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Barriers and Resistance to Innovation

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Abstract

The paper examines some of the theoretical and empirical literature on the acceptance or rejection of innovation in school settings. A number of innovations models are examined and comment made upon their application. A comment is made on a case study of the diffusion of a particular innovation in social science teaching in Queensland schools.

Introduction

The effectiveness of innovation, no matter at what level it is initiated in a school organization, is dependent on the extent to which the people concerned perceive a problem and hence realize the existence of a need, are knowledgeable about a range of alternative solutions, and feel themselves in a congenial organizational climate. (Karmel Report, 1973, p. 126).

In any study of innovation in education, the question immediately springs to mind, "Why innovate?" If, at a particular point in time, an educational system is operating in a manner which seems well suited to the needs of the society it serves, would not there be more value in diffusing knowledge of existing practices, and refining methods in the light of well established goals? One might reply, rather cynically, that it is doubtful whether such a universally suitable system has yet appeared. The key to this issue, however, lies in the phrase "well suited to the needs of the society it serves". Long (1973, p. 9) argues that

Today's society is changing rapidly and, if a given society is to survive in the modern world, it must be capable of adapting to change . . . this would imply that the individual citizens must be capable of adaptation, both for their own well being and for the survival of their particular society.

Thus to meet the needs of a changing society, the education system itself must develop qualities of flexibility and adaptation, so that instruction and experiences offered are meaningful to students and relevant to their life situation. In other words, the education system must be dynamic rather than static, and must be prepared to accept change as part of the nature of its operations. To Miles (1964 (a) p.14),

Innovation is a species of the genus 'change'. Generally speaking it seems useful to define an innovation as a deliberate, novel, specific change, which is thought to be efficacious in accomplishing the goals of a system.

In this sense, innovation is an integral part of the operational procedures of any modern educational system which seeks to come to terms with the problems it faces. This does not mean to imply that innovation processes will occur automatically, nor that they will be easy to understand and implement. Simpkins and Miller (1972 p. 6) feel that

Innovations in school curriculum and instruction are at the heart of attempts to provide for the present and anticipated needs of pupils and their society.

They go on to state (Simpkins and Miller, 1972, p. 6)

Disputes arise as to the order of priority of educational objectives which best meets the interests of the individual and society, and agreement is difficult to obtain on appropriate educational ideas and practices. At the point of implementation, it is not easy to change educational principles and methods which are well entrenched and sanctified by tradition.

Few would question the assertion that the last decade and a half has seen an era of ferment and change in education. However reports on the success of many innovations, apparently sound in conceptualization, and with seemingly obvious advantages to offer, are, to say the least, disheartening. Allen and Seifman (1971, p. v) saw the potential for a revolution following the launching of the Russian Sputnik in 1957, and ask, "What happened to the revolution? The fact is that it never really happened."

Smith (1973) cites the Ford Fountain's report on the twenty five projects undertaken in the Comprehensive School Improvement Program (1960-70). The report suggests the results did not justify the expenditure of the 30 million dollars involved. Ford's Edward J. Meade (in Smith 1973, p. 6) stated

Nearly everyone thought that with more money, more buildings and more teachers, our nation's schools could make a few adjustments and changes to produce a better society.

Trump and Georgiades (1971) felt that the educational initiatives of the 1960's largely constituted a shuffling of feet in education, and produced relatively little change behind the classroom door. They comment (1971, p. 55)

. . . studies indicated that relatively little change has taken place as a result of millions of dollars invested in the school systems in our society during the past decade.

Of the sixty three innovations listed by Orlosky and Smith (1972) twenty five per cent are rated as being unsuccessful in practice, and it

would be possible to challenge the success rating on a number of other innovations. Not only have there been notable failures in implementing changes, but commentators such as Silberman (1970, p. 159) raised serious doubts as to the depth and relevance of the conceptions underlying many of the schemes proposed when he comments "... the reform movement has produced innumerable changes, and yet the schools themselves are largely unchanged."

In reporting upon his examination of several of the more prominent innovative thrusts he evaluates their failure in terms of this wider perspective and suggests (Silberman, 1970, p. 160) that many innovations did not grow out of, or reflect, any serious thought about the nature or purpose of education, (and by and large) were techniques to increase efficiency which left both the content of the curriculum and the process of instruction untouched, and for the most part, unexamined.

The process of listing comments on the failure of innovation could be greatly extended. The significant fact is that a disproportionate number of apparently sound innovations do fail to be institutionalized despite the investment of large amounts of human and financial resources. The focus of the remainder of this paper will be on the reasons for these failures. How relevant are the conclusions of the quotation from the Karmel report which introduced this paper? Since the report, and the assumptions it made, have formed the basis for the funding policy of the Australian Schools Commission in respect of finance for innovatory projects, many citizens will be interested in the validity of its statements. In attempting to outline some of the problems to be faced, the barriers and resistance to innovations, it will be necessary to discuss definitions of innovation, characteristics of innovations, innovatory systems and users of innovations, adoption and resistance to innovation, the consequences of innovations and strategies and models of innovation. In addition, for illustrative purposes, a survey report on an innovation in Queensland schools will be provided.

Motivation:

Some care must be taken with the innovations and innovators selected for discussion. Professor Nisbet (1974) states that innovation has become a bandwagon, with many people seeking to acquire professional prestige through acquiring reputations as innovators. However, a large number of these desire the image without the reality. They seek "innovation without change — that is, innovation within the existing framework." (Nisbet, 1974, p. 4).

This concept is somewhat similar to the attitude attributed by an anonymous American writer to the "instant innovator".

Most instant innovation practices utilize the basic operational principle of label-switching the practice of pinning an innovative title onto a conventional practice. Administrators who have become adept at label-switching find that grants from foundations and state departments are easier to get; and that their reputations as forward thinking administrators are enhanced. (Cited in Bassett, 1970, pp 3, 4)

Some may be cynical enough to suggest that there are educators who may adopt innovations for motives such as those outlined above. Let us hope they are in the minority. Such attitudes would almost certainly lead to the failure of the innovation. Worse, however, is the certainty that they would cause a reaction to innovations in general, and a suspicion of those who advocated change. An assumption to the effect that most educationists who propose innovations are well intentioned and they have worthwhile objectives in mind underpins the paper presented here. Bassett is not so charitable. He says (1970, p. 4)

The purpose of innovation is to secure the achievement of some (worthy) objective, yet it seems necessary to keep labouring the obvious to combat the support of innovation for its own sake.

