vol. 36, 1958, pp. 329-335.
- Rogers, Everett M. and David G. Cartano. "Methods of Measuring Opinion Leadership," Public Opinion Quarterly, Vol. 26, 1962, pp. 435-441.
- Rogers, Everett M. and Nemi C. Jain. "Needed Research on Diffusion within Educational Organizations," Paper presented at the National Conference on Diffusion of Educational Ideas, East Lansing, Michigan, 1968.
- Rogers, Everett M. and F. Floyd Shoemaker. Diffusion of Innovations: A Communication and Cross-Cultural Approach, Draft of revised edition, 1966.
- Ross, D. H. Administration for Adaptability. New York: Metropolitan School Study Council, 1958.
- Ryan, Bryce and Neal C. Gross. "The Diffusion of Hybrid Seed Corn in Two Iowa Communities," Rural Sociology, Vol. 8, 1943, pp. 15-24.

- Schaffer, R. H. "Job Satisfaction as Related to Need Satisfaction in Work," Psychological Monograph, Vol. 67, No. 14, 1953.
- Seashore, Stanley E. Group Cohesiveness in the Industrial Work Group. Ann Arbor, Michigan: Survey Research Center, Institute for Social Research, University of Michigan, 1954.
- Simon, Herbert A. Administrative Behavior. New York: Macmillan Company, 1957.
- Weber, Max. The Theory of Social and Economic Organization. England: Oxford University Press, 1957.
- Wilkening, Eugene A. "Informal Leaders and Innovators in Farm Practices," Rural Sociology, Vol. 17, 1952, pp. 272-274.
- Wilkening, Eugene A., et al. "Use and Role of Information Sources Among Dairy Farmers of Northern Victoria," Paper presented at the Rural Sociological Society, University Park, Pennsylvania, 1960.



