

CHAPTER II

A CONCEPTUAL FRAMEWORK FOR THE STUDY OF INNOVATIONS

1. Introduction

In this chapter an attempt has been made to delineate the theoretical framework within which the selected innovations were studied, data analysed and findings drawn. The basic terms have been defined and the relevant theories, approaches, strategies and models relating to change and innovation briefly enunciated, they being sources of illumination as well as support.

2. Innovation- Definitions

'Change' is one of the fundamental principles of Nature and a fact of life, and it signifies the partial or complete alteration of an item in form, quality or relationship. It denotes the idea of making something different in one or more particulars. Guba (1968) has described change as causative of "some perceptible differences in a situation, circumstance or a person, between some original time t_0 and some later time t_1 ". On the other hand according to Miles (1964)

innovation can be defined "as a deliberate, novel, specific change, which is thought to be more efficacious in accomplishing the goals of a system". Barnett (1953) views innovation as "any thought, behaviour or thing that is new because it is qualitatively different from existing forms". While change can be unplanned, incidental and value-free, innovation, as Richland (1965) puts it, is "a creative selection, organisation and utilisation of human and material resources in new and unique ways which will result in the attainment of a higher level of achievement for the defined goals and objectives". Havelock (1973) points out:

When we use an expression like 'innovation in education' we think we are talking about something positive, a change for the better, or something that is both new and beneficial.

Thus innovation is viewed as a conscious and planned act of intervention to improve practice in the direction of legitimate and pre-determined objectives.

The potential contribution of an innovation to goal-oriented and value-directed educational improvement is clarified by Brickel(1963) in his definition of

innovation:

The entire process of generating a new form of educational practice. (along with the concepts underlying it and the materials needed to execute it); trying it in small-scale laboratory settings to get information for purposes of redesigning it, testing it in a variety of field settings (to discover what it will do under normal conditions), and disseminating it to prospective adopters (to inform and aid them in adopting it). Adoption, which must accompany dissemination, (dissemination is sending; adoption is receiving) is also included in the definition.

The process of change, according to Havelock (1973) has four distinct components - the resource system, the communication channel, the innovation and the adopter system. The resource system is the reservoir of new ideas and practices and the originating point of change - oriented messages. The communication channel routes the new ideas from the resource system to the adopter. Innovation is the new idea that is transmitted from the resource system and the adopter system is the acceptor and practitioner of the innovation.

Adams and Chen (1981) made a distinction between the two terms 'innovation' and 'reform'. Innovation is

"any persisting change in the pattern of behaviour of members of an identifiable social system". As innovations represent departures from customary practice they result in new activities by some people. They cannot be just transitory phenomena, but should be sustained activities in terms of a span of time. Any innovation is innovatory in relation to its context and only innovatory in its own context. What is an innovation here may not be that there. On the other hand 'reform' is an innovation writ large; every reform is an innovation first and then it pervades the system. When a new practice is incorporated into the structure of a system and becomes implemented it attains the status of a reform. Reform is thus, an innovation that is in widespread use throughout a specified target population.

Meierhenry (1966) has suggested a taxonomy of simple to complex types of innovations :

- (i) Abortive Attempts: a new practice is advanced and advocated by some practitioners, but vanishes after some time.
- (ii) Substitution : Types of material or hardware in use are replaced by similar types of material or hardware; the system remains fundamentally unchanged.

- (iii) Perturbation and Variation: Different emphases without change in major directions.
- (iv) Restructuring: Basic social changes that make a new practice acceptable and permanent.
- (v) Value Orientation: Major shifts in value system that allow an innovation to proceed.
- (vi) Creation of a New Structure: Entirely new structures created prior to the implementation of the innovation.

3. Models of Change

The process of innovation, for its effective completion and consummation, requires certain conditions which should already exist in the system and/or should be provided in the system with respect to "who does what, with what, to whom, where, when, in what manner and why and with what effect". Such conditions relate to the personnel to be employed; the specifications of what the actual task is; the method, strategy or procedure to execute the task; the equipment needed, the plants, buildings, environment needed; the cost entailed; the other people or other social contexts that

the innovation impinges; the time involved; the scheduling or sequencing or coordinating of activities; the rationale for undertaking the innovation and the evaluation of the consequences or results of the innovation. Three points of view with regard to the dissemination and utilisation of knowledge have been represented in the models, theories and analyses of different authors (Havelock et al 1973):

3.1 Research, Development and Diffusion Model

First Brickell (1961) and later Guba and Clark (1965) proposed a schematic continuum of change in education, from theory to practice, encompassing sequential areas of activity - research, development and diffusion.