Spurious motives such as those outlined above would certainly constitute a barrier to innovation, but they would also give rise to a whole range of teaching practices characteristic of a generally unhealthy attitude to education. Concern for innovations that represent serious and well intentioned attempts to come to grips with real educational problems is the motivation for the preparation of this paper.

Definitions:

A logical and probably indispensable starting point in the study of innovation is to seek an adequate definition. Miles' (1964) definition has already been offered, but it may be clarified by reference to the views of other authors. Nisbet (1974, p. 2) defines *innovation* as "any new policy, syllabus, method or organizational change which is intended to improve teaching and learning."

Bassett (1970, p. 4) elaborates on the meaning by defining six classes of innovation. There are:—

- (i) New educational ideas or practices which were not previously known. These occur infrequently.
- (ii) Adaptions, extensions or modifications of earlier ideas. These are common forms of innovation.
- (iii) Changed conditions (e.g. class size, better materials, auxiliary staffing) under which previously unsuccessful innovations may be successful.

- (iv) Changed attitudes on the part of teachers or administrators towards an idea.
- (v) New situations where the elements combine in new ways. There will be a better mobilization of influences.
- (vi) Changes which result from the spread of ideas of which people had not previously heard, understood or seen as potentially important.

Chin and Downey define innovation within a broader framework of *planned change*. Since the difference is only in degree of generality, the terms *innovation* and *planned change* are used synonymously during this discussion. Chin and Downey (1973, p. 527) propose three related types of definition, focusing on Innovations, Systems, and Emergent processes. In their terms, innovation definitions can be regarded as pertaining to products — ideas, practices, packages, effect, etc. Systems definitions are concerned with system goals, theoretical models and methodological processes. Definitions in terms of emergent processes refer to "altering or building cultural values and norms governing the institutionalizing of the norms and procedures which regulate the change processes"

The important function of these definitions has been to introduce more inclusiveness to the concept. A too narrow focus of attention has led to situations where important related factors have been ignored or underestimated. Carlson (1965, p. 74) has stated that innovations are adopted in anticipation of specific benefits, but there are also unanticipated consequences. He comments that

This is so because a new practice is not accepted in a vacuum. Rather it is superimposed on, or merged or nested with ongoing practices, structures, ideologies, and ways of doing things.

Miles (1964 (a), p. 2) felt that the emphasis in most change efforts focussed on content at the expense of features and consequences of the change process. Long (1973, p. 30) indicates that the difficulties faced by administrators in deciding whether an innovation has been institutionalized or not have led to the tendency to regard adoption as acceptance. While it is necessary to examine specific aspects and procedures of innovation in isolation, it must be borne in mind that these factors form part of an interdependent network of influences. Recent reviews on the subject (Havelock, 1970; Fullan, 1972; Giacquina, 1973) recognize and allow for this difficulty.

Facets of Innovation

One of the reasons often advanced for the failure of innovations is the ignorance of participants of the nature of the change they are trying to implement, and of the likely implications of the innovation. In the introduction to the 1974 Frank Tate Memorial Lecture, Professor Nisbet stated that

Not enough attention has been given to studying the dynamics of change. We are innovating in the dark. We understand little about the impact of changes in education, and we know even less about how to equip innovations to survive in a hostile world.

Miles (1964 (a), p. 2) suggests that to gain this understanding of innovation, we must look at significant areas of concern, such as why innovations spread rapidly or slowly, what causes resistance to change and why various strategies chosen by innovators succeed or fail.

In an effort to come to grips with this problem Miles (1964 (a), pp. 40-43) outlines an agenda for the study of innovation. His proposed areas of study can be grouped under a number of headings. Each of these sections covers material which have implications for the success or failure of innovations. The headings selected are:—

- I Characteristics of Innovations
- II Characteristics of Educational Systems
- III Characteristics of Innovative Persons or Groups
- IV The Change Process
- V The Fate and Consequences of Innovations

CHARACTERISTICS OF INNOVATIONS:

One might reasonably assume that the aspect of the target system with which an innovation is primarily associated might somehow affect its chances of success. Miles (1964 (a) pp. 15-18) identified several classes of innovation:

- (i) Boundary maintenance operations
- (ii) Size and territoriality
- (iii) Physical facilities
- (iv) Time use
- (v) Goals
- (vi) Procedures
- (vii) Role definition
- (viii) Normative beliefs and sentiments

- (ix) Structure
- (x) Socialization methods
- (xi) Linkage with other systems

He felt that innovations are always operant in relation to a social system and that they affect one or more parts of the system crucially. However, he concluded that "educational innovations are almost never installed on their merits". (Miles, 1964 (c), p. 635).

Invariably other factors such as high cost, difficulty of operation and inability to be routinely managed operate to prevent the quick adoption of innovations. Orlosky and Smith (1972) felt that changes in methods of instruction were more difficult to implement than changes in curriculum or administration, and that changes involving the addition or updating of subject matter were more permanent than changes in organization or structure of curriculum. The findings of Trump and Georgiades (1971) support these conclusions.

Rogers and Shoemaker (1971, p. 137) list five characteristics of innovations which users perceive as likely to be associated with successful adoption:—

- (a) Relative advantage
- (b) Compatability
- (c) Complexity
- (d) Trialability
- (e) Observability

These factors were derived from the earlier taxonomy developed by Rogers (1962) in the field of agricultural innovations. However there are differences between the agricultural situation and the school scene. While most of the more significant educational innovations, e.g. team teaching, nongrading, the open school, flexible scheduling, seem to be at the "difficult to adopt" end of the scale when rated by the Rogers and Shoemaker criteria, experimenters have found different levels of influence for the various factors. Carlson (1965) found for superintendents high relative advantage, divisibility (trialability) and communicability were positively related to the rate of diffusion, but high complexity was not. Helsel (1972) found relative advantage and compatability to be positively related to teacher acceptance of an innovation, but communicability (observability) was not. He cites Chester and Willower in support of his contention that inter-teacher communication on matters pertaining to classroom techniques and success is rare. The differences in the degree of influence

of the communicability factor on superintendents and teachers is a point often missed in innovation strategies.