A P P E N D I C E S



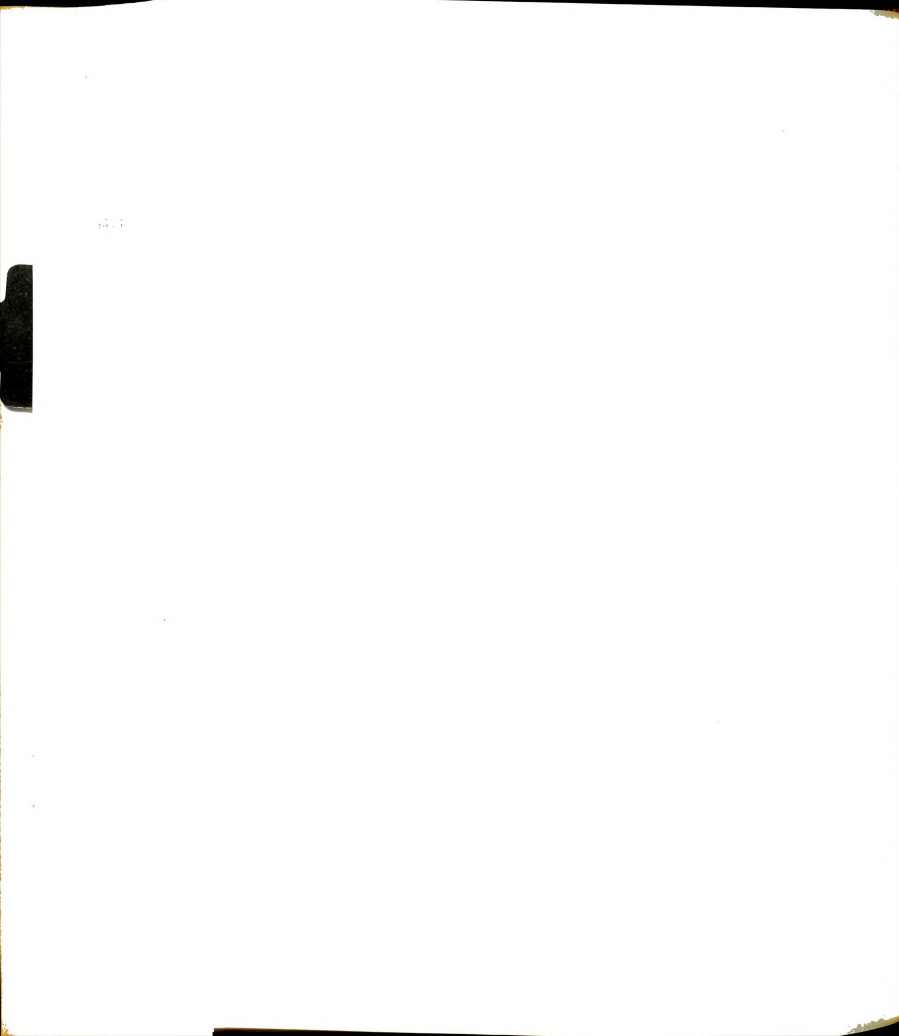
APPENDIX A

VARIABLE LIST FOR THE QUESTIONNAIRE

Variables	Questionnaire Item Number(s)
DEPENDENT VARIABLES	
I. Time of Adoption	32
II. Internalization	12 - 31
INDEPENDENT VARIABLES	
I. Demographic	
1. Age	1
2. Educational level attained	2
3. Teaching salary	3
4. Length of service	4
5. Number of courses taught	5
II. Institutional	
A. Role Perceptions	
1. Role satisfaction	63 - 66
2. Feelings of security	67 - 69
3. Self-rated teaching ability	70 - 78
4. Perceived level of participation in work-related problem-solving and decision making	34 - 38
B. Perceptions of superiors and superior relations	
1. Perceived psychological distance between self and headmaster	85 - 90



Variables	Questionnaire Item Number(s)
2. Perceived source credibility of headmaster	91 - 98
3. Reported performance feedback from the headmaster	99 - 101
4. Perceived change orientation of the headmaster	81 - 84
5. Perceived vertical communication with the headmaster	103 - 104
6. Perceived Headmaster's support of the innovation	34 - 38
C. Perceptions of Peers and peer relations	
1. Self-designated opinion leadership score	54 - 59
2. Perceived cohesiveness of school faculty	105 - 108
3. Perceived frequency of general horizontal communication	109
D. Perceptions of Students	
1. Perceived student benefits from the innovations	48 - 52
2. Perceived student attitude toward the innovations	44 - 47
III. Communication Behavior	
A. General Communication Behavior	
1. General mass media exposure	6 - 9
B. Professional communication behavior	
1. Frequency of professional meeting attendance	10



Variables	Questionnaire Item Number(s)
2 2. Perceived adequacy of information about the innovation	39 - 43
3. In-service education courses attended	11
IV. Personal Disposition Toward Change . . .	60 - 62



APPENDIX B

QUESTIONNAIRE

In the following sequence of questions please circle the number of the correct answer and, where requested, write in the information which we have asked you to provide:

1. Age:

1. 20 - 24
2. 25 - 29
3. 30 - 34
4. 35 - 39
5. 40 - 44
6. 45 - 49
7. 50 - 54
8. 55 - 59
9. 60 or over

2. Educational Background:

1. High School certificate
2. Intermediate
3. Bachelor's Degree
4. Master's Degree
5. Graduate Diploma/Education
6. Doctor's Degree
7. Other (specify)

3. What was your income as a teacher here last year?

1. 2500 or less
2. 2501 - 3000
3. 3001 - 3500
4. 3501 - 4000
5. 4001 - 4500
6. 4501 - 5000
7. 5001 - 5500
8. 5501 - 6000
9. 6001 - 6500
10. 6501 or more

4. For how many years have you been a teacher in this school?

1. This is my first year here
2. This is my second year here
3. This is my third year here
4. This is my fourth year here
5. This is my fifth year here
6. This is my sixth year here
7. I have been here for seven or more years.