Research:

The objective of research is to advance or extend knowledge and it provides a basis for innovation if any one opts to utilise its findings and is creative enough to develop an application from it.

Development:

It has two components - invention and design.

Invention implies formulating a new solution to an existing problem based on research, experience or even intuition. It represents the initial conceptualised form of the innovation. Design involves engineering an innovation package. According to Guba (1968) development is the heart of change since while the former makes change feasible, the latter produces an adoptable innovation.

Diffusion:

This phase of the change process has two parts - dissemination and demonstration. Dissemination helps to inform, to create widespread awareness of the innovation among practitioners. By demonstration, an opportunity is given to prospective adopters to examine and assess the operating qualities of the innovation, and to build up conviction.

Adoption:

The components of this final phase are trial, installation and institutionalisation. During the trial stage the practitioner acquires familiarity with the innovation as a result of which he is able to assess its value, quality, fit and utility in his institution. If this testing is successful installation follows so as to fit the characteristics of the innovation with those of the institution. Institutionalisation completes the

adoption process so that the innovation becomes an established and integral part of the system.

Havelock (1973) has identified the five characteristics of this model as follows:

- It assumes that development and diffusion should be a rational, sequential process.
- It presupposes planned, and coordinated research and development activities.
- It requires division of labour and separation of roles and functions.
- It implies a specific and responsive user or consumer.
- It involves high initial development costs.

This model has been described as the most systematic conceptual categorisation of processes related to educational innovation, and as a grand strategy for planned innovation. Innovation projects planned and executed in conformity with this model display the following common elements.

- Careful advance planning;
- Innovation packaging;
- Careful identification, selection and preparation of target;
- Multi-media presentation;

- Active user involvement;
- Systematic followup; and
- Experimental evaluation and documentation.

Sometimes the 'high performance' innovations based on the R, D&D model are diffused through fiat leading to legislated and administered change. In some cases strategies based on R, D&D result in what Watson and Glaser(1965) have called "innovation by fiat accompli", in the sense that such innovations are installed, summarily by the change agent without prior consultation or awareness-building. This model is also conducive to "systems analysis" approaches to innovation. Some of the propositions derived from the R, D & D perspective are worth noting (Havelock and Havelock 1973):

- Successful innovation usually requires formal planning, short-term and long-term.
- Innovation is made more effective if there is rational division of labour to carry out the necessary functions of diagnosis, information retrieval, research, development and application.
- Effective utilisation of complex innovations must be preceded by coherently coordinated research, development and evaluation.
- Innovation is more effective when innovators start out by stating their objectives or desired outcomes in behavioural terms.

- Innovation is more effective when evaluation, preferably in formal quantitative terms, is employed at each step of development, diffusion and installation.

3.2 Social Interaction Model

This approach is based on the pattern of diffusion of innovations in a social system. Here the emphasis is on the personal contact of users in an adopting group and the dissemination of new knowledge that takes place through social interaction. Five generalisations relating to this approach are noteworthy (Havelock and Havelock 1973):

- i) The network of social relations to which the individual user or adopter belongs influences his adoption behaviour.
- ii) The centrality, peripherality or isolation of the user in relation to the network is a predicator of his acceptance of new ideas.
- iii) Informal personal contact has a strong influence on the adoption process.
- iv) Group membership and reference group identification are major predicators of individual adoption.
- v) The rate of diffusion through a social system follows a predictable pattern of very slow beginning followed by very rapid diffusion and a laggard period.

The adoption of an innovation by an individual or a user system is characterised by the sequence of awareness, interest, evaluation, trial and adoption.

Awareness:

At this initial stage the potential adopter is passively exposed to the innovation with varying degrees of acquisition of information and motivation. The incipient awareness ~~tends~~^{to} snowball gradually, owing to increasing exposure to multiple media or heightened interaction leading to development of a need.

Interest:

The realisation of the need and the growing motivation prompts the adopter to the next stage of 'interest' and he begins to seek more information regarding the innovation. However, he may still be non-committal or undecided about the utility and desirability of the innovation at this stage. At this stage, his search for information becomes more purposive and selective and the degree of psychological involvement increases.

Evaluation:

At this stage the potential adopter weighs the pros and cons of adopting the innovation in his context and conducts a 'mental trial', presaging possible acceptance of the new idea.

