CHAPTER - IV

THE PROCEDURE

4.0 Introduction:

The social as well as psychological processes of assimilation of innovation and accommodation of change afford a slow and a natural means of absorbing educational change. Eisenstadt (1968) observes that change in education depends to a large extent upon the process of institutionalisation. But generally educationis a long term process. At the same time it is true that certain innovations, in the words of Huberman(1963) are 'one-shot operations' in order to get a particular change installed. Deliberate changes of this nature, however, take place somewhat infrequently.

Educationists know clearly that the change resulting from innovative practices is difficult and unsetting for staff and students alike and that there tends to be a considerable time lag between the modifications in the society at large and the innovations introduced into educational scene. Educators, teachers,

by and large, belong to a conservative group and are inclined to hasten slowly. But there is also the fear that too violent a change in society and education may result in the young not having the proposed education at all.

Efforts have been made to make education sensitive to the social needs and bring under grips the elusive triangle (Naik, 1975) - quantity, quality and equality of opportunity in education. Innovation reforms in curriculum, school and class-room organisation and instructional methods have been floated from National organisations like All India Council of Secondary Education(AICSE), DEPSE, NIE, NCERT, from State Department of Education, Extension Service Centres, Colleges of Education and private research agencies with the ardent hope that these innovative ideas be fishedout and fitted in schools. Schools themselves are also encouraged to invent and adopt innovative practices. The commissions and committees constituted to go into the problems of education at various stages have also suggested a number of innovations that could be adopted in schools. Inspite of all those earnest efforts, changes have not been brought about as they are required and expected.

4.1 The Problem:

Research studies on planned change in Education in India explain the general conditions and factors governing the adoption of innovations in schools. Factors like attributes of innovation, resource, variables, the communication channel, the adopter variables,management variables and other intrinsic and

extrinsic variables are found to affect the adoption of innovations. The studies concentrate on presage variables and process variables have not caught the attention of many researches. The systematic approach to education needs a synthetic perspective and be concerned with the process of innovation. The basic problem is that why so many apparently promising educational innovations show little, if any, improvement on the existing practices when they are objectively evaluated. It has been argued that these failures could be accounted for by the failure to develop appropriate input strategies. A sociological perspective suggests (Eric Hoyle, 1970) that the manner in which an innovation is introduced is as important to its effectiveness as the qualities of the innovation itself. The staff must understand the innovation, its requirements and its relation to the general objectives of the school. As might be expected the different systems of education have different methods of organising and harnessing the innovation process. The process of educational innovation has, therefore, to be institutionalised. It is now becoming widely accepted that educational innovation is not a temporary process, a rather tiresome interlude between long periods of peace and stability.

4.2 Definition of Key Terms:

The present investigation is "A Study of Processes in Adoption and Discontinuance of Innovations in Schools".

Dictionary of Education(Good, 1973) defines adoption of practices as the process by which an idea gets from its source

or origin to its place of ultimate use; usually thought of as consisting of five stages, namely awareness, interest, evaluation, trial and adoption.

"It is a process that occurs over a period of time and consists of a series of actions"(Rogers and Shoemaker, 1971).

Innovation is any new idea, method or device. Oxford dictionary(1933) defines innovation as the action of innovating the introduction of novelties, the alternation of what is established by the introduction of new elements of forms.

The Random House Dictionary of the English Language(1970) gives the meaning for innovation as "some thing new, introduction of new things or methods". It defines process as -- a series of progressive and interdependent steps by which an end is attained.

Discontinuance

Discontinuance is defined as the act or state of discontinuing or the state of being discontinued.

Innovation

Rogers(1962) defines innovation as an idea perceived as new by the individual.

According to Unruh(1970)-- Innovation, the necessary ingredient of the process of educational change, is "the introduction of a novel element, a driving force, a practical advance

that deviate from established or traditional form".

Miles(1964) defines innovation as, ----- a deliberate, novel, specific change, which is thought to be more efficacious inaccomplishing the goals of a system.

Adiseshiah(1977) used the term innovation in the sense, as used in the engineering sciences. Innovation refers to a new product or a new process - the process by which an invention or an idea is translated into a programme. According to him the term innovation is used to refer to a situation where some result of a piece of educational research is turned into an education process. APEID (Asian Programme of Educational Innovation for Development, 1977) holds the view that to be an innovation the idea or the practice need not be totally new. Its efficacy and potentiality in a new context are the main criteria used for labelling it as an innovation.

The emphasis is on 'change' in terms of providing a strategy to deal with a specific local or national problem. Netzer et al (1970) point out how the words change, innovation diffusion and improvement, have been the focus of many patient definitions and at times impatient arguments. Change and innovation are the same. Innovation occurs only when there is diffusion. Diffusion gains credit if improvement is evidenced and improvement is proof that change has occurred. Change and innovation now, again are the same, so goes the logical circle enveloping all these phenomena.

Lin and Zaltman(1973) hold the view that innovation and invention are synonymous. They also use the term innovation to explain the process whereby an existing innovation becomes a part of an adopter's cognitive state and behavioural repertoire. The idea, practice or material artifact which has been invented or which is regarded as novel independently of its adoption or non-adoption, is also considered as inovation. The term innovation may, according to them, refer to any invention, the process of adoption or even the material artifact that may not have any reference to diffusion and adoption.

Brosgall(1974) posed the question what is it that constitutes an innovation? It is submitted that practically all innovations begin with an idea. The idea may be originally conceived by one person picked up by a second, developed by a third and so on. It does not always happen that the originator sees the entire process, the general application - although occastionally this does happen. Is the idea itself an innovation? He believed that it is, and that each subsequent stage is also innovative e.g. developing the idea in the form of a paper for presentation to an audience, or in a journal or for discussion at a meeting. According to him researches, experiments, developments, pilot projects and general applications all of them are stages of innovation and it would be unwise to exclude any one stage from a list of stages of innovation. He said that we could not be sure how useful awareness of appropriate items might be - so the net has to spread widely within the field.

OECD in the workshop held at St John's College(1969) defined innovations as "those attempts at change in an educational system which are consciously and purposefully directed with the aim of improving the present system. Innovation is not necessarily something new but it is something better and can be demonstrated as such". The emphasis on the novelty of thing or idea is relegated to the background and betterment is brought to the forefront in this definition. Morton(1971) from Bell Telephone Laboratories also considers innovation as 'renewal'. It means the improvement of the old and the development of the new capabilities of people and their organisation. Innovation is notthe 'anarchistic destruction' of the old; rather it is the adaptive change and improvement of the existing system. Ben Miller(1970) views innovation as "purposeful, planned and profitable change". It represents a conscious and deliberate marshalling of resource specially designed to achieve greater profit. Rogers and Shoemaker(1971) remark that if the idea seems new to the individual, then as far as he is concerned, it is an innovation.