5. What subjects and to what classes are you teaching at present?

Number of courses _____

What subjects _____

6. How many newspapers did you read yesterday? _____

7. How much time did you spend yesterday listening to the radio programme other than the educational? _____

1. None

2. 1 - 15 minutes

3. 16 - 30 minutes

4. 31 - 45 minutes

5. 46 - 60 minutes

6. More than one hour

8. How many books have you read since yesterday? _____

9. How many magazines did you read yesterday? _____

10. Compared with other teachers in this school, I have attended regional teachers' association meetings:

1. very frequently

2. quite frequently

3. about the same number

4. seldom

5. rarely

6. never

11. Compared with other teachers in the school, I have attended in-service training courses:

1. very frequently

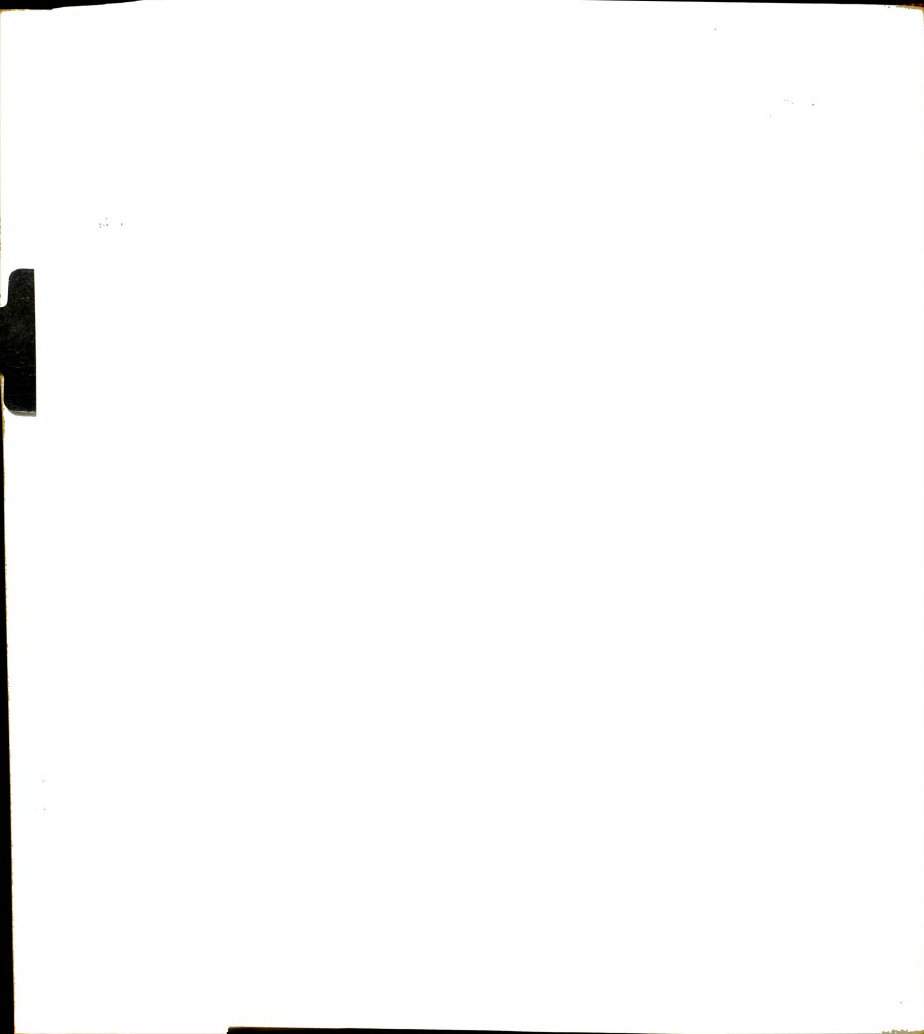
2. quite frequently

3. about the same number

4. seldom

5. rarely

6. never



12. Vocational subjects (vocational agriculture in boys' schools, home economics in girls' schools and technical subjects in all schools) could constitute an improvement in educational curriculum in any school.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much.

13. I think vocational subjects represent an improvement in the curriculum at my school.

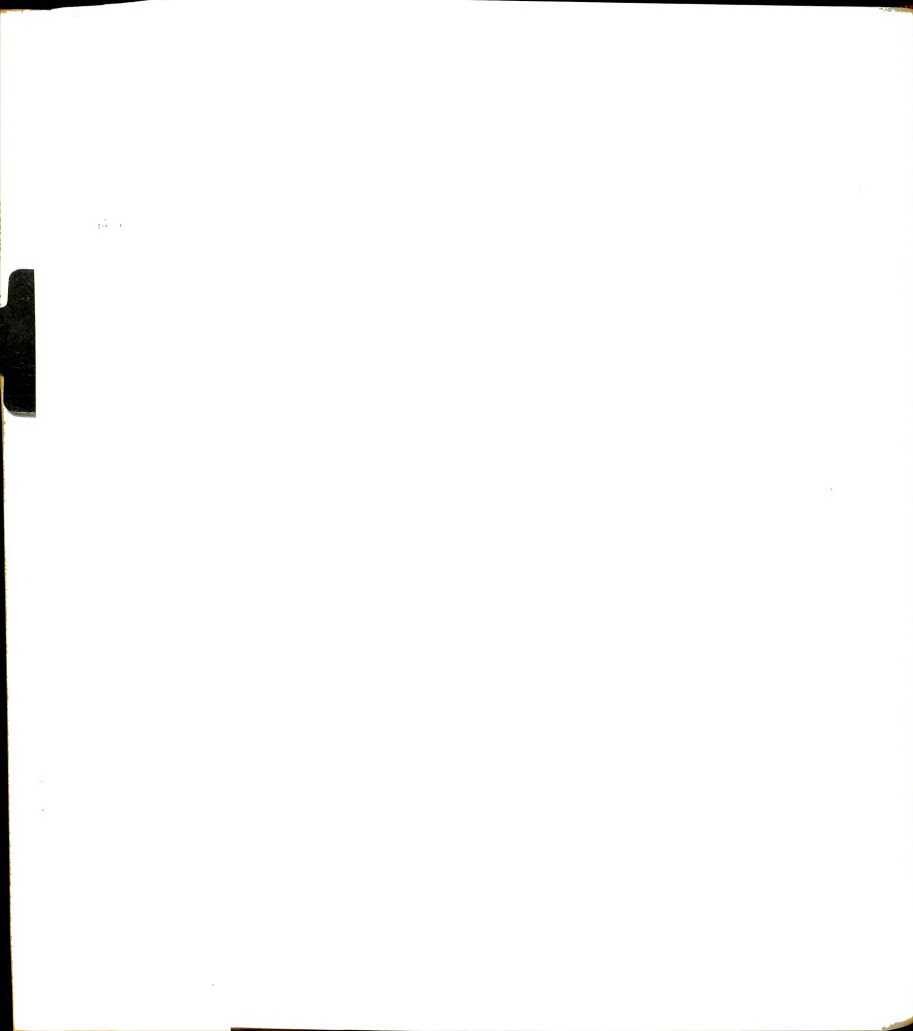
1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

