

CHAPTER III

RELATED LITERATURE

3.1 Review of Related Literature and Research - Introduction

This chapter is meant for presenting a review of the relevant literature and research done in the field of the implementation of innovations with a view to explore the basis for the needed research in the area. The review focuses mainly on the innovation diffusion, change agent, adoption process, and adaptability or innovativeness and some other relevant factors and on what lines future efforts should be concentrated.

A broad perusal of the literature about innovation diffusion, change agent, adoption process shows that the field is so wide that one finds a wide variety of literature in different areas. It should be said that in India quite a number of studies have been done in this field. Studies in this area in India are of comparatively recent origin. The researches in the field of innovation and change in education in India owe much to certain antecedents, specially the recommendations of Mudaliar Commission (1952-53) and the

Kothafi Education Commission (1964-66). A very little work has been done in the field of innovation diffusion in India.

Most of the agricultural colleges have conducted few diffusion studies at the post-graduate level. A solid piece of notable work has been turned out in this area by the Indian Agricultural Research Institute. Pareek in his directory of 'Behavioural Science Research in India' has compiled nearly 114 studies in the area of adoption and diffusion of innovations from the year 1925 to 1955. The review shows that all the researches are done in the area of agriculture only. Most of the researches have tried to find out the characteristics of the adopters of the improved agricultural practices. However, the first remarkable effort in educational innovation and change in India was the organisation of a seminar on the innovation and diffusion in 1966 at Osmania University, Hyderabad. The seminar has been followed up by research studies at various levels. The Centre of Advanced Study in Education, M.S. University of Baroda; M.B. Patel College of Education, Vallabh Vidyanagar; the NCERT, and the UGC identified the present area for conducting intensive and sustained study. The first research study in this area at doctoral level has been conducted by Rao, D.S. (1967) and later on so many people have investigated this area in India. They are, Bhogle (1969); Pilloo Buch (1967) Joshi (1972); Kamal Roy (1972); Sushama Bhagia (1973), Asma (1973), Buch and

Buch (1973), Mukhopadhyaya (1974), Tribhuvan Singh (1975), Panchal (1977), Purushottaman (1978), Balasubramanian (1978), Susheela D.Narsian (1978) and Sharma R.C. (1979). Susheela has conducted her research in higher education. According to the available literature in India, she is the first researcher who conducted research in Higher Education in this field. The researches conducted in India are presented in detail.

Researches abroad in this area are innumerable. But the investigator took into consideration the researches on some significant aspects of innovation process which he concentrated upon. If anybody throws a glance at the field of innovation, change process and diffusion, he can find the field too wide. With regard to the different aspects of innovation, such as adoption, diffusion characteristics of change agents, there is plenty of literature to be found. Various results of change can be realised in every change process. Hence in order to get better understanding of this change process, it will be prolific if an attempt is made to peep into the past relation to this present research. So the entire available related literature has been classified and reviewed under the following headings :

- I Change Process :
 - (A) Change agent
 - (B) Adoption Process, and
 - (C) Innovativeness or Adaptability

- II Factors :
 - (A) Financial Factors
 - (B) Staff Factors
 - (C) Administrative Factors
 - (D) Organizational Climate Factors
 - (E) Community Factors, and
 - (F) Communication Factors.

3.2 Innovations in General

Before going to present the relevant literature under the headings given above, it is essential to study the different areas which developed this tradition first, because the educational change process has been significantly influenced by studies about change in sociology, rural sociology, anthropology, industry and medical sociology. Rural sociologists have made extensive studies in this area with special reference to agriculture and farm practice. The importance of such research in these fields go well beyond the simple discovery and description of elements of a process. One striking feature of the studies in the area of change in various disciplines is

the commonness of the areas studied. One finds studies about innovations, their diffusion, the adoption process, the characteristics of adopters and non-adopters of innovations in the field of sociology, rural sociology, industrial sociology and anthropology etc. Anthropologists are more concerned with the changes of ideas between societies rather than within the society. They emphasis more on the social consequences of innovations than on diffusion tradition. In anthropology the works of Kroeber (1923) and Wissler (1923) have influenced many later diffusion studies. They are considered as the pioneers of diffusion of innovation studies in tradition. Linton (1936) was one of the first academics to recognise that the characteristics of an innovation affects its rate of adoption. In sociology Trade (1903) contributed a pioneering work about the adoption process. A sizable amount of work has been done in areas of agriculture by rural sociologists. The remarkable work of Ryan and Gross (1943) in rural sociology on the analysis of the diffusion of hybrid seed corn giving wealth of data on the process of adoption by the farmers.

In India the rural sociologists have undertaken a large number of studies in the area of diffusion of agricultural innovations among the farmers. These studies are reflected

in the works of Barnabas (1955), Bose (1962), Bose and Basu (1963), and Sinha (1963). These studies deal with such problems as the adoption process related to socio-personal factors, characteristics of farmers, role of factors like ; age, education and size of farms, attitudes and beliefs of farmers in relation to adoption of improved farm practice; communication and diffusion process among farmers etc. In the field of industry, Danhof's (1949) categorisation of adopters into four categories such as (1) Innovators, (2) Initiators, (3) Fabians and (4) Drones, helped the other researches in the field in determining the characteristics of industrial firms. In the medical sociology the innovation/ studies consisted of either new drugs or techniques, where the doctors are the adopters; or polio vaccine, chest X-rays or other medical ideas, where the public is the adopters. The classical study in this tradition, well known as 'Drug study' by Katz and Menzel (1955) is quite alike with that of Ryan and Gross hybrid seed corn analysis is so far as its contribution to the knowledge of the diffusion of innovation is concerned.