An analysis, on the basis of the Rogers and Shoemaker characteristics, of the innovations listed above, however, shows considerably more complexity than, say, the adoption of a new strain of maize. In general, the educational changes are such that clear superiority over existing procedures is not obvious; compatability with existing structures and practices is low; difficulties are experienced in understanding and using them; introduction on a limited scale is a problem; and communication of results to potential users is difficult. Fullan (1972, p. 6-15) suggests educational innovations are simply not that easy to use (and) require unlearning and relearning and create uncertainty and a concern about competence to perform these new roles.

CHARACTERISTICS OF EDUCATIONAL SYSTEMS:

An examination of some of the literature on innovation provides some insights into the 'cognitive map' of this domain of enquiry. For example, a study by Helsel et al (1969) indicated that teachers perceived strong and informed leadership from the principal as central to an organizational climate in which expectations of successful change were high. Thomas (1973) in a study of Australian schools found high principal supportiveness, high teacher intimacy, and low principal operations emphasis to be correlated with the innovativeness of a school. Hearn (1972, pp. 358-9) lists school and community factors which research has indicated as favourable to innovation. A liberal community of homogeneous ethnic, religious and economic composition and a well-travelled, widely experienced, relatively young staff are seen to be of importance. Neagley and Evans (1970, p. 143) cite a list of forces hindering innovation which were compiled by Lippitt et al (1967). These factors are lack of communication between teachers, competition for prestige, norms which enforce privatism, rejection of ideas by colleagues, lack of interest in new ideas by the principal, a principal who has a poor grasp of what is going on, and a general feeling that teachers' ideas don't matter.

Miles (1964 (c) p. 644) listed three conditions of school systems which tend to inhibit change. First, maximum energy and funds are required for current operations and maintenance, leaving little of either resource for the development and implementation of new programmes. Second, the hierarchical structure of typical school systems lead to the segregation of subsystems. Third, feedback loops between individuals and subsystems develop in such a way as to restrict communication in "self confirming, stabilizing ways . . . Thus the longer the tenure of individuals — either administrators or those lower in the structure — the more stable the patterns of interaction which develops, and the more difficult change becomes".

CHARACTERISTICS OF INNOVATIVE PERSONS OR GROUPS:

Rogers' (1962, p. 185) studies of agricultural innovations led him to list some general characteristics of innovators. In most cases they were willing to accept risks, were young, of high social status, specialized in operations, wealthy, in close contact with expert sources of information, reacted with other innovators, and were very cosmopolite. These characteristics can be compared with Hearn's (1972, p. 359) findings that the most successful educational innovator "is likely to be a youngish man, with a doctors degree, born in a rural area, who has travelled extensively".

These qualities can be contrasted with Carlson's (1965) list of characteristics observed in non-adopters and late-adopters of innovations. In general the superintendents in question tended to be less highly educated, have fewer friendship choices, know well fewer peers, participate in fewer professional meetings, interact less often with other superintendents in the area, be sought less for advice, have lower ratings on professionalism tests, occupy less prestigious superintendencies, receive less support from school boards and rely more on local sources for advice and information.

The studies of Helsel (1972) and Thomas (1973) cited earlier indicated the importance of a supportive principal in establishing a climate receptive to innovation. Phelps (1972) and Tye (1972) both assert that the principal, as a leader as well as an administrator, is a key figure in the area of educational change. Miles (1964) suggests that administrators who have the power to handle the problems encountered in installing innovations will be more effective than other system members. Phelps (1972) feels the principal has a responsibility to identify areas requiring action, to evaluate courses of action, to assume overall supervision of the planning of an innovation, to ensure the necessary means for its implementation are available, and to continuously assess the progress of the innovation. Tye (1972) feels the administrator can make other specific contributions to encourage innovation. He can provide efficient avenues of communication, manage and resolve intergroup conflict, facilitate decision making, provide resources and act as a link with other systems outside the target system.

Fullan (1972) makes the point that most innovations are developed outside the school, and then transmitted to them. Young (1965) makes a plea for a closer liaison between researchers and innovators on sound and rational grounds, but it is fairly obvious that a union of forces such as he suggests is a rarity in education today. Most changes are facilitated by some kind of change agent. The change agent must be able to gain acceptance from clients, and to build a collaborative relationship with them. This is the basis of the approach of Havelock (1970). To fulfil this facilitator role the change agent must have the qualities Miles (1964 (c) p. 641) sees as essential in the innovative person - benevolence, ability to enlist the support of others, intelligence, verbal fluency, creativity and enthusiasm. Change agents will encounter several groups in the 'client

system' who play key roles in the adoption process. Havelock (1970, p. 132) identifies these as innovators, resisters, and leaders. We have already listed the characteristics of innovators. Resisters, however, are motivated by a variety of factors, with active opposition to the current change being the common denominator. Though they constitute a real barrier to the implementation of innovations, Havelock reminds us that they play an important stabilizing role in any social system:

As preservers of a social order these innovation resisters play a big part, and a useful part in our society by resisting intrusions from alien influences. (p. 132)

The bell-shaped frequency curve and the S-shaped cumulative curve for an adopter distribution.