14. I think vocational subjects are unnecessary in our educational system.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

15. To me, vocational subjects are one of the worst things to come in our educational system.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much



16. Science laboratory experiments could constitute an improvement in educational practices in any school.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

17. I think science laboratory experiments represent improvement in educational practice in my school.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

18. I think science laboratory experiments are unnecessary in our educational system.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

19. To me science laboratory experiments are one of the worst things to come to our educational system.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much



20. Educational guidance could constitute an improvement in educational practices in any school.
1. agree very much
 2. agree on the whole
 3. agree a little
 4. don't know
 5. disagree a little
 6. disagree on the whole
 7. disagree very much
21. I think educational guidance represents an improvement in educational practice at my school.
1. agree very much
 2. agree on the whole
 3. agree a little
 4. don't know
 5. disagree a little
 6. disagree on the whole
 7. disagree very much
22. I think educational guidance is unnecessary in our educational system.
1. agree very much
 2. agree on the whole
 3. agree a little
 4. don't know
 5. disagree a little
 6. disagree on the whole
 7. disagree very much
23. To me, educational guidance is one of the worst things to come to our educational system.
1. agree very much
 2. agree on the whole
 3. agree a little
 4. don't know
 5. disagree a little
 6. disagree on the whole
 7. disagree very much



24. The use of objective tests could constitute an improvement in educational practices in any school.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

25. I think the use of objective tests along with essay type tests represent an improvement in educational practice in my school.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

26. I think the use of objective tests is unnecessary in our educational system.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

27. To me, the use of objective tests is one of the worst things to come to our educational system.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much



28. In-service education could constitute an improvement in professional growth of any teacher.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very little

29. I think in-service training represents an improvement in educational practices at my school.

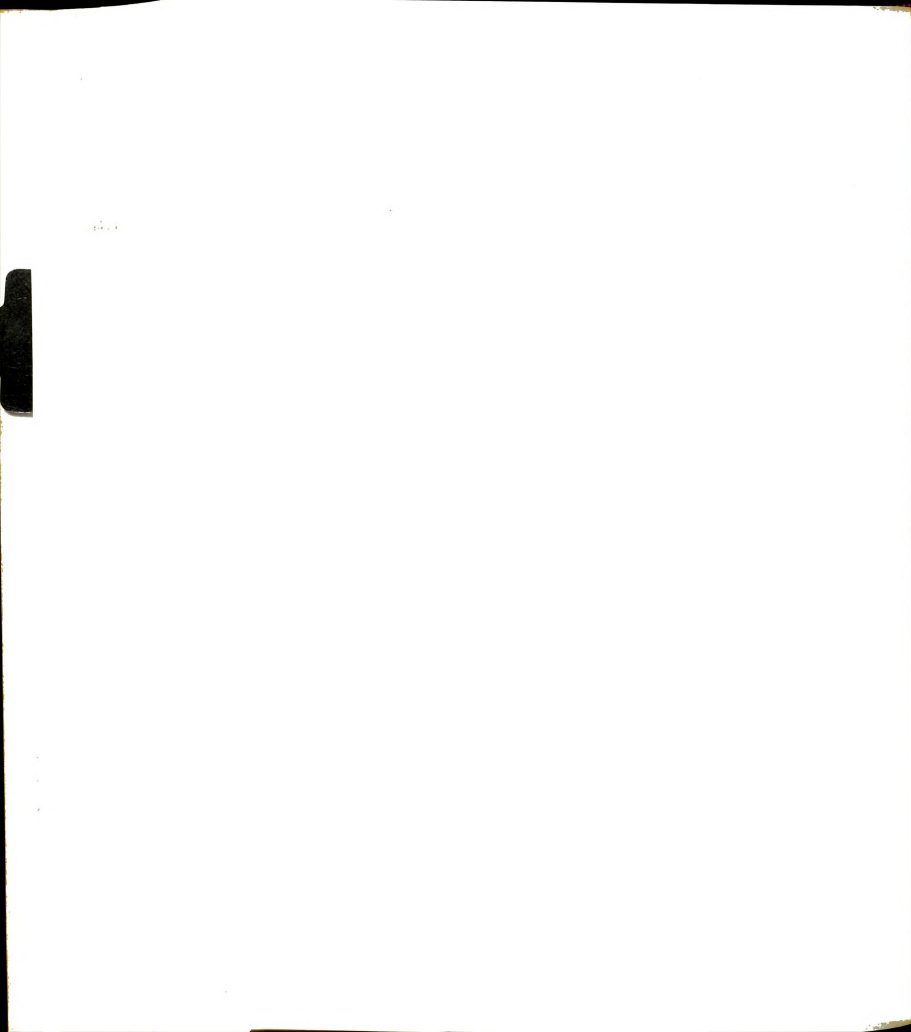
1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