But the innovative work that was conducted first in the field was exclusively confined with a particular aspect of innovation. In fields / like, rural sociology, industrial

engineering and anthropology the unit of adoption is usually the individual. The sociologists in their study considered a state, a city, a community or any other social organisation as the unit rather than the single individual. In the case of medical sociology, for drugs, and x-rays public is the adopter. These above researches have been conducted in different circumstances for different purposes. So, it is not useful to derive the knowledge from all these fields for the development of education in this area. In this connection, Bienenstok (1965) has rightly advised not to rely too much upon the findings of researches in other fields when dealing with changes in education, because the adoption of new educational practice is not necessarily influenced by the same factors nor does it follow the same course as the acceptance of new practices in other fields as agriculture, industry, anthropology and medical sociology. But it may be mentioned that knowledge so gained from other fields can certainly be helpful in planning researches in education and vice versa.

It can be safely concluded after reviewing the literature that, lead has been taken in this tradition by anthropologist, sociologists, and industrialists. From these fields only the idea migrated to the field of education on the basis of the fact that educational institutions are also organisations with some special features. Education does not enjoy-monopolistic

position. As a matter of fact, education owes much to various disciplines. Education is sensitive to time and place. Education changes according to the change in the society. Innovation and change have to take place first in the society then it percolates down to education through many activities in the society, in other words, through many subjects and through many fields and disciplines.

3.3 Educational Innovations

Innovations have been defined by various researchers. But the most acceptable definition is that it is an idea or a practice perceived as new by the adopter.

For every individual there is a chance of notifying something that will raise a doubt about an existing practice. The continuous thinking on that doubt will some times lead to a solution. That solution which promotes the improvement of the practice can be called as an idea or an innovation. The built in structure of an innovation may make itself incompatible to the organisation.

With regarding to the meaning of innovation: Oxford Dictionary (1933) defines innovation as 'the action of innovating, the introduction of novelties, the alteration of

what is established by the introduction of new elements or forms'. Barnett (1953) has defined innovation as 'any thought, behaviour or thing that is new because it is qualitatively different from existing forms'. Rogers (1962) defines innovation as 'an idea perceived as new by the individual. According to him, it is the novelty of the idea to the individual that determines his reaction to it. It does not matter much whether or not an idea is objectively new as measured by the amount of time between adoption and its first use or discovery. Miles (1964) defines innovation as a 'deliberate, novel, specific change, which is thought to be more efficacious in accomplishing the goals of a system.

It has been found that some innovations get diffused immediately while others take something like 50 years. From various studies it is found that there are certain characteristics which help an innovation in its rate of adoption. Rogers (1962) has identified the following five characteristics which influence the change process. They are -

1. Relative advantage - It is the degree to which an innovation is superior to ideas it supercedes.
2. Compatibility - It is the degree to which an innovation is consistent with existing values and past experience of the adopters.

3. Complexity - It is the degree to which an innovation is relatively difficult to understand and use.
4. Divisibility - It is the degree to which an innovation may be tried on a limited basis.
5. Communicability - It is the degree to which the results of an innovation may be diffused to others.

Rogers and Shoemaker (1971) have classified these characteristics in terms of relative advantage, compatibility, complexity, trailability and observability.

Havelock (1973) has suggested seven characteristics and classified them under two major heads. They are intrinsic and extrinsic. Intrinsic consists of scientific status of knowledge, value loading, divisibility, complexity and communicability, under extrinsic, compatibility and relative advantage were included.

Researches have been conducted on every characteristics of the innovation. The researchers found out that the innovations which are less divisible, less communicable, less compatible, relatively less advantageous and more complex are less congenial to innovation diffusion.

The research work on educational innovation was carried on specially in Columbia, Michigan and the other universities in America. The pioneer in the field of educational

innovation was Paul Mart whose research on the spread of new educational practices is worthy to be noted. Donald Ross (1958) has mentioned about 150 studies in the area of innovation and change. He is another land mark in this field who holds that teacher training institutions operate into two ways to condition the adaptability of schools; (1) indirectly by what they teach and (2) directly by means of services, meetings, publications, organisations, and movement which they initiate or practice. The majority of the diffusion studies were tried out at Columbia University, Teachers college under the able guidance of Paul Mort, who was called the 'Guiding Force' in all the educational studies. Donald Ross, Carl Kumpf, Paul Mort and Francis Cornell have contributed much, so far researches about innovation and change in foreign countries are concerned. Mort and Cornell (1941) found in their Pennsylvania study that it takes 100 years for the complete diffusion of an innovative practice after its first recognition as a need to be satisfied. Fifty years are taken to evolve the practice and the other 50 years are for the acceptance of the practice for the general use. Rogers has identified 6 major traditions which deal with diffusion studies. He has summarised more than 500 studies from all the research traditions including education. But

according to him, studies in the field of education contribute very little to the understanding of the diffusion of ideas. However, Rogers (1962) says, 'This tradition is probably of lesser significance in terms of its contribution to understanding of the diffusion of ideas. Strong inter-communication within the tradition has existed but until very recently, little attention has been paid to other diffusion traditions'. However, Roger's analysis of the adoptive process in different research traditions has proved useful even in the field of education and later research workers have drawn basic theory from his analysis of adoptive process.