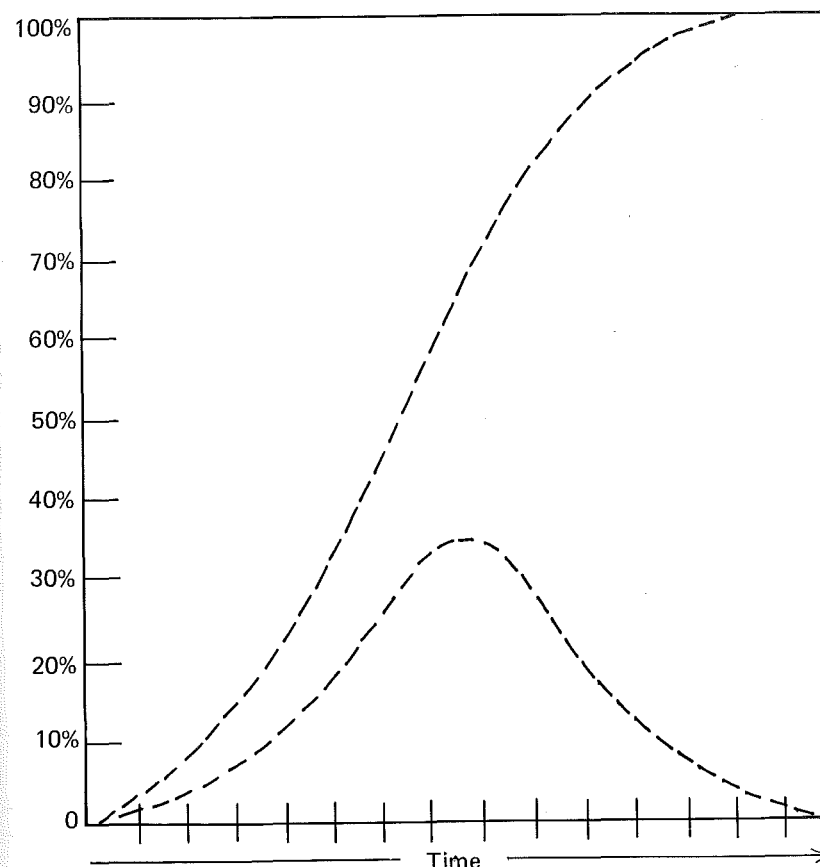


Figure 1. (Carlson, 1965, p 7)

The leaders are the key strategic elements for the change agent. They are held in high esteem by the majority of their fellow men. Unlike the innovators, they are not the first to try out an idea. Rather they observe closely, and listen both to innovators and resisters so that they can better evaluate the proposed change. Havelock (1970, p. 132) feels this behaviour is characteristic of their nature "because their continuance in power rests on their abilities to judge innovations".

THE CHANGE PROCESS:

Mort (1964, p. 318-319) cites studies in the 1930s which showed it required 50 years from the time of realizing a need existed in education to the time when ways of meeting that need were developed. Another 50 years were required for the innovation to diffuse through the schools. He admitted however, that this process can be speeded up. Miles (1964, (a) p. 6) described innovations which had made progress at a rate much faster than Mort's figures would have predicted. The diffusion process is cumulative, and generally follows an S shaped curve as shown in Figure 1.

Carlson feels the curve reflects the inter-communication between adopters. Potential adopters learn from each other, and the act of adoption by some is a means of influencing others. (Carlson, 1965, p. 7) It is interesting to compare this diffusion curve with the results Rogers obtained by plotting the number of adopters against time (c.f. the normal curve in Figure 1). By identifying cut-off points in terms of standard deviations from the midpoint of the curve, he was able to categorize groups of adopters along a continuum ranging from innovators to laggards. (See Figure 2).

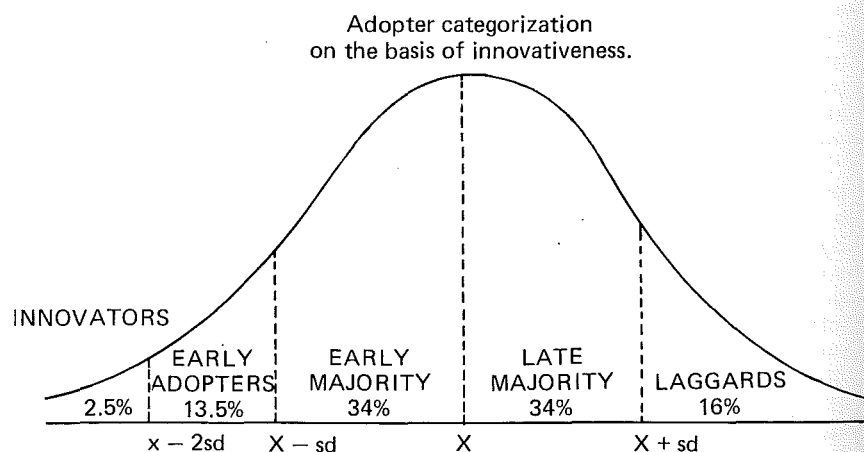


Figure 2. (Rogers, 1962, p 164)

Bassett (1973) saw the change process on a continuum ranging from induced change to self renewing change. Any innovation might be placed on this continuum, and would incorporate elements of both types of change. Bassett feels that the self renewing change process is dependent on:

- (i) Freedom for teachers to act and accept responsibility;
- (ii) A high level of professional expertise;
- (iii) Flexible machinery for deliberation;
- (iv) Adequate finance and facilities;
- (v) Effective means of evaluation; and
- (vi) An innovative climate.

At the level of the target system, Miles (1964 (c) p. 650) saw four stages in the change process following the design of an innovation:—

1. Development of awareness and interest.
2. Evaluation of potential in terms of rewards and costs.
3. Actual trial in the classroom, usually on a limited basis.
4. Decision to adopt, adapt or reject.

Havelock (1970, p. 124) added another stage, integration, to these stages, where the innovation becomes part of the day-to-day working life of the teacher, administrator or other user. Carlson (1965, p. 10) comments on the rate of acceptance of new practices and suggests that the rate is dependent on:—

- (i) The characteristics of the adopting unit;
- (ii) The way the adopting unit is joined to communications channels and sources of information; and
- (iii) The position of the adopting unit in the social structure of like units.

These factors are highly susceptible to problems in communication and linkage. Miles (1964 (c) p. 654) feels that innovative groups tend to turn inwards, alienating them from their surroundings, and reducing communication and support. Havelock (1970, p. 138) agrees that communication channels are crucial elements in the acceptance of innovations, but

"communication is a complicated process which is strongly influenced by the personality of both the senders and receivers, the message and the medium".

Each of these factors could have an important bearing on the quality of communication, and thus on the eventual fate of the innovation.