Heiss(1973) in her technical report sponsored by the Carnegic Commission also takes innovation to mean that "the change under review is new for a particular institution or for particular individual. The 'newness' aspects of an innovation is subjective and it matters little whether or not an idea is objectively new as measured by the lapse of time since its first use of discovery"(Rogers and Shoemaker, 1971). It is the perceived or subjective newness that decides the issue.

It is the qualitative difference that makes an idea or thing 'new' and earns for it the name innovation according to Bernett(1943). Markund(1972) and Miles(1964) also base their definitions of innovation on the qualitative criterion. Niehoff (1966), Richland(1955) and Brickell(1961) opt for a process definition rather than the novelty definition. Niehoff defines innovation as "a process that begins with an idea on the part of a change agent and ends in adoption or rjection by the potential recipient.

CERI studies define innovation as a deliberate attempt to improve practice in relation to certain desired objectives. Though the improvement of practice is specially spoken of, the new objectives, policies or functions are not excluded. Deliberate attempt is planned attempt and implies specific and technocratic planning procedures. The qualitative dimension is also present in the definition. Innovation is something better than what it replaces.

Chin and Downey(1973) describe five approaches to the definition of innovation. In the first approach, innovation is something new or something changed in a significant and substantial respect. The second approach is quantitative. Innovations are ideas practices or materials not yet adopted by a specified percentage e.g. ten percent. The third approach considers innovation as a new total package practice, for example, team teaching, computer aided instruction etc., the fourth approach

defines innovation in terms of the critical factor of the effects on behaviour. The fifth approach conceives, innovation as anything 'perceived' as new.

Innovation, thus, has been viewed from different perspectives by researchers. Some have a 'novelty' view (Rogers and Shoemaker, 1971; Heiss, 1973); to some the product is the criterion (Barnett, 1943; Miles 1964; Markund, 1972, CERI 1973); still others have emphasised the process as the determining characteristics of innovation (Brickell, 1961, Richland, 1965; Niehoff, 1966).

The process descriptions delineate innovation process as planned change and as Herzog(1967) pointsout this view in naively profession - O - centric. The schools are viewed as objects to be manipulated and the value-orientation of the target system is very often ignored. The process definition, therefore, is the predominant one and it cannot be overlooked in any definition of innovation. Ideas, policies, practices, artifacts that are perceived as new by the target system and that are consciously and purposefully initiated and directed by an outside agency or by the target system itself with the aim of improving the existing conditions are considered as innovations in this study. This definition assumes three dimensions for innovation, the newness, the purpose and the conscious effort. It 'suffers' from subjectivity; the newness is not in the 'innovation' but in the beholder's eye, in his cognitive content, the purpose is need based and needs are not the same everywhere and for every one and conscious effort again is idiosyncratic. The

definition therefore is 'bound' to suffer from subjectivity.

The term discontinuance means, according to the Random House Dictionary of the English Language(1970)---- the act of state of discontinuingor the state of being discontinued.

Discontinuance or subsequent rejection of an innovation after initial adoption, is reported by Rogers(1962) as a common phenomenon, varying with the nature of both the innovation and adopter. Some of the factors he described as related to discontinuance are the replacement of an innovation by a superior one, misunderstanding or misuse of the innovation, and personal characteristics which are also related to late adoption.

According to Rogers and Shoemaker(1971) "A discontinuance is a decision to cease use of an innovation after previously adopting it". Lewin(1952) describes the problem of discontinuance as follows--"A changetoward a higher level of group performance is frequently short-lived; after a shot in the arm, group life soon returns to the previous level. This indicates that it does not suffice to define the subject of planned change in group performance as the reaching of different level. Permanency of the new level, or permanency for a desired period, should be included in the objective". In otherwords, designing the "aftermath" of adoption should be included in the early phase of planning for change. Watson(1966) described failure to make a committment to a period of adaptation as a possible cause for failure of innovations. Discontinuance may be caused by lack of

integration of the innovation into a system. On the other hand, integration into the system may take place, but with unexpected results which lead to discontinuance.

Barnett(1953) suggests that discontinuance may take place when an innovation has untoward consequences for related aspects of society.

About the rate of discontinuance, Rogers(1962) concluded that there is a rather surprisingly high rate of discontinuance of many innovations.

Leuthold(1967) concluded from his study among a statewide sample of wisconsin farmers that the rate of discontinuance was just as important as the rate of adoption in determining the level of an innovation at any particular time. In other words, for any given year there were about as many discontinuers of an innovation as there were first time adopters. A similar experience has been reported in India where the rate of discontinuance of birth control loops has been higher than the rate of adopters (Rogers and Shoemaker, 1971).

Discontinuance, thus, has been viewed from various angles by researchers. It was described as a decision to cease use of an innovation after previously adopting it (Rogers and Shoemaker,1971); to some it is short lived (Lewin, 1952), still others have suggested its lack of performance or lack of integration of the innovation into the system (Barnett, 1953; Leuthold, 1967); Further, innovations that have high rate of

adoption should have a low rate of discontinuance. This theory is supported by the findings of Coughenour(1961) in Kentucky, Silverman and Bailey(1961) in Mississippi, Johnson and Vanden Ban(1959) in Wisconsin and Leuthold(1965) in Saskatchewan. A special case is that described by Meyerson and Kate (1957) in their description of the phases involved in fads and fashions. Loss of exclusiveness and death by displacement are probably more common causes for discontinuance.

In education, we are concerned less with the actual invention of new devices and methods from their use and their dissemination throughout the schools, colleges and the many other educational institutions. Indeed, it is a fact that most of the local changes that occur are adaptions of something already in practice in some neighbouring school. We are, therefore, particularly concerned with the aspect of adoption, that is, the fact that a student, a teacher, an administrator, or even the entire school puts into practice a concept, an attitude, or a method which is qualitatively as well as quantitatively been in operation. The various processes, whereby, the new element, whatever it might be, is made available, is propagated throughout the educational system, and is finally absorbed into other practices, materials or methods in operation.

General change in education is, therefore, a long-term process, but it is one which requires continual thought and application in terms of ends and means, aims and techniques.

4.3 Objectives of the Study:

The following are the objectives set down for the study:

1. To study the process of adoption of successful innovations.
2. To study the process of discontinuance of innovations.
3. To study the processes of adoption and discontinuance of innovations in relation to the organisational climate, leadership behaviour and teacher morale of the school.
4. To study the variations in the process of adoption of innovations in different types of schools (privately aided, Central and Missionary schools).