3.4 Change Process

The bulk of literature related to change process operating in educational institution in particular and education in general reveals three major concepts, viz., (1) change agent, (2) adoption process and (3) institution innovativeness or adaptability. Apart from these concepts this research literature is mainly concerned with the causes for the successful or unsuccessful implementation of innovations in educational institutions with reference to the financial causes, staff characteristics, administrative factors, organisational climate, community characteristics and communication factors, which are having considerable

influence on the implementation or adaptability of an innovation.

3.4.1 Change Agents

The term change agent was first used in the year 1947 and henceforth, the term is widely used by the research workers in the field of innovation and change. Lippitt (1958) and other social psychologists with an interest in the dynamics of small groups gave wide popularity and meaning to the term 'Change Agent'. As Lippitt and others defined the term change agent, it is a person or an agency related to the development, introduction and adoption of innovations. According to Rogers (1962), 'He is a professional person who attempts to influence adoption decisions in a direction that he feels is desirable'. The literature of rural sociology has variously called this person or agency by such names as 'Local influential' opinion leader' 'key influential' 'adoption leader' or simply a 'Leader'. Ebey (1940) in his study found the principal to be the most important change agent. Skogsberg (1950) says that a superintendent in a key position can influence the development of the school due to his professional competency and the ways of approaching the problems. Ross (1958) reviewing the research studies done by different research workers on the

position of local administrations, commented that unless the superintendent over and above maintaining the schools as a going concern, puts into routine the seeds of creativity as well as improves the generalised capacity of his system to adopt, he can be said to be failing as the educational leader. Carlson (1965) too using the school superintendents as the adopter unit indicates 'though it is true that a school system as a whole accepts or rejects innovation, the school superintendent is at the focal point in the decision process regarding innovations'. Erasmus (1961) and Rogers (1966) have studied that success of change agent is positively related to the degree to which his programme is compatible with client needs. Ryan and Gross (1943) found that commercial change agents are more important at the trail stage than at any other stage of adoption process and they are more important for earlier adopters. Mort and Cornell (1941) studied nine adaptations in Pennsylvania and found that superintendent's role that of a leader in over half of the cases, he observed that the principals and superintendents have been working as change agents.

3.4.2 The Adoption Process

Adoption of a new idea or a practice is not a sudden decision. The adoption of a new practice by an individual it may be in education, or agriculture or industry is a complex behaviour. It is a result of a process through which the individual passes. The adoption process has been defined by Rogers (1962) as 'The mental process through which an individual passes from first hearing about an innovation to final adoption'. The adoption process is quite distinct from the diffusion process. The difference is that the adoption process is an individual matter whereas the diffusion process occurs among persons or among social systems. The diffusion process is the spread of an idea from its creation to its ultimate users or adopters. A person adopts an innovation. An innovation spreads or diffuses among the people or the social system. Strengthening the point that adoption is an individual matter, Rogers (1962) explained the adoption process as the adoption is one type of decision making. The adoption of an innovation requires a decision by an individual. He must begin using a new idea that the innovation replaces.

According to the available literature in the adoption process, the pioneering work in the adoption process was in

early sociology that of Trade (1903). He suggests that the adoption of new idea follows a normal 'S' shaped distribution over-time. This means that in the earlier stages only a few individuals adopt a new idea and then the number of individuals accepting the new idea increases and finally the rate of adoption slackens. In education diffusion tradition also it is found from the studies reviewed by Ross (1958) that adoption of educational innovations generally takes the shape of an 'S' shaped curve. Sheppard (1960) recognised that the interaction effect was a possible reason for the 's' shaped adoption distribution. The interaction effect is the process through which individuals in a social system, who have adopted an innovation influences those who have not yet adopted. Rogers (1962) compared adoption curve of a social system with that of learning curve of an individual. He argues 'if one substitutes a social system for the individual in the learning curve, it seems reasonable that experience with the innovation is gained as each successive member in the social system adopts it. Each adoption in the social system is in a sense, equivalent to a learning trial by an individual'.

The adoption process takes place by stage or stepwise in the implementation of an idea or practice. Ryan and Gross (1943) in their study of the diffusion of hybrid seed corn

among Iowa farmers recognised, perhaps for the first time, the existence of stages in the adoption process. They recognised four stages (1) awareness (2) conviction (3) trial acceptance and (4) acceptance or complete adoption. Wilkening (1953) who was first to report that adoption involves decision and that it is a process composed of stages or steps. He used 4 stages; (1) awareness, (2) obtaining information, (3) conviction and trial and (4) adoption. Later on he suggested only 3 stages. Those are (1) awareness, (2) decision making and (3) action. The concept of stages of adoption was supported later by several studies. There is however a general consensus on the existence of stages and that adoption is seldom an impulse decision. The same view is presented more recently by Griffin and Pareek (1970). They said that change tends to be accomplished through steps or phases. By this, we mean that the process through which a given innovation becomes an accepted part of the personality and way of working of individuals or of organised groups of individuals is usually evolutionary. Seldom does new idea or practice becomes accepted in one step, small or large'. While agreeing on the existence of stages in adoption, researches differed in nomenclature, number and sequence of stages. However, the