Trial:

This is a crucial stage at which the innovation is partially tried out in the local context or personal situation of the user. Its usefulness and functionality are closely observed and judgements drawn about its potential benefit or harm to the system. The outcome of this trial will either inhibit or embolden the user, with regard to the eventual installation of the innovation.

Adoption:

After the trial is evaluated the final decision is made either for or against the innovation, resulting in its adoption or rejection. At this stage appropriate adaptations or modifications of the form and content of the innovation may be effected to suit local conditions. Adoption leads to the internalisation and institutionalisation of the new concept or procedure or practice in the user system.

The following propositions derived from the social interaction perspective are significant:

- (1) Effective dissemination and utilisation are facilitated by informal opinion leaders, particularly when these opinion leaders are

innovative in orientation and have considerable influence over a large number of colleagues.

- (ii) The adoption of new ideas and practices is strongly influenced by the perceived norms of the user's professional reference group.
- (iii) Informal person-to-person contact is an important factor in effective dissemination, particularly when the user is at the trial stage.
- (iv) Individual adoption behaviour follows a sequence which includes the steps of initial awareness, evaluation, trial and adoption.
- (v) To achieve utilisation, a variety of messages, must be generated pertaining to the same innovation and directed at the potential user in a purposeful sequence on a number of different channels in a number of different formats.

The resource system must act synergistically, bringing together a variety of messages and focussing them in combination, in sequence and in repetition upon the potential user.

3.3 Problem - Solving Model:

When change is viewed as a problem-solving process,

the following stages can be perceived - need is sensed and articulated by the client or user; the problem is diagnosed and stated; search and retrieval of ideas and information that can be utilised in formulating or selecting the innovation, are conducted; the innovation is adopted, and its effectiveness is tried out so as to satisfy the original need. In this process the focus is on the needs of the user and their satisfaction and the role of the change agent from outside is consultative and collaborative by way of providing new ideas and suggestions helpful for the diagnosis or giving guidance in problem-solving at various stages. When the user is not aware of the real needs it is the function of the change agent to create an awareness of the need. The problem-solving approach has the following characteristics:

- The starting point is the user himself.
- Diagnosis precedes identification of solutions.
- The outside helping role is non-directive.
- The importance of internal resources is recognised.
- User-initiated change is the strongest.

The typical stages in this model of change are the following:

- (i) Translation of need to problems.
- (ii) Diagnosis of the problem.
- (iii) Search for retrieval of information.

- (iv) Adoption of innovation
- (v) Trial.
- (vi) Evaluation of trial in terms of need satisfaction.

Some of the major proponents of this orientation are Lippitt, Watson and Wesley (1958), Goodwin Watson (1967) Charles Jung (1967) and Herbert Thelen (1967).

Some of the propositions derived from the problem-solver perspective are listed below:

- (i) The user's need is the paramount consideration in any planned change activity.
- (ii) User's needs cannot be served effectively until an effort has been made to transfer and define those needs into a diagnosis which represents a coherent set of problems to be worked on.
- (iii) User-initiated change is likely to be stronger and more long-lasting than change initiated by outsiders.
- (iv) The user system should have an adequate internalised problem-solving strategy for need-sensing and expression, diagnosis, resource retrieval and evaluation.
- (v) Change agents work more effectively if they employ a non-directive strategy.
- (vi) Change agents are primarily helpful as process consultants and trainers.

3.4 Change as a Linkage Process:

"Linkage" has been suggested by Havelock (1970) as an idea that unifies and integrates the strengths of the three views of change process described above into a single perspective. The starting point of the linkage process of change is the 'user' who as a 'problem-solver' experiences an initial 'felt need', makes a 'diagnosis' and 'problem statement' and then proceeds through the stages of 'search', and 'retrieval' to arrive at a 'solution' and its 'application'. Simultaneously the user is meaningfully related to and is interacting with the resource system outside in a reciprocal relationship. As a result the resource system and the resource person simulate the user's need, simulate his search activity, and simulate his solution-application procedures. Reciprocally the user simulates the resource system processes such as scientific evaluation and product development. This leads to the formation of a social influence network which acts as a channel of useful information and facilitator of collaborative relationships.