4.4 Scope of the Study:

The main objective of the study is to investigate the process in adoption and discontinuance of innovations. The processes will be studied with reference to the conceptual model developed by the investigator.

i) Different stages under the process of adoption of successful innovations and discontinued innovations have been studied and individual innovation process profiles prepared and presented in the form of a circle graph showing the levels of process in relation to factors affecting the innovative processes.

ii) Authentic records of the school have been verified or consulted for the same purpose.

iii) Only the innovative institutions situated in urban areas have been studied.

iv) The staff of the education department like District Educational Officer, Educational Experts and Extension Centres have been consulted to confirm about the innovativeness of institutions.

Asian Programme of Educational Innovation for Development (APEID) definition for innovation ---"the idea or practice need

not totally be new. Its efficacy and potentiality in a new context are the main criteria used for labelling it as an innovation". The investigator had considered this view of APEID as the most appropriate term in this connection.

4.5 Methodology:

4.5.1 Method of Study:

The descriptive survey method is the most commonly used method for the survey approach to educational problems. This method generally helps in ascertaining the prevailing conditions by collecting the real facts. The requirement of the present investigation being the same, the descriptive survey method is adopted for collecting the data and finding out the facts.

The data collected from a variety of sources through various methods like questionnaires, check lists, scrutiny of records, direct interviews and non-participant observation. The authenticity of data very much depends on the inter-source reliability, thereby a number of sources are used for similar data.

According to Kerlinger(1973) "the personal interview for overshadows the others as perhaps the most powerful and useful tool of social scientific survey research".

A search in the literature for criticism of survey study as a research method helped the present investigation to have check systems to minimise subjectivity of the researcher in interpreting the collected data. The most serious criticism against the survey study is that it does not have the potentiality

to generalise due to its serious drawback such as low returns of mail - questionnaire. In order to avoid these problems to some extent, and for a good deal of sophistication, the investigator selected a smaller scale and visited personally all the 30 schools chosen for this study.

4.5.2 Selection of Variables:

Different variables have been studied in combination with each other in the earlier doctoral studies conducted in India in which those variables were related to the innovation adoption, diffusin or barriers to change. Keeping in mind the above facts, the selection of variable has been done for this study as follows:

The criterion variables:

i) Process of adoption - various stages showingthe implementation

ii) Process of Discontinuance- various stages showing the discontinuance of innovation.

The independent variables:

i) Organisational climate factors - disengagement, hindrance, esprit, intimacy, aloofness, production emphasis, thrust and consideration.

ii) Leadership Behaviour - initiating structure, consideration.

iii) Teacher Morale - individual characteristics, behavioural characteristics, group spirit attitude towards the job and community involvement.

iv) Barriers to change - various hurdles in bringing about the change in schools.

In order to validate the selection of these variables, a number of research scholars and research guides working in allied

areas were consulted and suitable modifications, additions, and deletions were carried out. In addition to that, the opinion of experienced principals and teachers of secondary schools, and senior members (DEO) of the Education Department was also sought in deciding the above criteria because of the nature of their relationship either with the school system or with the process of adoption.

4.5.3 Contributing Factors to the System Effect:

The effectiveness of an innovation cannot be meaningfully assessed without recognizing the widely varying circumstances under which it is introduced and its many forms.

4.5.3(a) Organisational Climate Score(OCDQ):

This is a standardized score. There are eight dimensions viz.(1) Disengagement (2) Hindrance (3) Esprit and (4) Intimacy constituting interpersonal behaviour of staff members of the school and four other factors viz. (5) Aloofness (6) Production emphasis (7) Thrust and (8) Consideration constituting principal's behaviour traits. The number of statements pertaining to each one of the sub-tests or factors were 10, 6, 10, 7, 9, 7, 9 and 6 respectively. Altogether there are sixty four statements in the OCDQ. The raw scores on all the eight dimensions of each school were tabulated. These statements were rated on a four point scale viz. Rarely, sometimes, often and frequently. The weightage given for each of the above category of responses was 6, 7, 8 and 9 respectively except in the case of a few negative statements

where the order or weightage was reversed. Then the school-wise factor raw-scores mean and standard deviation were calculated. These scores were standardized first normatively and then ipsatively (as is given in Halpin, 1966). With 50 as mean and 10 as SD fixed arbitrarily. These double standardized scores were compared with the proto-type profile scores given by Halpin and Croft(1963). Each of the thirty school profiles was compared with each of the six prototypic profiles.

The scores showing the difference between the double standard scores and prototypic profile scores are called the similarity scores. The organisational climate score for each school was calculated by adding the similarity scores row-wise. The row-wise total of the similarity scores showing the minimum difference between the double standardized scores of the school and the prototypic profile scores were taken to be the indicator of the 'climate' of the school.

The maximum score is 6(for open climate) and the minimum is 1 (for closed climate).

4.5.3(b) Leadership Behaviour Score(LBDQ):

The two leadership dimensions, Initiating structure and Consideration are measurements of the description of how leaders behave. The tool offers the facility to define these leadership behaviour dimensions operationally. Originally the LBDQ was designed by the Personnel Research Board at the Ohio State University; it was constructed by Hemphill and Coons(1950) was

later on adapted by Halpin and Winer(1952). This adapted version of Halpin and Winer is used in the present investigation.

There are 30 statements in the tool classified into two categories namely the 'Initiating Structure' and 'Consideration' of the leader with 15 statements assigned to each category. The category of responses were on a five point scale viz. ranging from Always-4 to Never-0. The theoretical range of scores on each variable is from 0 to 60. Leaders receiving high scores on both dimensions are considered to be the most effective.

The principals' leadership behaviour in this study was derived from teachers' perception of their principal as measured by the LBDQ. These two dimensions were translated emphasising group maintenance and goal achievement. These behaviour patterns of various leaders on both the dimensions were expected to differ, some might be high on both, some high on one and low on the other, and some low on both.

1. High Initiating Structure and High Consideration (HH)
2. Low Initiating Structure and High Consideration (LH)
3. Low Initiating Structure and Low Consideration (LL)
4. High Initiating Structure and Low Consideration (HL).

Halpin(1969) has suggested to plot each leader's score from both the dimensions into the four above mentioned coordinates.

4.5.3(c) Teacher Morale Inventory(TMI):

In order to measure teacher morale in Secondary Schools of Gujarat, Pramila B Dekhtawala(1976) had constructed and

standardized the inventory for her doctoral study. There are 100 statements in the Teacher Morale Inventory. These items were classified into 5 categories each relating to one factor of the 'Teacher Morale'.

The following were the five main components and twenty-three sub-components of morale:

1. Individual characteristics consisting of mental state of the teacher like, confidence, zeal, cheerfulness, hope, etc.
2. Behavioural characteristics - consisting of the behaviour of the teacher regarding discipline, efficient working, adjustment, willingness, etc.
3. Group spirit consisting of the attitude towards fellow teachers, his relation with the others and his desire to accomplish his pride and position in the group.
4. Attitude towards the job - consisting of the teachers' attitude towards different aspects of the teaching profession, like salary, job satisfaction, work load, environment, facilities, etc.
5. Community involvement gives an idea about the extent to which the community is involved with the education system by way of supporting the system acceptable to it and exerting sufficient pressures to make it come upto its expectations.