mostly accepted stages of adoption are those suggested by the sub-committee for the diffusion of Farm Practices, North Central rural sociological committee U.S.A. (1955). These stages of adoption process are : (1) awareness, (2) interest, (3) evaluation, (4) trial and (5) adoption. The opinion of Rogers (1962) appears to be reasonable in the controversy about the stages. He points out that there are not necessarily only 5 stages in the adoption process. It is simply that at the present time, there seems to be 5 main functions involved in the adoption process and each of these is assigned to a stage. The number of stages in the process is selected primarily on the basis of case of conceptualisation. Pareek (1962) after reviewing Rogers has suggested that 'Need' be added as the first stage. Again there is a lot of controversy over the issue whether 'Need' precedes 'awareness' or it succeeds 'awareness' in the process of adoption. Rogers (1962) opines 'perhaps one is faced with chicken and egg type of question, does a need precedes awareness or does awareness of a new idea create a need for that innovation. The available research studies do not yet provide a clear cut answer to this question, but tentative evidence suggests that the later is more common'. However, disagreement remains as to the sequence of the stages in the adoption process.

The stages concept has been widely used in the field of education for self initiated change by practitioners, recently known as Action Research. Corey (1953) initiated work in this area and suggested the following stages :

(1) Identification of the problem area, (2) selection of a specific problem, (3) formation of hypothesis, (4) careful consideration of action taken and the accumulation of evidence, (5) inferences or generalisations, and (6) continuous testing of the generalisations. The stages that have been used in India in Action Research are five. Those are : (1) problem identification, (2) hypothesis formulation, (3) hypothesis testing, (4) action procedure and (5) evaluation. The various studies in the field of adoption clearly show that adoption is seldom an impulsive act and that it consists of a series of events following through a period of time.

The researcher has also felt the need of referring some literature in the field of rejection of innovation, as he proposed at the outset to find out the factors responsible for the successful or unsuccessful implementation of innovations. Allen's (1956) study explains the time lag theory in relation to education. He observed that, 168 schools in America took 60 years to adopt innovation while the adoption of an innovation to train the drivers of a motor car took only 18

years. This study gives the following reasons why the time lag is wide in adopting innovation in Education : (1) want of change Agents (2) lack of scientific knowledge of innovations, and (3) need of economic motivating factor. It does not happen always that all the innovations are adopted. Sometimes they are rejected also. Kelley (1960) find out that the 'Grade taught' and the years of teaching experience were found significant factors in either the adoption or the rejection of an innovation. Studies on rejection gave the following factors that help rejection. (1) Rejection through ignorance, (2) Rejection through default, (3) Rejection by maintaining the statusquo, (4) Rejection through societal mores, (5) Rejection through inter-personal relationship, (6) Rejection through logic, (7) Rejection through substitution, (8) Rejection through fulfilment and (9) Rejection through experience. Beal and Rogers (1960) as well as Ryan and Gross (1943) found out in their studies that the rate of awareness knowledge for an innovation is more rapid than its rate of adoption. Ralph Haber's (1961) study of the adoption of language laboratory among high schools in U.S.A. tells that earlier adopters try innovation on a smaller scale than later adopters. Ross (1958) in his study emphasised the seriousness of the need for an innovation as an indication of its relative advantage. He

reviewed a number of studies in 1958 and came to the conclusion that the most closely related variable to innovativeness is wealth. Lionberger (1968) reviewed that the early adoption take much time throughout the stages than the later adoption.

3.4.3 Innovativeness

The innovativeness of an institution depends on how much freedom does it enjoy to make decisions to experiment, try and adopt new ideas and practices. Not only the freedom from the external imposition of decisions does make a favourable climate for the adoption of innovations but also the system within the organisation needs to be made receptive to new ideas and practices. If every^{ing} member has the freedom and thereby develops a will to try himself and identify his personality with the practice that he is called upon to implement, there is every likelihood that he will strain every nerve to adopt and maintain innovations. Innovativeness according to Rogers (1962) is essentially a synonym for adaptability. The majority education diffusion studies have been done at one institution - Teacher's college, Columbia University, under the sponsorship of Paul Mort. Mort's overriding purpose was to demonstrate the significance of local control of education in influencing the adaptability of school districts in general. According to Rogers (1962) Mort has defined adaptability as 'The capacity of a school system to

take on new and more appropriate educational practices and discard outmoded ones'. Thus, innovativeness is seen as a desirable quality of educational institutions. Advocating the need and importance of adaptability Mort and Cornell (1938) wrote, 'To operate schools today in terms of the understandings of half a century ago, is to waste school funds and school time. Adaptability or the capacity to meet new needs by taking on new purposes and new practices is indispensable to the effective functioning of any school system'. Mort and Cornell's 200 studies on adaptability were published in Mort and Cornell (1938) 'Adaptability of Public School Systems' based on Mort's finance studies and state structure of schools. This work has made valuable contributions. They suggested the probable factors controlling adaptability and gave definite suggestions on how it should be studied. It has also defined the concept of adaptability and explored the ways by which adoption process can be studied. Later on taking clues, Mort and Cornell (1941) completed an extensive study of school adaptability in the State of Pennsylvania. They tried their best to find out and analyse each and every variable that can be suspected to have its impact on the adaptability of the school system. This study identified 67 factors influencing adaptability. Once the concept of

adaptability was defined, a number of studies mostly at the doctoral level followed. During the early forties a number of tools were developed to measure the school quality in terms of the degree of adaptability. The most prominent amongst these tools developed by Mort-Vincent and Newell (1945) is 'Growing Edge' for elementary and secondary schools.