Linkage is not merely a transaction between the user and the resource system/resource person. The latter will have access to other resource systems and resource persons/specialists. These widening contacts and cooperative efforts

culminate in a "chain of knowledge utilisation" (Havelock, 1969). The process of innovation in a society is expedited by the effective simulation-feedback relationship forged among the knowledge-building, knowledge-disseminating and knowledge-consuming subsystems of research, development, practice and usage. When these subsystems are brought into effective linkages, utilisation of knowledge takes place and the change agent has multiple roles in this activity as a diagnostician, information specialist, solution builder, evaluator, system monitor, innovation manager and process helper at the local, regional, national and international levels. Some important propositions derived from the Linkage View of change are the following;

1. To be truly helpful and useful resource persons must be able to simulate the user's problem-solving processes.
2. To derive help from resource persons (and resource systems) the user must be able to simulate resource system processes.
3. Effective utilisation requires reciprocal feedback.
4. Resource systems need to develop reciprocal and collaborative relationships not only with a variety of potential users but also with a large, diverse group of other resource systems.

5. Users need to develop reciprocal and collaborative relations with a variety of resource systems.
6. A willingness to listen to new ideas (openness) is an important pre-requisite to change. This applies both to resource persons and users.

Besides these four models of the change process, one needs to take note of the "conflict and crisis model of innovation". In education, innovations often lead to tensions and frictions between interest groups such as administrators and teacher unions or students; and such conflicts call for skillful management and resolution. Chesler and Franklin (1968) have suggested "training for negotiation" by which discussions can be continued and power relations equalised among belligerent groups. Change agents can thus perform "crisis intervention" in client systems, and bring about collaboration as a synthesis of conflicting interests.

4. Strategies for Change

'Strategies' constitute the set of policies underlying the tactics and instrumentalities that are envisaged, planned and executed to achieve specific and pre-determined objectives. Despite its military and hierarchical connotations the expression "strategies of change" is inclusive enough to embrace approaches and orientations

employed in democratic and participative group efforts or individual endeavours occurring in the field of planned educational change.

Three major strategies for implementation of innovations have been proposed by Bennis, Benne and Chin (1961): Empirical - rational strategies; Normative - re-educative strategies; Power - coercive strategies.

4.1 Empirical- rational strategies:

This set of strategies assumes that men are reasonable, that human actions are based on rationality and that innovations can be installed effectively if their intrinsic validity, comparative superiority over existing practices and enhanced beneficiality are convincingly

brought home to the individuals or groups concerned. Bennis, Benne and Chin (1961) have suggested the following illustrative strategies in this connection : (a) basic research and dissemination of knowledge through general education; (b) personnel selection and replacement ; (c) systems analysts and consultants; (d) applied research and linkage systems for diffusion of research results; (e) utopian thinking or forecasts of future scenario as motivators for change. The assumption underlying such strategies is that an innovation would be accepted

if its feasibility and advantages are convincingly proved or demonstrated. Empirical research data and findings relating to an innovation, if logically interpreted and channelled to the 'consumers', would facilitate its implementation, it is surmised.

4.2 Normative - Re-educative Strategies:

A distinctive feature of these strategies is that they are conceptually and operationally based on the client, his attitudes, values, skills and relationships. Implementing innovations, according to this approach, is not merely a question of utilisation of knowledge or technical information alone but of how the client is able to, or is enabled to, accomplish problem-solving. Of cardinal importance in this activity is the activation of human motivation and the energisation of forces within the system. Another characteristic of these strategies is the key role of the 'change agent' who functions non-directively with the client, assisting him in the change efforts, using the concepts and techniques of behavioural sciences. Bennis, Benne and Chin (1961) point out:

These strategies build upon assumptions about human motivation different from those underlying the first. The rationality and intelligence of men are not denied. Patterns of action and

and practice are supported by socio-cultural norms and by commitments on the part of individuals to these norms. Socio-cultural norms are supported by the attitudes and value-systems of individuals - normative outlooks which undergird their commitment. Change in a pattern of practice or action according to this view, will occur only as the persons involved are brought to change their normative orientations to old patterns and develop commitments to new ones. And changes in normative orientations involve changes in attitudes, values, skills and significant relationships, not just changes in knowledge, information or intellectual rationales for action and practice .. Intelligence is social, rather than narrowly individual. Men are guided in their actions by socially founded and communicated meanings, norms and institutions, in brief, by a normative culture. At the personal level, men are guided by internalised meanings, habits and values. Changes, not alone in the rational, informational equipment of men but at the personal level, in habits and values, as well as at the socio-cultural level, are alterations in normative structures and in institutionalised roles and relationships, as well as in cognitive and perceptual orientations.