RESISTANCE TO CHANGE:

Several barriers, or potential barriers to innovation have already been discussed. These include such factors as: disputes over educational objectives; inappropriate motivation; too narrow definitions of innovation; lack of planning for consequences outside the target system; lack of knowledge about the dynamics of change; characteristics of innovations which hinder adoption; characteristics of school systems which are not receptive to change; and the characteristics of persons associated with the innovation. The innovator/change agent must consider all of these, and make allowances for them if the innovation is to have any chance of success. However, innovations are not simply packaged products. They are, implicitly or explicitly, recipes for new relationships and forms of behaviour. Regardless of the drive, commitment and motivation of the developers and change agents, it is the users (teachers and students) who must ultimately adopt, adapt or reject the innovation. Fullan (1972, p. 2) feels that not enough consideration is given to 'the user' in current strategies of innovation. The resistance to people to change is probably the most formidable barrier to the successful implementation of innovations. Gallagher (1974) cites Hoyle (1972) as identifying three kinds of barriers to innovation: attitudes, resources and organizational structures. Of these, probably the most significant factors are the attitudinal ones. These stem, from personal, emotional and cognitive reactions to change, and constitute what can be termed resistance. Watson (1969, p. 488-496) has identified resistance in terms of personality and social systems. His personality factors are:-

- (i) Homeostasis — built in regulatory functions.
- (ii) Habit — a satisfying response which will continue in operation while it gives gratification.
- (iii) Primacy — a persistent pattern of behaviour deriving from the way an organism first copes successfully with a situation.
- (iv) Selective Perception and Retention — once an attitude had been set up, a person responds to other suggestions within the framework of his established outlook.

- (v) Dependence — a continuation of dependence on values, attitudes and beliefs accepted by the teacher as a child, from parents, teachers and significant others.
- (vi) Superego — unreal moral standards acquired from adults through development in Freudian terms.
- (vii) Insecurity and regression — the tendency to seek security by clinging to the familiar, or returning to past practices.

The social systems factors Watson sees relevant to resistance are:

- (i) Conformity to norms.
- (ii) Systematic and Cultural coherence.
- (iii) Vested interests.
- (iv) The sacrosanct.
- (v) Rejection of outsiders.

Gallagher (1974, p. 11) cites Triandis (1971) as stating that people generally seek to avoid or resolve dissonance and imbalance. He feels that it is probable people attend messages emitted by unusual and prestigious sources, and to messages containing controversial, interesting and surprising elements. The perceived power of a source leads to compliance, the attractiveness of a source leads to identification and the extent to which the message fits with existing values and knowledge of the receivers leads to its internalization. Staines (1971) feels that expectations of parents, children and administrators contribute to their conscious or unconscious resistance to innovation. Gorton (1972) gives a list of factors contributing to resistance in school settings.

- (i) Habit,
- (ii) The bureaucratic structure of schools,
- (iii) Lack of incentive,
- (iv) The nature of the proposed change, and
- (v) Teacher and community norms.

Fullan (1972, p. 15) feels that "virtually every significant change has implications for change in roles and role relationship" but these role changes are misunderstood and little preplanning, and more importantly little consideration, are devoted to this aspect in implementing innovation. Similarly, Nisbet (1974, p. 7) feels that innovations "de-skill" the teacher by destroying the range of practices he has developed for coping with everyday problems. This results in loss of confidence and increased anxiety. Anxiety on the part of those outside the target system can easily result in hostility. Confusion, which Nisbet feels is an inevitable development because not all consequences can be planned for, can result in disillusionment and misgivings, and be a contributory factor in dissonance.

Another human factor in the success or otherwise of an innovation is undoubtedly the commitment of teachers to its success. This presupposes committed teachers can be discovered easily in our schools. Coulter (1972) found that only 54.6% of beginning teachers in a sample could be regarded as committed to the profession, a sobering finding if it can be generalised to the total teaching population. Hudgins (1971, p. 242) cites Mason as identifying two elements of commitment — dominant and contingent. He feels the commitment of most women to the profession is contingent on future events, and that most male teachers define success as entering a branch of administration. The low number of committed teachers, and the expectations of relatively short stays in the classroom could result in a lack of commitment to plans which are obviously designed for the future.

Watson (1969, p. 496-7) makes some suggestions for overcoming resistance to change. He outlines these in terms of the people, the innovations and the processes involved. His conclusions on this problem are —

- (a) Resistance will be less if the members of the target system feel the project is their own. It will also be less if there is support at all levels of the system.
- (b) Resistance will be less if the innovation offers high relative advantage, is compatible with the values and ideals of the participants, and does not threaten the autonomy and security of system members. It will also be less if the experiences offered are new and interesting to participants.
- (c) Resistance will be less if the participants can see the need for change, and decisions about the innovation are consensual ones.

Measures such as attending to valid objections, allaying the fears of colleagues, providing feedback and clarifying objectives, extending support, trust and confidence to other participants and progressively revising and evaluating the progress of the innovation would also tend to reduce resistance.

McDonald and Rudduck (1973, p. 1) felt it essential for the team developing the innovation to understand the world of the teacher. They felt that innovators cannot blame the inadequacies of the system for failures, since the situation is "given". They felt it obligatory for "the development team to find out how the system works in order to cope effectively with its characteristics".

Part of their strategy deals with the consideration of teachers as users, and the guidelines they offer are:—

- (i) Eliminating the teachers' dependency on the change agent's authority by fostering the teacher's professional judgement and imagination.

- (ii) Ensuring the innovation can be tailored to the circumstances and temper of particular schools and teachers.
- (iii) Ensuring that teachers do not feel personal guilt or inadequacy when reporting failure of aspects of the program.
- (iv) Providing effective communications with the principal, and ensuring his co-operation.
- (v) Fostering the capacity for constructive self criticism in target system members by helping teachers interpret and make judgements about feedback from the new practices.
- (vi) Ensuring effective communication through use of language familiar to, and understandable to, teachers.
- (vii) The provision of adequate periods of training on relevant aspects of the innovation.