With the availability of different tools to measure the school adaptability, a number of studies have been designed and conducted which were concerned about finding the relationship between educational adoption and a large number of other variables like ; the type of administration and the school adaptability; other factors stimulating or retarding adaptability. Researchers have studied innovativeness in relation to either internal socio-psychological factors in the school system like, characteristics of principals, staff and the organisational climate or some external supporting factors lying outside the school system like community and other extraneous aspects.

3.5 Factors

Some of the major factors of a general nature which have been studied by a large number of researchers are reported under the following sub-headings :

- (A) Financial factors
- (B) Staff factors
- (C) Administrative Factors
- (D) Organisational climate factors
- (E) Community Factors, and
- (F) Communication factors.

3.5.1 (A) Financial Factors

Many researchers have conducted studies on the financial factors, how far they are influencing the adaptability of an educational institution. Mort (1941) found a definite relationship between expenditure and quality education and indicated that the single most influencing factor in school adaptability is the Money that is spent per pupil. According to Ross (1957) the best single predictor of innovativeness among schools is educational expenditure per pupil. Ayer (1952) in his study of certain characteristics related to the quality of education found that the money that is spent per pupil is the most influencing factor in school adaptability. Campbell (1956) gave the conclusion that money spent to purchase things to enrich the curriculum was extremely important in promoting adaptability. Laverne Marcum (1968) found significant difference between expenditure incurred per

student in most innovative and least innovative schools. The level of expenditure was higher in most innovative schools.

Researches that have been completed in education have come out with some valuable conclusions on educational change process and innovation although some time conflicting. Mort (1946) and Ross (1958) both have come to the same conclusions that the adoption of an innovation is related to the expenditure pattern of the school. Carlson (1965) does not agree to this finding. According to him there is no consistency between the money spent and the number of innovations adopted. From his study of Alleghany County and West Virginia schools, he found that expenditure level is not a powerful predictor of the amount of acceptance of new educational practices at least as far as his sample school systems were concerned. On the contrary, he found that administrators are only the powerful factors in the adoption of educational innovation.

3.5.2 Staff Factors

The Pennsylvania study indicated some issues of interest which were taken up by the Metropolitan school study council (MSSC) research personnel in the early 1940, among those, the issues of staff characteristics which believed to be carrying considerable weightage on adaptability. Buley (1947) used the information about staff characteristics obtained through the

use of 'Dynamic manual' in M.S.S.C. schools. He studied the areas like age, variety of experience, interest, property and reading habits of the staff in relation to school adaptability. Eastmond (1951) worked on Buley's study in order to determine the factors which are fundamental and are related to the production of a high quality of educational programmes. He identified 6 factors relating to the high quality of education; (1) maturity, broad interest (2) high professional training and diversified background, (3) stability and security, (4) outside of school interest, (5) independence and (6) age out-breeding. These six factors contributed approximately 82 percent of the variance of the adaptability measure. Biekert (1968) studied organisational values and characteristics of school systems. He found that the classroom teachers from innovative school systems showed a relatively high degree of satisfaction with the instructional programmes than non-innovative school teachers. Laverne (1968) and Bhogle (1969) found out in existence or otherwise of relationship between age, years of service, experience in the profession and sex of the staff and the acceptance of innovation by schools. Gallaher (1965) suggested that the better teachers in a given school are more likely to accept innovations

than the poorer ones, the more educationally secure members of the client group are more likely to accept innovations. As Rogers (1965) is one of the leading authors in diffusion studies, he advocates that an individual teacher influences the innovativeness of the school system. Allowing teacher to attend out of town educational meetings, workshops, conferences where they may be exposed to new ideas, may be a wise instrument for initiating change. In 1966 a study was conducted by Rogers (1966) and others through the sponsorship of Michigan State University which served as a pilot study for the main study conducted in Thailand. Both the studies show that age, faculty cohesiveness, feeling of security, knowledge about the innovation, more years of education are positively related to the adoption of innovation. Chester and Barakat (1967) have found that the teachers who suffer from a fear of failure resists the new practice whereas the teacher who feels competent also does not accept them because the innovations threaten his achieved status. Jani's (1963) reports that individuals with low self-esteem and confidence are more susceptible to persuasion and they conform to the group norm. In case the group decides to resist or facilitate the innovation the individual will only be a part of it. Radcliff (1967) in his study found that teachers are reluctant to relinquish

the security of the old and familiar ways. Some teachers have reservations about using one programme for the other. Some are reluctant to change the role.

Miller (1965) observed that inadequate teacher education programmes are great inhibiting factors than realised. He developed an inventory on change proneness feeling that change proneness is an important attribute for the success of an innovation among the staff members particularly, because they are the responsible persons to carry out the innovation successful as far as the academic innovations are concerned. He observed that teachers are not prepared for change. They show sometimes a great amount of reluctance to accept the existing challenge. He also found that inadequate knowledge about the process of change is a major obstacle for the implementation of innovations in education.