The reliability of the inventory was found to be .86 by Test-Retest Method, and .99 obtained by split-half method. This proved that the questionnaire is reliable.

A five-point scale was used to score the responses for each item allotting 1, 2, 3, 4 and 5 respectively, for all the 100 statements. The morale score was computed by calculating the factor-scores from the summing up of all the item weights

under each factor and adding them all. The total morale-score was the sum of the 5 component scores.

4.5.4 The Research Design:

Research design is concerned with the planning of a study. The design specifies the question or questions to be investigated, the process of sample selection, method or procedures to be followed, measurements to be obtained and comparison and other analyses to be made (Johnson, 1977). The questions to be investigated in the study are concerned with the processes of adoption and discontinuance of innovations in secondary schools. All the 30 schools are selected purposively for this study from all over Gujarat State. The principals, graduate and post-graduate trained and untrained teachers working in these schools supply the information. The information is sought through the questionnaires, and interview schedule specially constructed for the study. A few tools have been adopted. The process of adoption of a successful innovation and the process of discontinued innovation are studied separately using separate questionnaire. Contributing factors for system effect have been studied by adopted tools viz. OCDQ, LBDQ and TMI. In addition, the barriers to change check list has been used.

The data collected through the questionnaires are quantified and described using descriptive statistics. Percentages and 't' tests are selected as appropriate statistics. A conceptual model is evolved to study the process of adoption and discontinuance of innovations in schools. This in brief is the plan of the study.

The procedure of the study designed is described in detail in the following pages.

4.5.5 The Tools:

In the present study the basic assumption is that the process of adoption of innovation and discontinuance of the innovation is basically linked to the factors like (i) Organisational Climate of the school, (ii) Leadership Behaviour, of the Head of the School, (iii) The Teacher Morale and (iv) Barriers to change.

To measure the above aspects three standardized tools that have been already used in the earlier doctoral research studies were utilized again in this study.

i. Interview Schedule:

It has been the major technique used to measure all the dimensions and in cross validating and supplementing the data gathered through other tools prepared by the investigator. A semistructured interview schedule was used to conduct the interviews with the principals of schools to collect the relevant information regarding the processes of implementation of successful innovation and causes for failure were sought through the interview.

Good and Hatt(1952) also supported the view as they maintain that depth is usually sacrificed in order to gain this standardisation(reliability). In many a case the interview was deliberately supplemented by discussions with the principals.

The investigator has prepared this interview schedule keeping in view that the principal is in a better position to initiate innovation, and has at his disposal skills and authority to use administrative strategies. Theoretically there are a number of ways in which the Head can create a receptiveness to innovation in his staff. Practically it is possible to measure the ways of communication within the school system and the extent of teacher involvement in decision making.

ii. Questionnaires:

An evaluation schedule on innovative process (ESIP) for adoption of an innovation and an evaluation schedule for discontinuance of innovation were the two questionnaires used to study the process of adoption and discontinuance of innovations. The schedules were specially prepared for use in the study. Both are of similar type with little differences covering the important stages like problem awareness stage (PA), search for solution(SS), knowledge about innovation(KI), persuading influences(PI), Decision Making(DM), Adoption/Discontinuance and Evaluation(EV).

The Evaluation Schedule on Innovative Process(ESIP) was designed to provide a teacher who had been involved in the innovation implementation process, opportunity to express his opinion or feeling and experience about various aspects and processes of the innovation. The important facet of an innovation,

implemented by an institution, therefore, was the process viz. various stages that had been passed through during the adoption period. The tool ESIP to measure the process of adoption/ discontinuance of innovation was constructed incorporating the seven stages viz.:(i) Problem Awareness, (ii) Search for Solution, (iii) Knowledge about Innovation, (iv) Persuading Influences, (v) Decision Making, (vi) Adoption, and (vii) Evaluation(the content of the questionnaire, how the various stages operationalised and the types of responses were required from the teachers was explained in detail in the Chapter II). The innovation process was conceptualised as a continuum and seven specific stages mentioned above were identified in the continuum. The schedule in its final form was given in the Appendix No. B & C.

Tryout of the Interview Schedule and Questionnaires.

When the first draft of questionnaires was ready, it was given to 10 teachers of each in two schools of Baroda and interviews were conducted with the principals of the schools. The teachers were requested to fill up the questionnaires and to suggest improvement to enhance clarity. Modifications and changes were made in both questionnaires and interview schedule on the basis of the feedback observed from them.

In all 5 items were deleted from 40 items of the questionnaires and only 2 items were deleted from the interview schedule. The items were redundant or not clear to the respondents.

The final draft of the questionnaires for adoption consisted of 35 statements (PA = 4, SS = 2, KI = 2, PI = 1, DM = 2, AD = 19 and EV = 5). Questionnaire for process of discontinuance as already mentioned above was very much similar to the questionnaire on adoption process except for one item i.e. diffusion. Hence the number of items in the process of discontinuance are 34(PA=4, SS = 2, KI = 2, PI = 1, DM = 2, AD = 19 and EV = 4).

The interview schedule, in addition to identification of the data and name of the adopted innovation and its description, contained under the major headings of innovation process stages (PA = 5, SS = 3, KI = 8, PI = 1, DM = 13, AD = 14, and EV = 12) 56 items with required supplementary questions. The two questionnaires and interview schedule were given in Appendix A,B & C.

iii) Barriers to Change Check-List(BCCL):

A check list for identifying the types of barriers to change was also prepared. 51 possible barriers for adoption of innovations in schools were listed. All possible sources, with different types of barriers were included for response (checking) from the principal as well as teachers. Appendix D.

iv. Organisational Climate Descriptive Questionnaire(OCDQ):

Halpin and Croft(1963) had constructed the tool OCDQ which is composed of 64 Likert type items to measure eight different variables viz. Disengagement, Hindrance, Esprit, Intimacy, Aloofness, Production emphasis, Trust, and Consideration. The

Table 4.1: Characteristics of Different Types of Organizational Climate

	Characteristics	ORGANIZATIONAL CLIMATE TYPES					
		Open	Autonomous	Controlled	Familiar	Paternal	Closed
1	Disengagement	Low	Low	Low	High	High	High
2	Hindrance	Low	Low	High	Low	Low	High
3	Intimacy	Average	High	Low	High	Low	Average
4	Emprit	High	High	High	Average	Low	Low
5	Aloofness	Average	Low	Average	Low	Low	High
6	Thrust	Average	Average	High	Average	Average	Low
7	Consideration	High	Average	Low	High	High	Low
8	Production emphasis	Low	Low	High	Low	High	High

Key: Disengagement - teachers' tendency to be not with it or not in gear with the task.