THE FATE AND CONSEQUENCES OF INNOVATIONS:

Eicholz and Rogers (1964) have attempted to develop a theory of rejection which parallels the general model of adoption. Rejection can occur at any stage during the adoption process. An important feature of the model is that it does not stop at adoption, but provides a further stage of discontinuance, which we can regard as the counterpart of "integration" (Havelock's term) in the process of acceptance. The Eicholz and Rogers model is set out below in Figure 3.

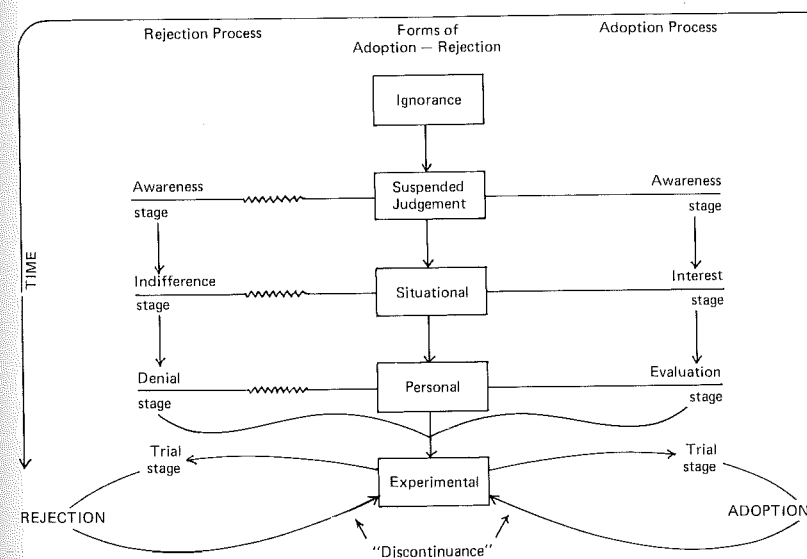


Diagram of revised rejection theory
Figure 3. (Eicholz and Rogers, 1964, p 311)

In the earlier section of this paper several comments were included on the failure of innovations, and the situation was viewed with considerable concern. How serious the problem is, is a matter for conjecture since Miles (1964 (c) p. 59) expresses the view that only abortive failures, the rejection or discontinuation by large numbers of target system members, have been publicised. Because of the infrequency of evaluation, substantive failures have often gone unnoticed. Some of the factors Miles feels have contributed to the failure of innovators are:—

- (i) Negative or conservative reactions;
- (ii) Inadequate planning;
- (iii) Insufficient teacher preparation;
- (iv) Lack of commitment from teachers and community; and
- (v) Deficiencies in resources or power.

One of the consequences of such failures is the effect on teacher morale. Nisbet (1974, p. 1) feels that

Teachers are suffering from 'innovation fatigue' and constant attacks on conventional procedures have weakened public confidence and the teachers' own confidence in their capacity to teach.

Fullan (1972, p. 8-9) cites the studies of Gross et al in a school where conditions seemed favourable to change, (plentiful resources, support from parents and administrators, teachers receptive of change, and mindful of the need for new approaches in a ghetto school). After six months the findings showed that the majority of teachers were still behaving in the traditional manner, devoting little time to implementing the changes, and had developed unfavourable attitudes to the change. The failure of the proposed change was attributed to:—

- 1. Teachers' lack of clarity about the change.
- 2. Teachers' lack of capability to perform the new role.
- 3. The unavailability of necessary materials.
- 4. Lack of motivation.

Fullan also points out that the assumption of receptive attitudes in the initial stages may have been faulty, and that resistance was probably an important factor.

The Eicholz and Rogers model of rejection of innovation (Figure 3) implies that decisions will be made at various stages during the adoption

process. If the decision to innovate is made by someone other than the user, Rogers and Shoemaker (1971) see three types of decision which will be made:—

- (i) Optional decisions, which are made by an individual regardless of the decisions of other members of the system;
- (ii) Collective decisions, which individuals in the system agree to by consensus; and
- (iii) Authority decisions, which are forced on an individual by someone in a position of superordinate power.

These decisions will ultimately decide the fate of the innovation. However, if an innovation is adopted, it is often done so for reasons other than its educational advantages. Fullan (1972, p. 7) suggests that though the consequences of the innovation should be the main focus of attention, little has been done to evaluate these consequences. There are also several reasons, for example, unsound motives for adoption, the nature of the use of innovations, and the tendency of innovations to become ends in themselves which make it difficult to assume that the consequences of innovation will be beneficial. Under these circumstances it is not surprising that a number of innovations are discontinued.

Strategies of Innovation:

Chin and Benne (1969, p. 33) stated that the focus of planned change was "the introduction of more effective thing technologies or people technologies, into institutional practice".

They classified strategies of change into three basic groups:

- (i) Empirical — Rational, incorporating such practices as research and dissemination of knowledge; personnel selection and replacement; use of systems analysts; applied research and linkage systems; utopian thinking; and perceptual and conceptual re-organization.
- (ii) Normative — Re-educative, which includes practices such as improving the problem solving capabilities of a system and releasing and fostering growth in system members.
- (iii) Power — Coercive Approaches such as non-violence; use of political institutions; and recomposition and manipulation of power elites.

Professor Nisbet, on a visit to James Cook University, Townsville in 1974, expressed the opinion that innovation strategies are unlikely to represent any of these categories in a pure form, and that a sequential

influence or a dynamic balance involving two or more types of strategy is more likely in actual practice.

Bassett (1971, p. 50) supports this view and feels that "the co-ordination of two, or three, might in some instances provide the most fruitful conditions for change".

This concept can be shown in diagrammatic form. (See Figure 4).

These strategies involve a core of common practices such as interaction between personnel, the use of consultants, and the formation of small groups for various purposes. Miles (1964 (b)) believes that the unit of change is the group, rather than the individual, but that it is necessary to insulate the group from the restrictions of specific relationships, vested interests and day-to-day pressures of the school if their behaviour is to be changed. This approach utilizes what Miles terms the temporary systems approach. Suitable foci for group activities would be provided in such matters as team training, workshops, target setting, organizational diagnosis and organizational experimentation. Once the limited objective of the group is attained, it could be disbanded. This shift of emphasis to the group as the change unit may explain why many attempts at innovation by individual teachers often fail.