These strategies can be of two types : (i) those aimed at improving the problem-solving capabilities of a system; and (ii) those aimed at releasing and fostering growth in the persons who make up the system to be changed. The former helps the client system to generate and/or strengthen its own problem - solving structures and processes while the latter assists people to discover their own potential for personal growth and problem-solving. In both instances the stress is on releasing the inner strengths and creativity of the system or the person and initiating action from within.

4.3 Power - Coercive Strategies:

This group of strategies are related to political - administrative decisions and approaches. They are resorted to frequently for control and modification of educational systems and procedures not only in authoritarian societies but also in democratic cultures. Power-coercive strategies rely on the use of legal, administrative and economic power as levers of authority and to enforce compliance to the requirements of proposed changes. When occasion demands, the use of moral power, sentiment, guilt and shame is also resorted to. Such strategies are well-known in the field of education, in a variety of manifestations such as Acts passed by legislatures, rules and regulations promulgated by national

and regional authorities, instructions issued by institutional heads and supervisors etc. Besides, in democratic societies political parties with definite ideological positions on educational issues and policies, also tend to wield their power, and influence decision-making processes. Exclusive reliance on these strategies for implementation of innovations can erode effectiveness, since changes in systems involve restructuring and modifications in the behaviour, values, attitudes and skills of persons. Such alterations are not amenable to coercion. Another characteristic of this group of strategies is that they rely on conflicts and power redistribution for achievement of their goals, rather than consensus. The manipulation of power may include use of economic factors such as payment or withdrawal of grants, conferment or denial of official recognition for degrees or courses and penalties and incentives to individuals or institutions for resistance or compliance as the case may be. In the context of the State being responsible for the management of education in most nations, political-administrative strategies become handy for the introduction of large-scale reforms in education, especially when such reforms involve redistribution of power among different interest groups. However, once such reforms are adopted through the mechanism of coercion or compulsion, other strategies

based on rationality and re-education of persons will need to come into play to ensure total installation and institutionalisation of intended changes. Guba (1967) has proposed a typology of implementation strategies : (i) value strategy, (ii) rational strategy, (iii) didactic strategy, (iv) psychological strategy, (v) economic strategy and (vi) authority strategy.

Their related diffusion techniques are telling, showing, helping, involving, training and intervening. Obviously these various sets of strategies and the related tactics and action plans can be of assistance to the process of innovation at different stages and for specific interest groups; and they are to be employed in judicious combinations or adaptations to suit local conditions and the objectives of the innovations.

5. Resistance to Change

Innovations rarely have a smooth passage; nor do they meet with summary acceptance by the members of the adopter system. On the other hand resistance to change is a normal occurrence.

Watson (1967) has identified eight factors that promote resistance to change : (i) Homeostasis - the tendency of an organism to maintain balance by reverting to earlier behaviour; (ii) Habit - perpetuated actions, words or operations blocking change; (iii) Primacy - earlier

impressions and experiences superseding subsequent ones;

(iv) selective perception and retention - the tendency to perceive phenomena and retain them in a selective manner, as they conform to one's norms or convenience;

(v) Dependence - especially on the attitudes and opinions of peers, colleagues and subordinates, owing to a sense of group identification;

(vi) Super Ego - the influence exerted by the sense of moral standards embedded in the super ego;

(vii) Self distrust - lack of confidence in one's own judgement and competence and the resultant fear of change;

(viii) Insecurity and Regression - the sense of apprehension and incertitude caused by the disruption of routinised behaviour and the reversion to old, familiar ways that are more comfortable and re-assuring. Eichholz and Rogers (1964) have referred to the following types of rejection manifest in educational situations :

(i) Rejection through ignorance;

(ii) Rejection through default;

(iii) rejection by the maintenance of status quo;

(iv) rejection through fulfilment;

(v) rejection through social mores;

(vi) rejection through interpersonal relationships; and

(vii) rejection through experience. According to Guskin (Havelock et al 1973) psychological characteristics associated with the sense of competence and self-esteem, authoritarian personality, values, needs, past experience, feelings of threat and fear

and self-fulfilling prophecies tend to generate resistance to change in individuals. Janis and Smith (1965), have concluded from an extensive survey of related literature that four strategies can be effective in overcoming attitudinal resistance - role playing; side attacks as different from hortatory or polemical arguments; preparatory communications and persistent communication effects in spite of resistance.

Participation of concerned individuals in the decision-making process and their active involvement in the implementation of decisions has been stressed by social psychologists. Such participation leads to commitment to group decisions. In the educational setting group resistance to innovations from factions of teachers or teachers' unions or students' associations is a usual occurrence and the proponents of innovations have to be sensitive to their concerns. If an innovation is unacceptable to the group the innovator and change agent need to prepare the group by group discussions on the proposed change, and by the involvement of the group or individuals in the planning and development of the innovation.