Hindrance - burdening of teachers by such routine duties which hinder their instructional work.

Intimacy - friendly and social relations which denote social-need satisfaction.

Esprit - Teachers' morale.

Aloofness - formal and impersonal behaviour of the principal who is guided by more 'rules' and 'policies' of the school.

Thrust - closed supervision by principal in order to get the school going faster.

Consideration - Principal's inclination to treat teachers 'humanly'.

Production emphasis - Principal's close supervision of teachers; his one way communication; stress on output of work by teachers.

tool is to be administered to the teachers and through the application of the elaborate scoring and analysis system developed by the authors, the measure of the eight different traits are obtained. The reliability of the tool as reported by Halpin (1963) is .87.

On the basis of interaction of characteristics, six types of climates can be identified. These climates are open, autonomous, controlled, familiar, paternal and closed, where open and closed climates are the two extremes of a continuum. The instrument has been found to be a reliable and objective measure of organisational climate (Andrews, 1965 and Printehord, 1966). In India, the tool has been used by Mehra(1968), Sharma (1969), Buch (1972), Kumar(1972), Sharma(1973), Mukhopadhyay (1975), Shalat(1975), Darji(1975), Panchal (1977), Sahasrabuddhe (1976), Dekhtawala(1976) and Purushothaman (1978) in various states of India namely Gujarat, Delhi, Tamil Nadu and Rajasthan. This indicates the suitability and applicability of this tool in Indian schools also.

Regarding the validity of the OCDQ, Smith(1967) found that the concept of organisational climate as identified by the OCDQ to be empirically sound and viable. Andrew(1965) found that the OCDQ was valid for other types of schools such as elementary schools also. He finally stated that the sub-tests of OCDQ provided reasonably valid measures of important aspects of the principal's leadership in the perspective of interaction with his staff.

Plaxton(1965) found a strong relationship between the test scores of the OCDQ and the external criteria as teacher satisfaction, principal's effectiveness, and school effectiveness. So, this study confirmed Andrew's findings that sub-tests of OCDQ provided valid measures for measuring what they purported to measure.

Smith Rosevere(1965) in his factor analysis of esprit thrust interview schedule, confirmed the validity of the counterparts in the sub-tests of OCDQ, Smith(1967) related OCDQ to 23 external characteristics of elementary schools and found significant relationship of those variables with specific subtests and significant difference between the variables in different school climates. A copy of the OCDQ is given in Appendix E.

v. Leadership Behaviour Description Questionnaire(LBDQ):

The LBDQ was developed and standardized in the USA by the Personnel Research Board of Ohio State University to measure the leadership behaviour of a group leader. Hemphil and Coons(1950) constructed the original form of this tool. But Halpin Winer(1952) have identified, the two dimension viz., 'initiating structure' and 'consideration', to be regarded as fundamental in leader behaviour which, in turn, would be a factor affecting the process structure of innovation adoption. Each of the two dimensions had 15 descriptive statements and thus the total number of items were 30. Each item was scored on a scale from 4 to 0.

The Reliability Coefficient of the two dimensions of the instrument was found to be .93 and .86 respectively. The tool has been used, besides education in Air Crew Studies(Halpin and Winer, 1952) and has been reported to be usable. In India, also, the tool has been used by Panda(1974) in a modified form and Sharma(1973) and Shalat(1975), Darji(1975), Dikhtawala(1976), Mukhopadhyay(1975), Pandya(1975), Mahendra Chokshi(1975), Tikmani(1976), Satpal Gupta(1976) and Purushothaman(1978). It has been reported to be a fairly reliable and valid tool. A copy of the LBDQ is given in Appendix F.

vi. Teacher Morale Inventory(TMI):

This tool is meant for identifying the 'teacher morale' and assigning weights for such morale which is found to be one of the crucial factors influencing the success or failure of an innovation in school.

To measure teacher morale in secondary schools of Gujarat, Dekhtawala(1976) had constructed and standardized the inventory for her doctoral study from M.S. University, Baroda. So it is very apt to adopt the tool to measure teacher morale in secondary schools of Gujarat.

There are 100 statements in the Teacher Morale Inventory. These items classified into 5 categories, each relating, to one factor of the 'teacher morale'. The following are the five main components and twenty sub-components of morale.

1. Individual characteristics consists of mental state of the teacher like (a) confidence (b) zeal (c) cheerfulness and (d) hope.

2. Behavioural characteristics - consists of the behaviour of the teacher regarding (a) discipline (b) efficient working (c) extra effort (d) adjustment, and (e) willingness and (f) rationality.

3. Group spirit consists of the attitude towards fellow teachers, his relation with others and his desire to accomplish his pride and position in the group and its climate.

4. Attitude towards the job: consists of the attitude towards different aspects of the teaching profession, like (a) salary (b) job satisfaction (c) work load (d) environment (e) facilities, (f) sticking to job and (g) curriculum.

5. Community involvement gives an idea about the extent to which the community is involved with the education system by way of (a) supporting the system, and (b) pressures to make it come upto its expectations. (Appendix G)

vii Observation:

Non-participant observation method was employed by the investigator. These observations were used to understand the actual situation in which the process of adoption of innovation has been taking place in the teachers' curiosity, initiative to acquire new ideas etc.