3.5.3 Administrative Factors

In an educational system generally the superintendent or the principal plays a significant role so far as adaptability is concerned. It is he who can make or unmake the school by his behaviour and attitude. The most important factor in change role is access to ideas and concepts of others. An administrative structure which operates to inhibit the free

flow of ideas and leadership acts, retards the growth and orderly change of the organisation. So there must be some one in the organisation to decide for change or be intrigued with a new idea and help someone else to decide to effect change. Many researchers have studied the characteristics of the principals or superintendents as they thought them to be in the key position of the adopter process. A number of studies on the different aspects of the principal's personality and its impact on school innovativeness are found. In a hierarchical organisational arrangements like an educational system the superintendent or the principal of the school is believed to be the key person for entire innovation process taken shape in the school. Ebey (1940) undertook a study of the white elementary school of St. Louis to find out the factors most conducive to adaptability. He found out that the principal's educational opinion to be the most significant factor affecting adaptability. He further suggested that for any principal, renewal of training is necessary to be innovative. Carlson (1965) studied various characteristics of the superintendents in 53 schools and found that superintendents who have friendly contacts with other superintendents tend to be adopters; while superintendents who are socially isolated tend to be non-adopters. According to him the innovators are young, have more professional education, have

attended more professional meetings and more professional minded, interact more with persons, with high professional ratings. Marion (1966) related personal characteristics like anxiety, dogmatism, mental rigidity, amount of education, professionalism, cosmopolitaness, and opinion leadership to the innovativeness of elementary school principals. He concluded from his findings that the innovative principals tend to be younger, more cosmopolite, more professional oriented, and more influential among his fellow principals. Further, the innovative principal tends to be mentally flexible viewed as high innovator by other principals and has recently taken university courses. Berthold (1951) study emphasised a clear understanding of psychological and sociological considerations behind the change from the principal. He believed that a dichotomy between the actual understanding of the educational problem and the implementation of certain practices by the principal generally brings lag in the educational system.

Collins (1951) investigated and found out that the school adaptability depends very much upon how the principal made use of the human resources. Johnson et al (1967) found that the high innovative superintendents are significantly more outgoing, more ventureous, more imaginative, more experimenting, and more relaxed than the low innovative

superintendents. Important work on leadership behaviour in the educational setting, using a role analysis approach, has been carried out by Guba and Getzel, (1957) and Getzel (1953). They have postulated three different types of leaders. The 'Nomothetic', the 'Ideographic', and the 'Transactional'. The nomothetic teacher stresses institutional requirements, believes his authority to be vested mainly in his office, places heavy emphasis on rules and procedures and tends to ignore follower needs. While the ideographic leader on the other hand, stresses the demands of the individual needs and personality, and tends to minimize organisational requirements. While the transactional leader confines elements of both the above mentioned types and represents the 'Ideal'. Other dichotomies like the 'Traditional Progressive', 'Traditional Co-operative', 'Authoritarian - non-authoritarian' have also been frequently used. Chester, Schmuck and Lippitt (1963) in their study found that principal was the key factor in encouraging innovations in the schools. They found that schools where the teachers found the support from the principal in taking up new innovations reported 5.2 innovations per teacher, whereas in the schools where the teachers did not find any such encouragement reported only 3.5 innovations per teacher.

Gallaher (1965) strongly advocated that the school administrator should not push an innovation for acceptance by his staff. He feels that the principal must serve as a mediator of an innovation both inside the staff and between the school and the community. Glines (1973) reports that non-involvement of staff and students in decision making by the leader is obstructing the implementation of innovations in schools.

3.5.4 Organisational Climate Factors

Every organisation maintains a dynamic equilibrium characterised by relationships between individuals, groups, and followers. In the educational system also, the teachers, principals, superintendents or other administrators do not work in isolation but in organisational system in a social milieu only. Organisational climate manifests in the extent to which and the manner in which each member of the institution accepts his responsibilities, exercises his rights and authority and performs his duties. Members should carry out their duties and responsibilities carefully for the well-being and effective functioning of an organisation.

Miles (1965) suggested that organisational dynamics should be the focus of attention in any study on adoption of innovations. He states that attention to the structure and

functioning of educational organisation becomes essential if the processes of educational improvement are to be understood and controlled in any coherent way. Bickert (1968) studied organisational values and characteristics of innovative and non-innovative school systems. He found out that the teacher's work as a unit affects school adaptability. Laverne (1968) from his study of organisational climate and adoption of educational innovation concluded that there is a significant difference between school climate for the most innovative and least innovative schools. Schools involved in innovation shows open climate. Bennet (1968) studied the relationship between organisational climate and their dimensions with the number of educational innovations adopted by the secondary schools. He also established the fact that with higher production emphasis, there were greater number of innovations in the system. Bemberger (1970) in a study on organisational climate, faculty belief system and their relationship with the rate of adoption of educational innovations found a significant positive relationship between the degree of openness of the organisational climate and the degree of openmindedness of the faculty belief system. Miller (1965) from his study could conclude that higher level of pupil achievement was found in schools where the teacher's behaviour was characterised by high

level of social needs satisfaction.

Robert Rice (1968) tried to find out relationship between organisational climate and student achievement in 80 schools from a large California School District. He could not find any relationship between students achievement and the organisational climate of the schools. Sharma (1968) studied the relationship between the school achievement index and organisational climate in the State of Rajasthan. He found high positive correlation between autonomous and open climate and school achievement index. Roosa (1969) studied organisational climate, leader behaviour and their relation to the rate of adoption of educational innovation. He did not find any positive relationship between adoption of innovations and openness of organisational climate. In his study a significant relationship was found between (1) the age of the chief school administrator and the amount of consideration shown for the staff. (2) The length of the chief school administrator's experience on the job and the rate of adoption of innovations and (3) the expenditure per pupil and the rate of adoption of educational innovations.