6. Factors Affecting the Innovation Process

The factors which facilitate or inhibit the flow of new knowledge and innovations through organisations have

been categorised into three groups by Havelock et al (1973): input (entering), throughput (internal processing) and output (existing). Organisations are continuously subjected to two competing demands - (i) the drive to maintain order and certainty; and (ii) the drive to innovate and improve. With respect to these two drives and their resolution certain factors function in facilitative and constraining roles.

6.1 Input:

Ten factors have been identified as inhibitive of input : (i) the need for stability; (ii) the organisation's unique input coding; (iii) internal social cohesion; (iv) the fear of malevolent outsiders; (v) the fear of personal threat to particular insiders; (vi) local pride; (vii) organisational status; (viii) overall economic condition of the organisation; (ix) the training and socialisation process for new members; and (x) the size of the organisation as a whole. The facilitative factors related to input are: (i) the reward value of the new knowledge; (ii) changes in organisational leadership; (iii) perception of crisis; (iv) specialised 'input' training; (v) importation of new staff members endowed with new ideas; (vi) and the installation of specialised innovating sub-units.

6.2 Output:

Relating to output seven inhibitive factors have been found to be operative : (i) the need for stability; (ii) inertia; (iii) complacency; (iv) perceived vulnerability; (v) inadequate organisational goal definition; (vi) perceived client readiness; and (vii) preferred danger to clients. The facilitative factors in this connection are : (i) free and open competition; (ii) crisis; (iii) affluence; (iv) internal openness; (v) organisational values which support quality output; and (vi) specialised output roles and subsystems.

6.3 Throughput:

The factors inhibiting the downward, upward and horizontal flow of new knowledge in the organisation are : (i) the division of labour and subgrouping of membership stemming therefrom; (ii) the specification and separation of specialised task roles; and (iii) the formation of an organisational hierarchy; (iv) innovation - suppressive reward patterns and training (v) physical separation; and (vi) traditional bureaucratic patterns of leadership. To smoothen the throughput of new knowledge, some strategies have been suggested : (i) developing a new style of leadership which includes a mix of technical, organisational and

human relations skills; (ii) conducting organisational development programmes; (iii) developing shared perceptions and superordinate goals with which all subunits could identify (iv) increasing genuine participation and influence-sharing up and down the hierarchy; (v) building overlapping subunits with multiple shared membership; (vi) providing for periodic job-rotation; (vii) creating specialists in the linking process; and (viii) generally restructuring the organisation to optimise the knowledge - flow function.

7. The Role of the Change Agent

The change agent has a linking, motivating, enabling and facilitating role in the innovation process. According to Rogers and Shoemaker (1971), the change agent is a professional "who influences innovation decisions in a direction deemed desirable". His involvement in the process of innovation spans its entire duration including diagnosis of the needs and problems of social systems, identifying solutions, arranging assistance, establishing change relationships, conceiving and implementing action plans for problem - resolution, evaluating the outcomes of the change effort and achieving a terminal relationship or institutionalisation. His function is to help others to help themselves. The following dimensions relating to the change agent's roles, functions and skills are relevant to education:

A change agent has a responsibility to stimulate and nurture 'change -proneness' in clients, which includes traits such as dissatisfaction with the status quo, self criticality, inquisitiveness about new ideas, desire for improvement and an experimental outlook and courage to try out new ideas and procedures. It should be the concern of the change agent to sharpen and strengthen the client's capacity for need reduction and problem resolution. He develops in the client such characteristics and skills as will enable it to be innovative in its own right and be self-propelling in its activities. Such skills relate to problem identification, planning, group dynamics, leadership development, mobilisation of resources, coordination and evaluation, conflict resolution, crisis-intervention etc. The change agent should possess a high knowledge base and a wide repertoire of skills, so as to inspire confidence in the clients, to deal with contingent situations and to provide professional guidance.

Havelock (1973) has identified four ways in which a person can function as a change agent - as a catalyst, solution giver, process helper and resource linker.

Rogers and Shoemaker (1971) have enumerated the positive attributes that make a change agent effective :

- (i) The extent of change agent effort-including persistence, high energy and commitment to work.