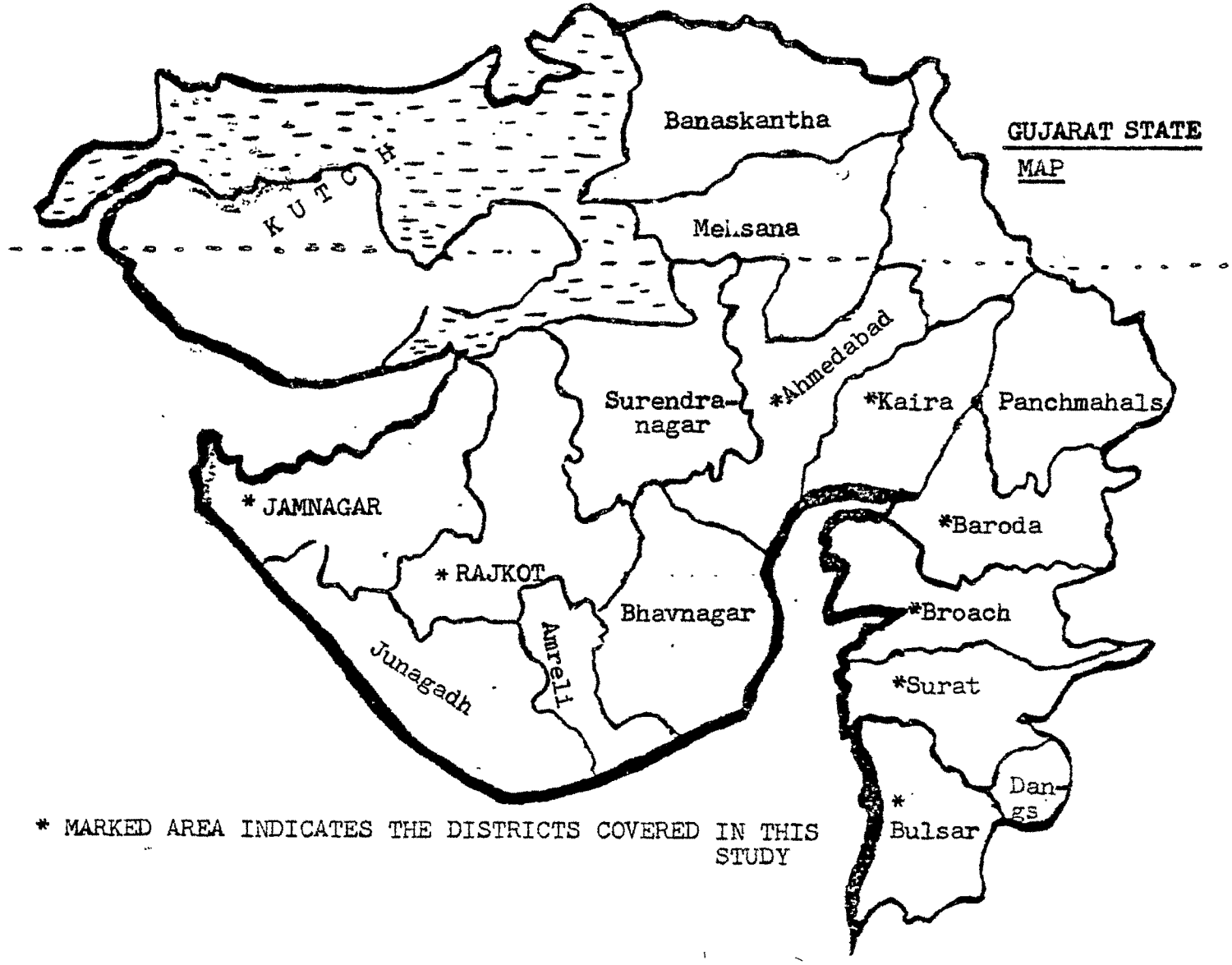
viii Study of Records:

Records of resolutions, notices, magazines, relevant literature, report concerned with various practices taken up by the school were scrutinised to collect data from more authentic sources of information about the system.

4.5.6 The Sample:

The sample chosen for this study was a purposive sample

Table 4.2:



* MARKED AREA INDICATES THE DISTRICTS COVERED IN THIS STUDY

Table 4.3 : The table showing the stratification of the sample

S. No.	Name of School and Educational Towns	Level	Type of management	Sex
1	Sheth J.S. Kanyavidyalaya, Bulsar	Hr.Sec.	Pvt.	Girls
2	St.Joseph's Convent Bulsar	Sec.	CM	Mixed
3	N.C.M. Kanyavidyalaya Billimora	Hr.Sec.	Pvt.	Girls
4	M.R. Tata Boys School Billimora	Hr.Sec.	Pvt.	Boys
5	H.D. Kanyavidyalaya, Amalsad	Sec.	Pvt.	Girls
6	Vidyakunj HS, Navsari	Sec.	Pvt.	Mixed
7	St. Prancis of Assisi HS Navsari	Sec.	CM	Mixed
8	Central School, Surat	Hr.Sec.	Govt.	Mixed
9	Jeevan Bharati, Surat	Hr.Sec.	Pvt.	Mixed
10	St Xavier's, Surat	Hr.Sec.	CM	Mixed
11	Navarachana, Baroda	Hr.Sec.	Pvt.	Mixed
12	Shreyas, Baroda	Hr.Sec.	Pvt.	Mixed
13	Jeevan Sadhana, Baroda	Hr.Sec.	Pvt.	Mixed
14	Baroda High School(ONGC)	Sec.	Pvt.	Mixed
15	Utkarsh Vidyalaya, Baroda	Sec.	Pvt.	Mixed
16	IPCL School, Baroda	Hr.Sec.	Pvt.	Mixed
17	Gujarat Refinery, Baroda	Hr.Sec.	Pvt.	Mixed
18	Fertilizer Nagar, Baroda	Hr.Sec.	Pvt.	Mixed

S. No.	Name of School and Educational Towns	Level	Type of management	Sex
19	D.N. Boys School, Anand	Hr.Sec.	Pvt.	Boys
20	St.Xavier's High School Anand	Sec.	Pvt.	Boys
21	Central School, Vallabh Vidyanagar	Hr.Sec.	Govt.	Mixed
22	English Teaching School Vallabh Vidyanagar	Sec.	Pvt.	Mixed
23	Sheth C.N. Vidyalaya Ahmedabad	Hr.Sec.	Pvt.	Mixed
24	Thakar's Hr.School, Ahmedabad	Hr.Sec.	Pvt.	Mixed
25	Mohiniba Kanyavidyalaya Ahmedabad	Sec.	Pvt.	Girls
26	Nirmala Convent, Rajkot	Sec.	CM	Girls
27	Central School, Rajkot	Hr.Sec.	Govt.	Mixed
28	S.V. Virani School, Rajkot	Hr.Sec.	Pvt.	Boys
29	Central School, Jamnagar	Hr.Sec.	Govt.	Mixed
30	St.Ann's Girls Convent, Jamnagar	Sec.	CM	Girls

Sec.	Secondary school	Govt.	Government
Pvt.	Private	Hr.Sec.	Higher Secondary
		C.M.	Christian Mission

* The serial numbers of schools do not correspond to the numbers assigned to the process profiles.

and comprised thirty innovative secondary schools situated in urban areas, all over the Gujarat State. As already mentioned it was a purposive sample which could be considered a form of stratified sampling in that selection of the cases was governed by some criteria acting as a secondary control (Mouly, 1963). Only schools in urban areas were considered for sampling. In consultation with educational authorities, people in Extension Departments and Colleges of Education the investigator could locate and select three types of schools differentiated on the basis of administrative system, namely, privately aided schools (20), central schools (4) and Missionary schools (6). The sample covered girls' schools, boys' schools and mixed schools.

Purposive sampling was characterised by the use of judgement and a deliberate effort to obtain representative samples by including presumably typical areas or group in the sampling.

The innovative schools situated in the popular educational centres have been chosen. Eight out of thirty schools belong to the most progressive educational city namely Baroda. All eight schools were privately aided schools, (established by social each of the other six districts of the State of Gujarat. The list of the schools selected for study was shown in Table 4.4.