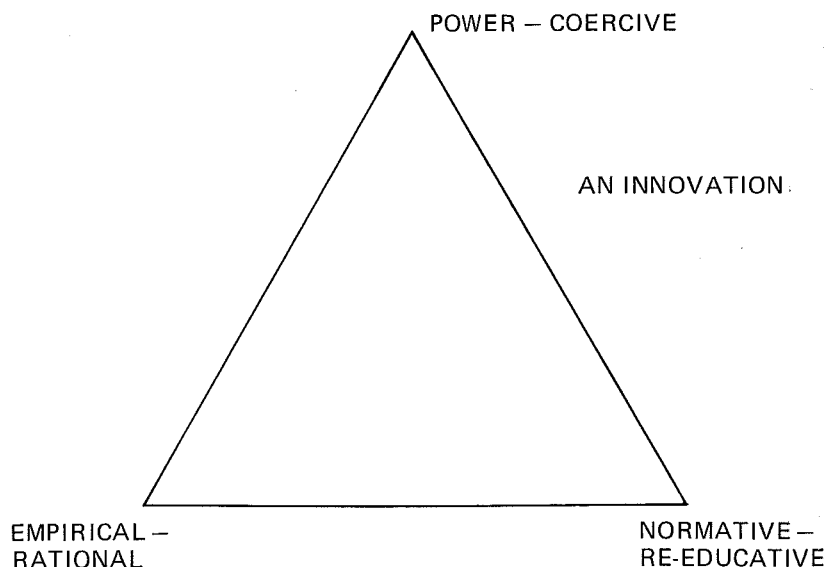


Figure 4.

Models of Innovation:

Havelock (1971, p. 84-98) described three major models of educational change: *Problem Solving*; *Research, Development and Diffusion*, and *Social Interaction*. To these he added his own model, the *Linkage Model* which synthesized elements of the other three. Briefly, the Problem Solving model is based on the strategy of a user, the teacher, sensing a need for an innovation, adopting a suitable solution, and evaluating its effectiveness. Outside agents may help the teacher by giving guidance and support or by suggesting a suitable innovation. The Social Interaction model places emphasis on the patterns by which different innovations diffuse through a social system. In addition to informal methods of natural diffusion, the utilization of existing communications, such as journals, or the setting up of a network of communications for a particular innovation, are common strategies. Essentially, the strategy is Normative-Re-educative. The Research, Development and Diffusion model has been developed by Clark and Guba (1965). It involves research into educational needs, development through invention and design of an innovation package, a diffusion stage involving dissemination, demonstration and trial, and adoption, which includes the later stage of institutionalization. This approach described in Long (1973, p. 38) has three basic assumptions:—

- (i) Prior to dissemination, there will be a sequence of research, development and packaging of the innovation.
- (ii) A passive and rational consumer exists. He will accept and adopt the innovation if it is offered to him in the right place, at the right time and in the right form.
- (iii) The proponents accept that high development costs are necessary, but justifiable, if the innovation is of suitable quality and can be easily disseminated.

The Linkage model is Havelock's own conception. He sees the strategy as a two-way process. The change agent needs to develop a good model of the user system to enable him to "link" effectively, while at the same time, the user must understand how the resource system works. Havelock sees seven major factors as predictors of successful innovation. These are linkage, structure, openness, capacity, reward, proximity and synergy. (Havelock, cited in Long, 1973, p. 39). Long (1973, p. 40-1) further states that all four systems are relevant to the process of innovation, but that they take

insufficient account of the power structures which . . . operate within the context of the school, the local community, the professional group, the educational hierarchy, as well as the political structure.

Fullan, (1972, pp. 4-5) has also given a comprehensive description of these models, and has levelled the following criticisms:

The Research, Development and Diffusion model assumes innovations will be centrally developed by experts and, once tested, disseminated on a universalistic basis to all schools, thus militating against diversity of educational objectives. The user has a passive role, and the assumption is that the innovation will be readily adopted into a user system. "In short, the model employs a 'top-down' strategy of change with very little analysis of the social systemic nature of user systems. (Fullan, 1972, p. 4)".

Fullan also states that while the strategy seems to be rational-empirical, in actual practice it is power-coercive from the user's point of view.

The Social Interaction model also concentrates on the innovation rather than the user. It tends to neglect user experience of the innovation and focuses on a very narrow aspect of the change process. The problems of use and the consequences of adoption are neglected.

The Problem Solving approach is attuned to the user's needs and orientations, but several issues are not adequately catered for. There seems to be some doubt as to whether a problem solving sequence would be applied mechanically, or whether a generalized problem solving capability would be involved. There would also be a tendency to focus on specific needs and solutions, to the neglect of considering fundamental restructuring. Fullan feels this model has the greatest potential for the user. Havelock's Linkage model involves an empirical rational/problem solving approach. However, reference to self-renewal does not contain any specific implications for improving the general problem solving capacity of the system.

Fullan concludes that these models of change give very little information about the role of the user in the change process. The user is seen to be of critical importance in the adoption of innovations. Because educational goals and needs are so diverse, few innovations can, or should be, universally implemented. Also the generality of educational goals means that a wide range of difficulties will be encountered, and a variety of decisions required to implement changes. The attainment of most educational goals "requires continuous involvement, choice and commitment on the part of the user."

If the users have minimal influence on the decision, the relationship between the innovation and the user's objectives will be problematic; so will be the link to the next stage, user acceptance. (Fullan, 1972, p. 4)

This model process of external development of innovations, and their universalistic transmission has several implications for the rejection of innovations:

- (a) Values and goals of users have no direct influence in the process. The result is that downward innovations do not hold, and diversity of innovations is not allowed for.
- (b) Social system or role change, which is part and parcel of all modern innovations is not recognized and not planned for.
- (c) The dynamics of role change, its unlearning and relearning, uncertainty and concern about competency, are not understood or taken into account.
- (d) New educational ideas and changes create unrealistic conditions and expectations of user performance.
- (e) The most effective solution can probably never come from improving the existing processes, nor can it come from leaving users to make their own choice in a permissive environment. (Fullan, 1972, p. 15)

These conclusions indicate just how vital the user is in the change process. Though Long's (1973) conclusions about the neglect of power structures may have some validity, Fullan's explanation of the shortcomings of the 'top down' model approach appears to give much more insight into the nature of the failure of innovations to be accepted. Fullan maintains the user may be regarded as an individual, or a group. Miles (1964) similarly indicated the importance of the group as the change unit. The earlier studies of Lewin (1947) and Coch and French (1947) on group decision making support Fullan's view on the need for the involvement of the user. Miles (1968) outlines a self renewing process based on problem solving which seems to offer some solution to the problems identified by Fullan.