30. I think in-service training is unnecessary for teachers in our educational system.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
5. disagree on the whole
6. disagree very much

31. To me, in-service training is one of the worst things to come to our educational system.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much



32. I first used objective tests (if you have) in _____
(month), _____ (year).
33. I first heard about:
1. Vocational curricular subjects in _____ (year).
 2. Science experiments in labs in _____ (year).
 3. Educational guidance _____ (year).
 4. Objective tests _____ (year).
 5. In-service training _____ (year).
34. I think the Headmaster/Headmistress supports vocational subjects:
1. whole heartedly
 2. somewhat
 3. not sure
 4. not very much
 5. not at all
35. I think the Headmaster/Headmistress supports the teaching of science subjects:
1. whole heartedly
 2. somewhat
 3. not sure
 4. not very much
 5. not at all
36. I think the Headmaster/Headmistress supports educational guidance for students:
1. whole heartedly
 2. somewhat
 3. not sure
 4. not very much
 5. not at all
37. I think the Headmaster/Headmistress supports the use of objective tests:
1. whole heartedly
 2. somewhat
 3. not sure
 4. not very much
 5. not at all



38. I think the Headmaster/Headmistress supports in-service training of teachers:
1. whole heartedly
 2. somewhat
 3. not sure
 4. not very much
 5. not at all
39. If asked to judge my knowledge of vocational curricular subjects I would consider myself to be:
1. extremely well informed
 2. quite well informed
 3. about average
 4. not very well informed
 5. not at all well informed
40. If asked to judge my knowledge of science experiments in the laboratory I would consider myself to be:
1. extremely well informed
 2. quite well informed
 3. about average
 4. not very well informed
 5. not at all well informed
41. If asked to judge my knowledge of educational guidance I would consider myself to be:
1. extremely well informed
 2. quite well informed
 3. about average
 4. not very well informed
 5. not at all well informed
42. If asked to judge my knowledge of the use of objective tests, I would consider myself to be:
1. extremely well informed
 2. quite well informed
 3. about average
 4. not very well informed
 5. not at all well informed



43. If asked to judge my knowledge of workshop and in-service training I would consider myself to be:

1. extremely well informed
2. quite well informed
3. about average
4. not very well informed
5. not at all well informed

44. Since we began vocational curricular subject my students' attitude toward it has been, on the whole:

1. extremely enthusiastic
2. quite enthusiastic
3. so, so
4. not very enthusiastic
5. not at all enthusiastic

45. Since we began science experiments in the laboratory my students' attitude toward it has been, on the whole:

1. extremely enthusiastic
2. quite enthusiastic
3. so, so
4. not very enthusiastic
5. not at all enthusiastic

46. Since we introduced guidance program my students' attitude toward it has been, on the whole:

1. extremely enthusiastic
2. quite enthusiastic
3. so, so
4. not very enthusiastic
5. not at all enthusiastic

47. Since we began using objective tests my students' attitude toward it has been, on the whole:

1. extremely enthusiastic
2. quite enthusiastic
3. so, so
4. not very enthusiastic
5. not at all enthusiastic



48. My personal view regarding the vocational subjects is that the students:
1. benefit greatly
 2. benefit somewhat
 3. not sure
 4. do not benefit much
 5. do not benefit at all
49. My personal view regarding the teaching of science subjects is that the students:
1. benefit greatly
 2. benefit somewhat
 3. not sure
 4. do not benefit much
 5. do not benefit at all
50. My personal view regarding educational guidance is that the students:
1. benefit greatly
 2. benefit somewhat
 3. not sure
 4. do not benefit much
 5. do not benefit at all
51. My personal view regarding the use of objective tests is that the students:
1. benefit greatly
 2. benefit somewhat
 3. not sure
 4. do not benefit much
 5. do not benefit at all
52. My personal view regarding the in-service training of teachers is that the students:
1. benefit greatly
 2. benefit somewhat
 3. not sure
 4. do not benefit much
 5. do not benefit at all