- (ii) Empathy with clients and client orientation.
- (iii) Credibility in the eyes of his clients.
- (iv) Higher social status among clients.
- (v) Higher education and literacy.
- (vi) Cosmopolitaness - meaning, gregariousness and frequency of contacts with persons and organisations outside one's place of work.
- (vii) Homophily with clients.

8. Consequences of Innovations

Consequences represent the products of the process of innovation, the achieved results, intended or unintended, the outcomes of the change efforts, the sum total of the successes and failures. Rogers and Shoemaker (1971) have defined consequences as the changes that occur in a system as a result of the adoption or rejection of an innovation. In educational systems such resultant changes include those which are tangible and quantifiable, as in the case of new teaching resources or improved scores in examinations; those which are visible as in the case of behavioural modifications of a group of students or the improved performance of an audio-visual aid; and those which are intangible but perceivable as in the case of the heightened sense of

inter-religious harmony in a college community.

Rogers and Shoemaker (1971) have classified the consequences of innovations into the following categories:

Functional	- Dysfunctional
Direct	- Indirect
Manifest	- Latent

The functionality of consequences indicates whether they are salutary or desirable for the adopter system; and dysfunctionality refers to the undesirable or deleterious consequences. Such functionality or dysfunctionality would be judged in terms of the legitimate interests and expectations of the adopter system as well as the objectives of the innovation; and they would be qualified by the dimension of time inasmuch as certain immediate results that appeared to be undesirable might turn out to be desirable in the long term perspective, and vice versa. Direct consequences occur as immediate outcomes of the implementation of the innovation while indirect consequences are the results of the former ones. Manifest consequences are those changes which are intended and perceived by the members of the adopter system and the latent ones those which are unintended and unrecognised by them. The quality and soundness of the consequences as perceived and evaluated

by the adopter system can be a decisive factor in favour of the permanent installation of an innovation.

9. Dissemination of Innovations

Havelock et al (1973) have identified seven general factors relating to the dissemination and utilisation of new knowledge:

(i) Linkage:

- The number, variety and mutuality of resource systems, user system contacts, degree of inter-relatedness, collaborative relationships.

(ii) Structure:

- The degree of systematic organisation and co-ordination of:
 - (a) the resource system
 - (b) the user system
 - (c) the dissemination-utilisation strategy
 - (d) The message.

(iii) Openness:

- The belief that change is possible.
- Willingness and readiness to accept outside help.
- Social climate favourable to change.

(iv) Capacity:

- The capability to retrieve and marshal diverse resources such as wealth, power, size, centrality, intelligence, education, experience, cosmopolitanism, mobility and the number and variety of existing linkages.

(v) Reward:

- The frequency, immediacy, amount.
- Mutuality of planning and structuring of positive reinforcements.

(vi) Proximity:

- Nearness in time, place and context.

(vii) Synergy:

- The number, variety, frequency and persistence of forces that can be mobilised to produce a knowledge utilisation effect.

The majority of knowledge-utilisation phenomena are related to these factors but there are also other important variables such as familiarity, primacy, status and values.

10. Innovators and Innovative Institutions

Innovators are a creative minority. They are the cutting edges of change. Miles (1964) portrayed them as strong, benevolent, high in intelligence and verbal ability, less bound by local group norms, more individualistic and creative, revealing authenticity and enthusiasm when attempting to persuade others, frequently rebellious, alienated, excessively idealistic, and prone to resistance,

resentment and defiance in the face of adversity and disillusionment.

Rogers (1965) has delineated the characteristics of innovators. They,

- have relatively high social status.
- value impersonal and cosmopolite sources of information.
- are cosmopolite.
- are relatively young.
- exercise opinion leadership
- are likely to be viewed as deviants by their peers and by themselves.

The presence of creative persons, open channels of communication, willingness to experiment with new ideas, participative decision - making procedures and decentralised administration are factors that characterise innovative institutions.

Highly adaptable schools are those, with highly trained and qualified teachers receptive to new ideas; where administrators extend positive support to innovations; and where the parents and public stand behind innovative experiments. The ten dimensions of organisational health, identified by Miles (1964) constitute the profile of an innovative educational institution - goal-focus, communication

adequacy, optimum power equalisation, resource utilisation, cohesiveness, morale, autonomy, adaptation, problem - solving adequacy and innovativeness.

11. Evaluation of the Innovation

Evaluation should be part of the structure of an innovation, assisting the decision - making process at various stages - planning, programming, implementation and institutionalisation. Some experiments in change flounder because periodic corrections and modifications are not effected on the basis of formative evaluation. Evaluation information is not merely a judgemental postscript on the completion of a project but a decisive input in the monitoring and decision - making process.