3.5.5 Community Factors

As education is a sub-system in the community, it should not deny to satisfy the needs of the society. Moreover, society

has got influence in shaping the education system. The existence and the fruitfulness of education lies in the development of the community. So much research has been done in this area. Some of the pertinent researches are presented here.

McCormick (1949) found out that public understanding of the power of education is closely related to the adaptability of innovations in schools. Mort and Cornell (1938) found significant relationship between the community characteristics and quality growth in schools. Hedlund's (1947) study is of great help specially to administrators in evaluating the understanding of the public towards education and change. Britton (1947) made a study of various groups such as teacher associations, pupils associations, women associations and found out that such groups are less congenial to innovation diffusion.

Gallagher's study (1949) shows the importance of having a thorough knowledge for the principal about the friendly as well as unfriendly organisations connected with the school systems. According to him the study helps in tackling such organisations while introducing new changes. Bholra's (1965) findings have emphasised the need to recognise physical, social and intellectual environment

in studying the innovation. The environment may be of three types (1) supportive (2) neutral and (3) inhibiting the innovation. Too much supportive environment is also not desirable because the change in such environment is too fast and there is every possibility that before any measurable result is attained it is pushed back by new innovations. Feldvebal (1964) found that schools in the disadvantaged areas showed less open climate while introducing the changes in the school systems.

3.5.6 Communication Factors

The nature of diffusion process for an innovation within a system largely depends on the nature and amount of communication operating among the members of the system. The direction and the amount of communication provide the conducive climate for innovations to diffuse between or within the systems. The problem of communication within the institution is also an important impediment to change. Researches have suggested hierarchial structure, channel overloading, ecological impediments and coding discrepancies as situational factors inhibiting the innovation process. The category of communication includes different dimensions like, amount or frequency of communication, change agents and extension methods, nature or direction of communication pattern.

The communication net work of teacher, principals and D.E.O's were studied by Rogers, Joyce et al (1966) and in most of the cases they found a significant positive relationship with the innovative behaviour of the respective categories. Lin-Nan-law, et al (1966) also studied the perception of communication net work of teachers and its relationship with their innovative behaviour in the three schools of Michigan. They found that horizontal communication about the innovation has got insignificant positive relationship with the innovative behaviour of teachers where as perceived frequency of vertical communication and general horizontal communication are not related to it. Communication channels of diffusions were studied by Van-den-ban (1964) and he comes to a decision that mass media channels are often important to make others aware of the new idea where as inter-personal channels are important in changing attitudes towards innovation. Beal and Rogers (1957) and Leuthold (1960) worked on cosmopolite information services and have come to the conclusion that cosmopolite sources are most important at the awareness stage whereas localities information sources are most important at the evaluation stage.

3.6 Indian Studies on Implementation of Innovations

In India, much attention has not been paid to the work in the field of implementation of innovations. The first

national seminar organised by the NCERT in the year 1966 on educational innovation has identified the area for investigation. Since then some researchers have undertaken studies in this area.

Subba Rao D. (1967) has conducted the first research study at the doctoral level in this area to find out the factors that contribute for the promotion of innovation in secondary schools. He came out with the findings that more innovative schools have better facilities, more audio-visual aids, special rooms, books and magazines for students and staff. Lack of these facilities in any other way is one of the inhibiting factors for innovativeness. He also found that single sex institutions are more innovative than co-educational schools. Schools with higher class-teacher ratio, students strength between 500-750 and under the Management of University, missionary and industry are more innovative. Academic and professional qualifications of the headmaster influence the diffusion process.

Bhogle's (1969) work on psychological and organisational correlates of acceptance of innovation by schools is also one of the earliest attempts in diffusion studies in India. She studied the influence of some social psychological and organisational factors on the readiness of the staff to accept

changes in high schools. She found that headmasters having democratic and favourable attitude towards teaching more experienced, drawing high salary, having low role conflict are more innovative. Older the head more adoptive he is. She also found that cosmopolite and older teachers are more ready to accept innovations. Large and multi-purpose schools are also more adaptive.

Joshi (1972) in the field of teacher education made a comprehensive study on innovation and change. He has tried to find out what types of innovations have been adopted by training colleges in India with regard to theory courses, practical teaching and methods of teaching. He has made a comparative study between the colleges of the U.S.A., the U.K. and the South East Asian countries with the Indian Teacher Education Institutions. Buch's (1972) efforts have been centred around finding out the conditions that promote adaptability in Indian schools. Her investigation is mainly concerned with the principals' characteristics as related to school adaptability. She found no relationship between school adaptability and variables like experience, long duration of service in the same school and role satisfaction of the principal.

Kamala Rai (1972) attempted to identify factors which are related to the diffusion process within the school system.

The study focussed mainly on the characters of the teachers that are associated with the 'time of awareness of an innovation, the time of adoption, internalisation of the innovation and the process of self-perceived change orientation. Influence of 30 variables on these four dimensions of the diffusion process within the school was studied. Her results indicated that teacher's characteristics do not predict the diffusion process to a considerable extent.