10. My personal view
is that the students

1. benefit from
2. benefit from
3. not sure
4. do not benefit
5. do not benefit

11. My personal view
is that the students

1. benefit from
2. benefit from
3. not sure
4. do not benefit
5. do not benefit

12. My personal view
is that the students

1. benefit from
2. benefit from
3. not sure
4. do not benefit
5. do not benefit

13. My personal view
is that the students

1. benefit from
2. benefit from
3. not sure
4. do not benefit
5. do not benefit

14. My personal view
is that the students

1. benefit from
2. benefit from
3. not sure
4. do not benefit
5. do not benefit

53. Check the topics in the following list which you have heard about and/or discussed with other people in your school during the last six months.

1. Science and experiments
2. Vocational agriculture
3. Use of radio aids audiovisual aids in classes
4. Guidance and counseling
5. Technical subjects
6. Assignment of books from library
7. Objective tests
8. Home-economics
9. Commercial courses

Please answer the following six questions in terms of the item you checked in the previous question.

54. During the past six months have you told anyone in your school about any of the above topics?

1. yes

2. no

55. Compared with your circle of friends in the school are you (a) more or, (b) less likely to be asked for opinions about these topics?

1. more

2. less

3. same amount

56. Thinking back to your last discussion about any of the topics (a) were you asked for your opinion, or (b) did you ask someone else?

1. I was asked

2. I asked someone else

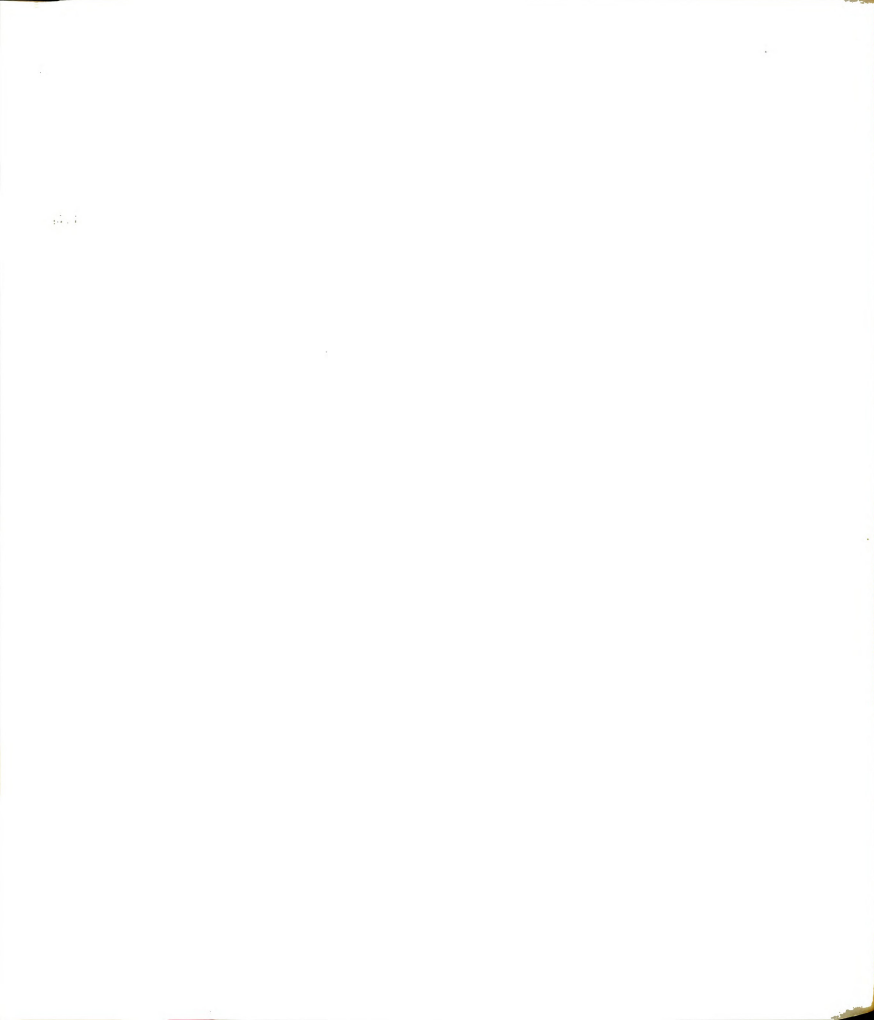
3. same amount

57. When you and your colleagues discuss any of these topics, what part do you play? (a) mainly listen, or (b) try to convince them of your ideas?