4.5.7 Data Collection:

The data were collected through personal visits made by the investigator to the selected schools with prior appointment.

With the help of the principal and staff representatives, the investigator came to know about the teachers who were active participants and involved in implementing innovations.

All the thirty principals have been interviewed. In each school, at first the principal was requested to give information about the process of implementation of a very successful innovation that has been in practice in their school and also the one innovation that has been discontinued in their school. After the interview with the principal, the questionnaires were administered to those teachers who were involved in the implementation of the particular innovation adoption/discontinuance about which the interview was conducted on the principal. Barriers to change check-list was given to the principal as well as the concerned teachers. To collect the data about the contributing factors to the system effect, the tools OCDQ, LBDQ and Teacher Morale Inventory were given to the concerned teachers. In this way the data were collected from all the 30 schools. All the thirty principals extended their cooperation by giving access to the various school records concerned with the study and was permitted to make non-participant observation of the school activities. Each school was visited on an average three times. Some schools were visited as many as ten times also.

4.5.8 Analysis:

The data being mainly in qualitative form, statistical analysis was employed marginally.

The descriptive analysis of the process of adoption and discontinuance of innovations was based on the data collected through interview schedule. The data were analysed qualitatively.

The data on evaluation schedule on innovation process administered on teachers were analysed in terms of different stages. Both for adoption and discontinuance of innovations, percentages were calculated. It resulted, in fact, in thirty separate studies revealing the process of adoption of an innovation in each school and discontinuance of innovation if any in each school.

There were two types of choices for responses for items in the schedule. First type question had four categories of choices for 27 items. The second type of item had two categories of choices i.e. Yes/No for 8 items total 35 items. Under the first stage viz. Problem Awareness Stage, four items were constructed. All the items were structured on the Likert type of items. The scale values were from zero to three(0-3) e.g. in an item inquiring about the need for some change in existing conditions was felt by the teacher, a score of zero was given if the teacher had felt to a very little extent, a score of one for the feeling to some extent, a score of two for the feeling to a great extent and a score of three for to a very great extent.

The two point scale values were from zero to one(0-1) e.g. in an item inquiring about the approach of the teacher to the

resource centres in search of a solution, a score of zero was given if he did not approach the resource centre and score of one was given for his approach to the resource centre and linkage.

The second item was with regard to whether the teachers discussed about the information they got about the innovation from resource centres in the staff meeting. A score of zero was given if the teachers discussed formally, a score of one was given if they had discussion to some extent, a score of two, if the staff discussed to a great extent and a score of three for a thorough discussion.

Under the third stage, viz. knowledge about innovation, two items were constructed. All the items were structured on the Likert type of items. The following is a specimen item in this category.

1. How far do the teachers understand the innovation?

The scale value were from zero to three. A score of zero was given if the teacher is convinced that the practicability is very negative, a score of one for some what negative, a score of two for somewhat positive and a score of three if the teacher is convinced very much about its practicability.

Under the fourth stage - persuading influences, only one item was constituted with six bits of options to measure the persuading influence they got for introduction of innovation.

All the six bits are structured on the Likert type of items. The following is the specimen item in this category:

We got support from	A	B	C	D
The management	great	considerable	some	little
The officials	great	considerable	some	little
The pupils	great	considerable	some	little
The parents	great	considerable	some	little
The colleagues	great	considerable	some	little
The experts	great	considerable	some	little

The fifth stage "Decision Making", constituted two items only andthe first item in turn with four sub-divisions and the second with three sub-divisions to measure the amount of discussion in the staff meeting about the changes that the introduction of the innovation would demand in terms of extra labour, extra expenditure and extra responsibilities. All the four sub-divisions are substructured on the Likert type of items. The following is the specimen item in this category.

We have discussed in the staff meeting about the changes	Very thorough	thoroughly	not thoro-ughly	formally
a) in our behaviour	A	B	C	D
b) in students	A	B	C	D
c) in principal	A	B	C	D
d) in others	A	B	C	D

The sixth stage in adoption included trial run before adoption. Nineteen items have been found to measure. Some of the sample items are:

1. In trying out the innovation
   - A. whole school was involved.
   - B. half of the school was involved.
   - C. a few classes were involved.
   - D. only one class was involved.

2. The innovation is planned systematically.

   1. continued 2. discontinued.

3. Our management appreciated our efforts.
   - A. to a great extent
   - B. to some extent
   - C. to little extent
   - D. not at all

The seventh stage, Evaluation constituted 4 items to measure evaluation of the process of successful adoption of innovation. Some of the sample items were:

1. The systematic evaluation of the process of adoption of innovation has been carriedout.
   - A. very well
   - B. some what well
   - C. poorly
   - D. very poorly.

2. We diffused the information about the innovation to others through:

		A	B
a.	Professional meeting	Yes	No
b.	Writing to journals	Yes	No
c.	Inviting other teachers to practices	Yes	No
d.	casual talk with other teachers	Yes	No

3. Please indicate below the most important reasons for successful adoption of this particular innovation.

a) d)

b) e)

c)

This particular stage is constructed to measure the systematic evaluation of the process of discontinuance of innovation, parents' comments, and their continuity or discontinuity of their innovativeness. Three items have been found to measure under this stage. In addition to these, one more item was grouped together for which marks are not allotted. It was to study the most important reasons for discontinuance of this particular innovation. These items were purely informative in nature. The following were the specimen items.

1. The systematic evaluation of the process of discontinuance of innovation has been carriedout.

   A. very well C. poorly

   B. somewhat well D. very poorly

2. We continue to be innovative.

   A. Yes B. No.

3. The parents appreciated the innovation of new ideas in our school.

   A. to great extent C. to little extent

   B. to some extent D. not at all

4. Please indicate below, the most important reasons for discontinuance of this particular innovation.

   a. b.

   c. d.

   e.

Both the tools(ESIP) for adoption and discontinuance were given in the appendix B&C.

Table: 4.4: Showing Process Stages with Weightages

Stage Sr.No.	Name of the stage	Weightage
1	Problem Awareness	12
2	Search for Solution	9
3	Knowledge about Innovation	12
4	Persuading Influences	18
5	Decision Making	21
6	Adoption	50
7	Evaluation (Adoption/Discontinuance)	11/7

4.5.9 Scoring:

The tool evaluation schedule on innovation process(ESIP) to measure the process of adoption and discontinuance was used to compute the "ESIP" score. The percentages were calculated from the total of the raw weighted scores of each innovation (Stagewise) divided by the number of respondents of the individual school and number of allotted weightage of marks for each stage, multiplied by hundred.

$$\% = \frac{X100}{NY}$$

where X = total of the raw scores of stage

N = number of respondents

Y = stage weight

The observations made are being represented in the form of circular graph(Process profile).