Bhagia (1973) conducted research on the perception of characteristics of innovation as related to their diffusion in schools of Gujarat. The study is an attempt to find out whether the adopters and non-adopters have different reactions to the same innovation and whether all of them have different reactions towards innovations with varying amount of diffusion. She found that the perception of 20 specific characteristics are significantly related to the diffusion of innovation in general. The^y~~se~~ are, academic, effectiveness, complexity, diversibility, efficiency, facilitation, meaningfulness, practicability, prestige, relative advantage, structerism and communicability etc.

Buch and Buch (1973) conducted a study on change in secondary schools of Gujarat. The major focus on the areas of change are curriculum reconstruction, adoption of new

methodology of classroom teaching, examination and evaluation, vocational guidance, teacher training etc. They found in this survey that the reasons for not introducing an innovation are teacher's negative attitude, lack of efficiency, shortage of funds, non-availability of resources. They have also identified the reasons for discontinuing an innovation. They are, transfer of teachers in-charge, loss of interest of teachers, loss of zeal, found to be more time consuming than expected and burdensomeness on the part of the teachers.

Ashma (1973) conducted her research on a study of the factors related to innovations and change in the secondary schools of Bulsar and Surat districts. She studied various factors like administrative factors, staff characteristics, organisational factors, financial factors, community factors and the role of other agencies as factors and their relation with the innovativeness of the secondary schools.

Marmar (1975) studied the barriers to change in secondary education. He studied all possible resistancies to change and innovation. The study aimed at locating the barriers to educational change through indepth studies in D.E.O's role as resource system, communication between the

resource system and the adopter system, social organisation of schools and the innovation management process in the schools.

Tribhuvan Singh's (1975) study is an attempt to present an up-to-date picture of teacher education programmes in terms of the adoption and maintenance of innovative ideas and practices. The study involved the sample drawn from the secondary teacher training institutions from 17 states and union territories in India. The head of the institutions, teacher educators, the student-teachers, were the respondents.

Singh (1975) has studied the forces that inhibit the adoption of innovation in the preparation of secondary school teachers. He found that 23 percent of all difficulties were of financial nature, whereas indifference of students and staff was to the tune of 22 percent and administration difficulties amounted to 21%.

B.R.Panchal (1977) the study aims at preparing innovative proneness scale for teacher educators which intends to find out to what extent teachers show readiness to new ideas and changes, how they behave when the changes are assimilated in their institutions and where they stand on change related values scale. He has taken the entire 40

secondary teachers training colleges of Gujarat as samples and in all 200 teacher educators responded. He found out that M.Ed. degree shows significant concern with teaching learning process.

Purushothaman (1978) has studied the case studies of innovative institutions at secondary level in Tamil Nadu state. He has taken innovative and non-innovative secondary schools as sample from Tamil Nadu state and found out that what factors are contributing for the successful functioning of innovative schools and what factors are contributing for the unsuccessful functioning of the non-innovative schools.

Susheela D.Narsian (1978) conducted her research on the innovations in higher education in India. All the twelve universities selected by the U.G.C. for tryout of the innovation of Examination Reform were surveyed by her. The population of the sample was the administrators, Deans/Heads, teachers and students of the twelve universities. Questionnaires, structured and semi-structured interview schedules were used to collect the necessary information. The study revealed that the efforts made through resource system have proved effective but the administrative formalities, structural rigidities and the financial limitations have proved barriers to change.

Sharma R.C. (1979) conducted his research on a study of the characteristics of the resource system and the process of developing and communicating innovation and their impact on adoption process. It is a descriptive-cum-correlational study. He attempted to study the characteristics of the resource system, the process of developing innovation, the process of communicating innovation and to find out their impact on the level of adoption of an innovation.

Except Susheela D.Narsian (1978) all other researchers have mainly taken up either the school or the teacher as an unit of analysis.

3.7 Planning for the Present Study

The above review of literature, clearly indicates the paucity of research in the area of diffusion of innovation in higher education in India. Whatever studies that have been reported are concerned with the secondary stage of education. The researchers have concentrated their efforts on the adopting unit. The adopting units are either individuals or the schools. The Indian studies when Rao (1967) Bhogle (1969), Joshi (1972) have concentrated on organisation as unit, Buch (1972), Bhagia (1973) have studied principals as unit. Rai (1972) has studied teacher as the unit.

So, in India, it is clearly evident, that no research has been conducted in this important area of higher education. Generally the development of the country, in all respects, is closely related to the development of the education, particularly the field of higher education, which has to shoulder the responsibility of Nation-building task. The sustained efforts of the government and the educationalists are not in a position to create an element of confidence in the minds of the public that our higher education has reached a stage where it can satisfy the needs of the country. The government is voting crores of rupees for the development of higher education, but the magnitude of change is still in its questionable stature. Innovations are many, but the amount of change is not perceptible. For this educational lag who is responsible or reprehensible ? To solve this question nobody has taken this field of education for investigation. As it is an important study, the present investigator has taken up this problem as 'a critical study of the implementation of some innovations in higher education in the Andhra State in India'. Though the nature of the study warrents to extend its scope to all the universities in the country, for want of time and money, the jurisdiction of the present study is limited to the State of Andhra Pradesh only.

The next chapter deals with the presentation of Case Studies in all the six universities of Andhra Pradesh.