1. mainly listen

2. try to convince

3. same amount



58. Which of these happens more often, (a) you tell your colleagues about these topics, or (b) they tell you about these topics?
1. I tell them
 2. They tell me
 3. same amount
59. Do you have the feeling that you are generally regarded by your colleagues as a good source of opinion about these topics?
1. yes
 2. no
60. If we want to maintain a healthy and stable educational system we must keep it the way it is and resist the temptations to change.
1. agree very much
 2. agree on the whole
 3. agree a little
 4. don't know
 5. disagree a little
 6. disagree on the whole
 7. disagree very much
61. Most changes introduced in the last ten years have contributed very little in promoting education in our school.
1. agree very much
 2. agree on the whole
 3. agree a little
 4. don't know
 5. disagree a little
 6. disagree on the whole
 7. disagree very much
62. I really believe we could have done a much better job or at least done just as well if things haven't been changed so much in our schools.
1. agree very much
 2. agree on the whole
 3. agree a little
 4. don't know
 5. disagree a little
 6. disagree on the whole
 7. disagree very much



63. Generally speaking, I don't like being a teacher.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

64. I like my teaching job in this school.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

65. I am far from satisfied with the school environment here.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

66. I have some very good reasons to refuse the general feeling that anyone can be a teacher.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

67. I really don't feel secure and relaxed as a teacher in this school.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

68. Compared with an average teacher, I would say I get along well with other teachers.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

69. I really feel at home in this school as nothing makes me nervous or uneasy.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

70. How would you rate yourself in teaching ability compared with secondary teachers in general?

1. outstanding
2. among the best
3. good
4. above average
5. average
6. below average
7. among the poorest

71. Where would you rank your ability to become a teacher on educational radio?
1. outstanding
 2. among the best
 3. good
 4. above average
 5. average
 6. below average
 7. among the poorest
72. How would you rate your ability to get along with students compared with teachers in general?
1. outstanding
 2. among the best
 3. good
 4. above average
 5. average
 6. below average
 7. among the poorest
73. How would you rate your ability to enrich instruction (go beyond the book) compared with teachers in general?
1. outstanding
 2. among the best
 3. good
 4. above average
 5. average
 6. below average
 7. among the poorest
74. Where would you rank your methods of teaching compared with other secondary teachers?
1. outstanding
 2. among the best
 3. good
 4. above average
 5. average
 6. below average
 7. among the poorest

75. How would you rate yourself in teaching ability compared with other teachers who have the same number of years of teaching experience?

1. outstanding
2. among the best
3. good
4. above average
5. average
6. below average
7. among the poorest

76. Where would you rank your methods of classroom discipline compared with other secondary teachers?

1. outstanding
2. among the best
3. good
4. above average
5. average
6. below average
7. among the poorest

77. How would you rate yourself in ability to teach your major subject compared with other teachers of that subject?

1. outstanding
2. among the best
3. good
4. above average
5. average
6. below average
7. among the poorest

78. Where would you rank your ability to teach a class higher than the one you are teaching?

1. outstanding
2. among the best
3. good
4. above average
5. average
6. below average
7. among the poorest

79. I don't think I can influence the decisions of the Headmaster/Headmistress regarding things about which I am concerned.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

80. The Headmaster/Headmistress asks my opinion when a problem comes up that involves my work.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

How do you think your Headmaster/Headmistress would react to the following four questions?

81. "Personally, I feel I can adjust to changes easily."

1. he/she would agree very much
2. he/she would agree on the whole
3. he/she would agree a little
4. he/she would not know
5. he/she would disagree a little
6. he/she would disagree on the whole
7. he/she would disagree very much

82. "Most changes introduced in the last ten years have contributed very little in promoting education in our schools."

1. he/she would agree very much
2. he/she would agree on the whole
3. he/she would agree a little
4. he/she would not know
5. he/she would disagree a little
6. he/she would disagree on the whole
7. he/she would disagree very much

83. "If we want to maintain a healthy, stable educational system we must keep it the way it is and resist the temptation to change."

1. he/she would agree very much
2. he/she would agree on the whole
3. he/she would agree a little
4. he/she would not know
5. he/she would disagree a little
6. he/she would disagree on the whole
7. he/she would disagree very much

84. "I really believe we could have done a much better job, or at least done just as well, if things hadn't been changed so much in our schools."