An Innovation in Queensland

An attempt was made to survey the opinions of a small sample (40) of Queensland primary school teachers on the implementation of an innovation in the Queensland school system. The innovation chosen was the change from single text teaching to multi-text teaching which was introduced in 1970, and adopted system-wide in 1971. At the time of the survey, (August/September, 1974) this approach had been in full scale use for almost four years.

An attempt was made to ascertain the official policy of the Department of Education concerning the implementation of innovations. The most striking passage from the reply of then Staff Inspector, Research and

Development Branch, Dr. McGaw, is "the problem is there are no published position papers to describe the present state of evolution".

Though one can infer from this statement that there is no official policy concerning this type of innovation this does not mean that there is no de facto policy. It is fairly clear from events prior to 1971, that the model of change is almost classical Research Development and Diffusion. Research development and packaging were carried out by Research and Curriculum branch in conjunction with a Social Studies Syllabus committee. Though the committee has teacher representation, the idea of user involvement in Fullan's sense seems minimal. The innovation was given limited trials in selected schools, and very few potential users were able to familiarize themselves with the new approach. The diffusion of the innovation was by means of seminars, vacation schools and visits by resource persons-come-change agents in the form of District Inspectors. However, as course outlines in 1970 were incomplete, often only roneed outlines, and the new sets of reference books were unavailable, these measures were often regarded by teachers as too theoretical and confusing. In addition only a small percentage of teachers had access to these avenues of information. The decision to adopt was power-coercive, being made at a higher administrative level apparently without consultation with users. To date, there seems to be little in the way of evaluation of the progress of the innovation, though Inspectors and advisory teachers must be acting in this regard.

The survey data indicated that despite a high level of stated acceptance, teachers still had doubts about the benefits of the innovation, and also their ability to use the approach efficiently. Teachers had little opportunity to obtain information about the innovation and were unable to evaluate methods or materials prior to 1971. Most felt their training and experience were insufficient to cope with such a change, that they were coerced into adopting the innovation, and that much of the value of the new approach was lost in the early stages of adoption. The findings typify the first three of Nisbet's "waves of difficulty": increased work loads; undermined confidence, and confusion. (Nisbet, 1974, intro. p. 1) 80 percent of all teachers felt that work loads increased; 65 percent of teachers felt their training and experience were inadequate for the change and 85 percent felt they could gain substantial benefit from further training; 25 percent still express dissatisfaction with the multi-text approach and half the teachers felt the new approach would not give results significantly superior to the old single text method. However, 77.5 percent of teachers rated themselves as multiple-text oriented and felt the benefits of the innovation outweighed its problems.

The survey showed very little adverse comment about the innovation itself. Most criticism was levelled at the circumstances surrounding the implementation in the schools. What comment there was on the inadequacy of the multi-text approach generally reflected the views of the minority (almost one quarter) who did not subscribe to the view that the

multi-text approach was suitable to their basic teaching orientation. A striking feature of the program of adoption was that such people were not catered for by any alternative, or modification of the approach. Nisbet (1974) predicted a fourth wave of difficulty — backlash. The virtual absence of this reaction may indicate the suitability of the Queensland system for the Research Development and Diffusion approach. One of the basic assumptions of the model is that "a passive but rational consumer will accept and adopt the innovation if it is offered to him in the right place, at the right time and in the right form". In view of the lack of pretraining, opportunities to evaluate, and the incomplete materials offered at the start of 1971, one may conclude that the time and form were anything but appropriate. The passive acceptance of direction is, however, verified. In spite of the fact that 87.5 percent of teachers felt they should be able to make their own decision on adoption, and 82.5 percent felt that users should be more involved in development and decision making, 76.5 percent of teachers signified they were willing and happy to adopt the new approach. Obviously, teachers in the Queensland system at this time see themselves primarily in the role of implementers of curriculum and methods, rather than as developers and innovators. Implicit in this role is a large degree of passive acceptance of direction from above.

The survey offers no information on the period from 1971 to the present. What has occurred during this period is a matter for speculation. It may have been that this period served as a trial and evaluation period, with increasing numbers of teachers becoming aware of the benefits from the approach, and the possibilities it offered for a more varied approach to teaching. The adoption rate over the last few years would probably follow the S-shaped curve described earlier. This approach may be all right for corn farmers, but one wonders at the cost of this procedure in terms of pupil experience and development. Another point of criticism has been mentioned in the preceding paragraph. No alternative or modification was offered to those teachers who, for a variety of reasons, feel that their style of teaching is incompatible with the new approach. Lastly, the entire implementation procedure is illustrative of the 'top-down' mode. The lack of concern for user involvement, and the over-riding emphasis on adoption per se, rather than improving the generalized problem solving capacity of the system, or developing self-renewing change, is painfully obvious. One can only hope the evolution is swift, and the strategies far reaching.

Conclusion

The main conclusion from the studies reviewed is that the greatest barrier to the successful adoption of innovations has been the philosophy underlying the general mode of approach. The consumers have been assigned a limited role, and primacy has been given to the innovation. Fullan (1972, p. 15) sums up the situation succinctly by stating

those affected by the change are dependent on the process instead of the process being dependent on them.

Problems of innovation are not new. In 1513, Macchiavelli wrote in "The Prince"

There is nothing more difficult to carry out, nor more doubtful of success, nor more dangerous to handle, than to initiate a new order of things. (Cited in Nisbet, 1974, p. 32)

However, Nisbet's concluding statement is one of optimism

... perhaps within the next few years, we may be better able than our predecessors to develop innovation as an integral part of the self-renewal of the education system.

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