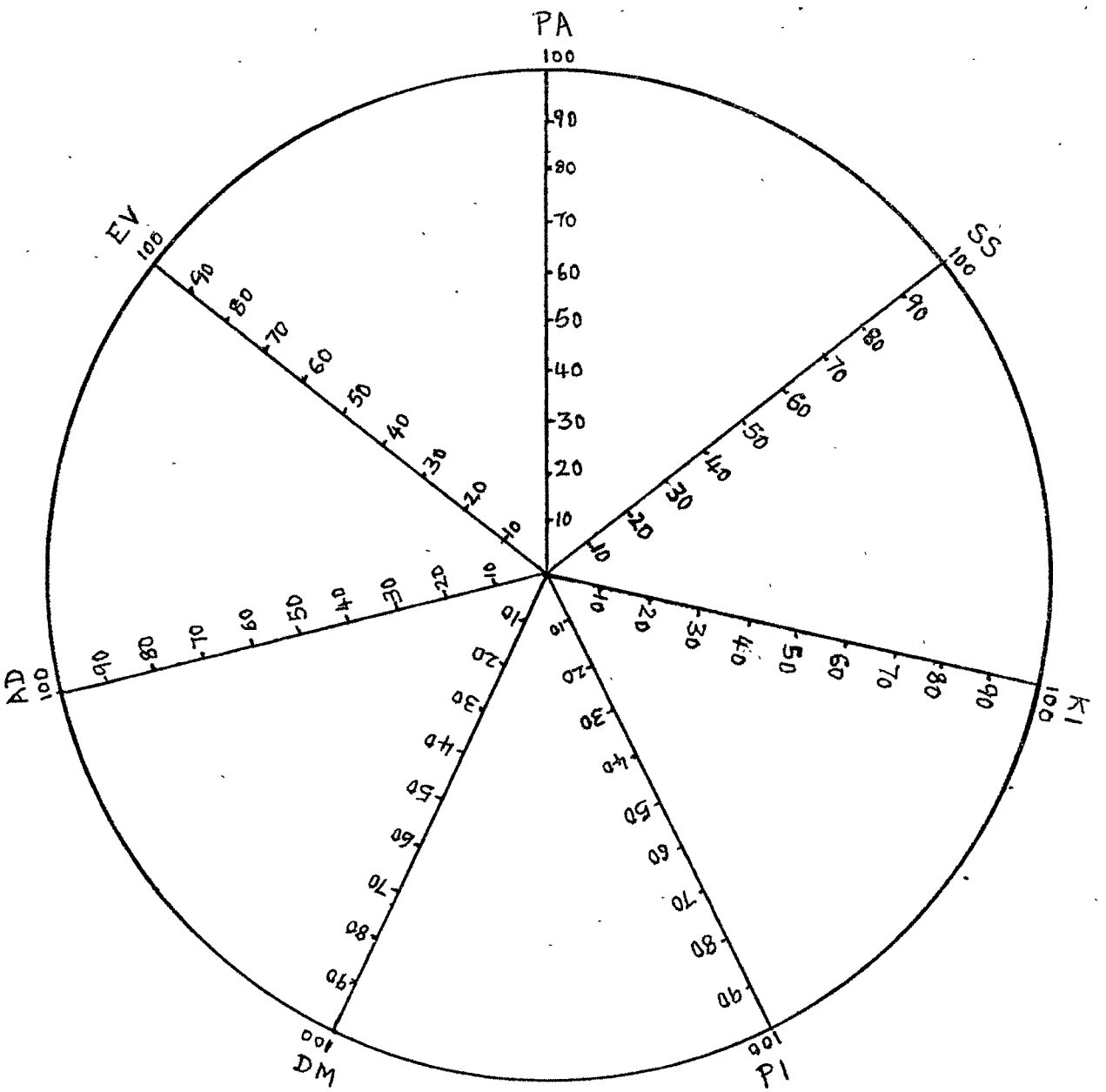
Process Profile:

Researchers generally recognized that adoption is the result of a sequence of events and not random behaviour. Wilkening, (1956) and that occurs over a period of time. The process of an innovation may be well understood by analysing each stage of the innovation process. The process of an individual innovation has been diagramatically represented to show the levels of each stage during the process of adoption/discontinuance.

The seven stages are (i) Problem Awareness(PA), (ii) Search for Solution(SS), (iii) Knowledge about Innovation(KI) (iv)

PROCESS PROFILE

SCHOOL NO. :



STAGES :

PA : PROBLEM AWARENESS

SS : SEARCH FOR SOLUTION

KI : KNOWLEDGE ABOUT INNOVATION

PI : PERSUADING INFLUENCES

DM : DECISION MAKING

AD : ADOPTION

EV : EVALUATION

Persuading Influences(PI), (v) Decision Making(DM), (vi) Adoption(AD), and (vii) Evaluation(EV). A circle was drawn with seven radii, each radius representing one of the seven stages.

Among thirty schools under this study, thirty successful innovations and fifteen discontinued innovations have been collected. Thus the single profile representing both processes of adoption and discontinuance of innovations was drawn for the schools where the investigator could collect the both types i.e. successful and failed innovations. In respect of other fifteen schools where there were no discontinued innovations, a profile for adoption only was drawn.

A process profile was thus plotted, the total length of each radius representing the maximum possible score for each stage. This total length of each radius was divided into ten equal parts and the corresponding level of scores were marked for each of the seven phases and these points were connected by lines. The enclosed area represents the process structure of the innovation or discontinuance. In the profiles for individual schools, the general profile for all the schools taken together was also superimposed.

The plotted points on each radius were shown the individual score for each stage. At the same time, the area born out of the interconnected points was also taken as an index of the process level of the adoption or discontinuance level. The process effect was the result of the inter-play or all the seven

stage variables in operation viz. PA, SS, KI, PI, DM, AD and EV during the implementation of innovation. From a process profile, the process of an innovation could be studied stagewise in detail. This basic frame of reference was shown in the opposite page. It could be observed that a few schools have their process area extended upto the limits of the outer circle and a few schools having their areas quite confined to the central area.

4.6 Conclusion:

In this chapter the details of the procedure, construction of tools and scoring were explained. The objectives of the study, scope of the study and key terms were defined in detail. The method selected and the tools employed to collect the data were also explained.

Thirty schools were selected for an indepth study of the processes in adoption/discontinuance of innovations. Process schedules based on the conceptual process model were developed and used in the study. A semi-structured interview schedule was also constructed. Three standardized tools, OCDQ, LBDQ and a Teacher Morale Questionnaire were also used to study the effect of these variables on the processes. Barriers check-list was used to locate the hindering factors to change.

The details of analyses of the data collected on the lines described in this chapter will be explained in the next chapter.