1. he/she would agree very much
2. he/she would agree on the whole
3. he/she would agree a little
4. he/she would not know
5. he/she would disagree a little
6. he/she would disagree on the whole
7. he/she would disagree very much

85. My Headmaster/Headmistress usually doesn't explain his decisions to me about matters in which I am involved.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

86. He/she acts on things which may involve me without consulting me first.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

87. He/she makes me feel at ease when speaking with him/her.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

88. He/she is friendly to me and I can easily approach him/her.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

89. He/she is usually very warm and understanding when he talks with me.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

90. He/she gets along with me very well even when there is no official business involved.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

99. As compared with other teachers, the principal talks to me about my class work.

1. much more frequently
2. more frequently
3. just about the same amount as other teachers
4. less frequently
5. much less frequently

100. He gives me encouragement in my work.

1. very frequently
2. quite frequently
3. just about the same amount as he does other teachers
4. quite infrequently
5. never

101. He offers suggestions to help improve my teaching performance.

1. very frequently
2. quite frequently
3. just about the same amount as he does other teachers
4. quite infrequently
5. never

102. He lets me know if he has heard any criticisms about my teaching performance.

1. very frequently
2. quite frequently
3. just about the same amount as other teachers
4. quite frequently
5. never

103. Compared with an average teacher he talks to me about discipline problems.

1. much more frequently
2. more frequently
3. about the same amount as other teachers
4. less frequently
5. much less frequently

104. Compared with an average teacher, he talks to me about the problems of teaching my subject matter(s).

1. much more frequently
2. more frequently
3. about the same amount as other teachers
4. less frequently
5. much less

105. If I had a chance to do the same kind of teaching for the same pay in another school, I would consider moving.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

106. The teachers in this school get along with one another better than those in other schools in this region.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

107. The teachers really help each other on the job in this school as compared with teachers in other schools in this region.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

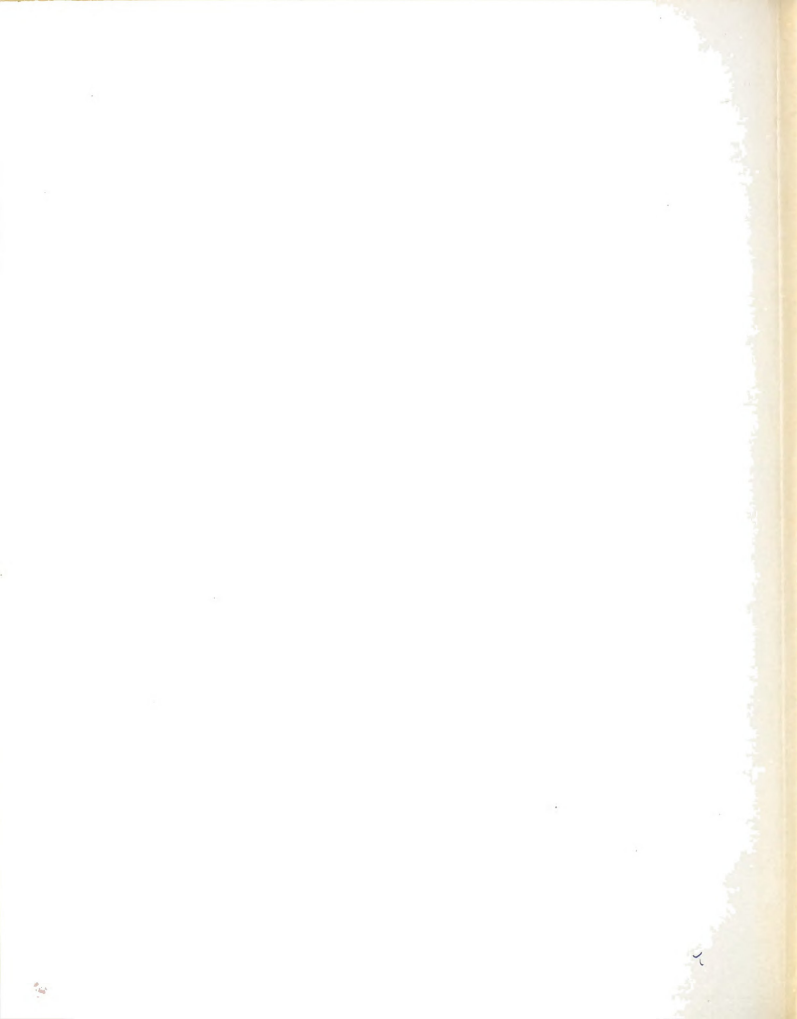
108. I feel I am really a part of this faculty.

1. agree very much
2. agree on the whole
3. agree a little
4. don't know
5. disagree a little
6. disagree on the whole
7. disagree very much

109. Compared with an average teacher, I talk with other teachers about non-academic school activities.

1. much more frequently
2. more frequently
3. just about the same amount as other teachers
4. less frequently
5. much less frequently





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