Stufflebeam (1968) has suggested the following as components of the evaluation of educational innovations and schemes; (i) definition of the aims and objectives; (ii) statement of the criteria by which its degree of success can be judged; and (iii) collecting evidence that can facilitate judgement.

Stufflebeam (1968) has proposed a classification scheme of strategies for evaluating educational change, with four dimensions - context, inputs, process and product.

Their objectives, methods and nature of relationship to decision - making in the change process are indicated below:

11.1 Context Evaluation:

Objective : To define the operating context, to identify and assess needs in the context, and to identify and delineate problems underlying the needs.

Method: By describing individually and in relevant perspectives the major subsystems of the context; by comparing actual and intended inputs of the subsystems; and by analysing possible causes of discrepancies between actualities and intentions.

**Releation-
to**

**Decision-
making in
the Change
Process:**

For deciding upon the setting to be served, the goals associated with meeting needs, and the objectives associated with solving problems i.e. for planning needed changes.

11.2 Input Evaluation:

Objective: To identify and assess system capabilities, available input strategies, and designs for implementing the strategies.

Method: By describing and analysing available human and material resources, solution strategies, and procedure designs for relevance, feasibility and economy in the course of action to be taken.

Relation
to
Decision-
Making in the
Change

Process : For selecting sources of support, solution strategies, and procedural designs, i.e. for programming change activities.

11.3 Process Evaluation:

Objective: To identify or predict, in-process, defects in the procedural design or its implementation and to maintain a record of procedural events and activities.

Method : By monitoring the activity's potential procedural barriers and remaining alert to unanticipated ones.

Relation
to Decision-
Making in
the Change

Process: For implementing and refining the programme design and procedure, i.e. for effecting process control.

11.4 Product Evaluation:

Objective: To relate outcome information to objectives and to context, input and process information.

Method: By defining operationally and measuring criteria associated with the objectives; by comparing these measurements with pre-determined standards or comparative bases; and by interpreting the outcomes in terms of recorded context, input and process information.

**Relation to
Decision-
Making in
the
Change
Process :**

For deciding to continue, terminate, modify or refocus a change activity to other major phases of the change process, i.e. for evolving change activities.



A functional framework for evaluative studies of educational innovations, is given below:

A. The context of the Innovatory Scheme:

- (i) Institution: Which is the institution that adopted the innovation?
- (ii) Structure of the Institution: What is the structure of the institution in terms of decision-making and consultation? How do its members perceive the distribution of power?
- (iii) Climate of opinion in the Institution: What were the prevailing ideology and values with a bearing on the innovation? Was there general interest in the concerned problem?
- (iv) Factors external to the Institutions: What factors outside the institution affected its development?

B. Objectives of the Innovation:

- (i) Problem or Need Tackled : What problem or need was the design of the innovation concerned with? How did the innovators become aware of it?
- (ii) Specific Aims, Behavioural Objectives: What were the purposes of the innovation? Was there any progressive articulation or modification of objectives as the implementation progressed?
- (iii) Underlying values or Criteria by which the Programme was judged to be an improvement: What were the values or assumptions behind it? What was its rationale

and conceptual basis?

C. Means of Implementation

(i) Sources of the decision to proceed:

Was it a committee?

Was it the head of the institution?

Was there consultation? Were students, teachers and Governing Body Members involved?

(ii) Strategies and Methods Used:

What strategies, approaches and methods were used to implement the innovation? What kind of planning, shaping and preparation was done?

(iii) Personnel Involved: Who were involved in the implementation process? Teachers? Students? How many of them? Who were the change agents?

(iv) Financial Aspects: What were the financial requirements and how were funds raised? Did shortage of funds constrain the innovation?

D. Evaluation:

(i) Consequences: What were the consequences of the innovation? Were they beneficial or harmful? What were the direct and indirect consequences?

(ii) Appraisal: Did the innovation succeed in achieving its objectives? What were the factors that facilitated or constrained it? Was it integrated into the regular practice or structure of the institution?

iii) Dissemination:

Was the innovation diffused to other institutions? If yes, with what success and results?

In conclusion it is noted that concepts and theories relating to innovation and change are multiplying fast with cross-cultural and interdisciplinary dimensions. Utilisation of new knowledge for social change is progressively attaining the status and identity of a discipline. The insights and theories adapted and adopted from the diverse schools of this emerging branch of knowledge are used in this study, to find out how some innovations struck their roots in educational practice at the college level.

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