

**CHANGING THE RULES : STAFF REACTIONS
TO PLANNED CURRICULUM CHANGE**

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PhD THESIS

CURRICULUM STUDIES DEPT : INSTITUTE OF EDUCATION



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Abstract

This study is an action research project concerned with the effect of a change initiative on primary teachers' behaviour. It involves trying out a change approach and then refining and testing that approach in a consciously conducted change experiment.

The study has two investigative strands. Both of these build on previous research into change that I conducted at a school in which I was working in 1986. The 1986 research described difficulties I had in conducting school self evaluation and the development of a revised approach to change.

The product of the 1986 study was a change model. One strand of this study is an investigation into the effectiveness of that model in supporting teachers moving along the path to change.

The second investigative strand of the study is concerned with the wider effect of implementing the change model on staff relationships in primary schools. The phrase 'changing the rules' in the title of the study harks back to an article by Helen Simons (1987) in which she suggests that activities such as self evaluation are 'against the rules of schools as institutions'. One element of this second strand of the study is an investigation into the rules governing staff relationships. It examines whether the closed behaviours that initially undermined the 1986 initiative are more widely prevalent in primary schools.

The 1986 change initiative appeared to leave a residual effect of increased openness and collaboration between staff. A further element of this strand of the study is therefore an examination of whether implementing the change model affects staff relationships in other primary schools. The study examines the extent to which the change model acts to dismantle closed patterns of interaction between staff and replace them with more open ones.

During the time that has elapsed between setting out and concluding this research there has been a growing focus on staff relationships in schools. Reviewing research into school culture Fullan (1991) suggests that "we have not yet made much head way in how to establish collaborative cultures in schools". This study is an investigation into a possible process by which the rules of schools I have known as a teacher, deputy headteacher and headteacher might be changed.

Section One : An Overview

This study is an action research project concerned with the experience of implementing change in five primary schools. The study focuses on three different stages in the development of my thinking about change. These stages are reflected in the three sections into which the research is divided. The first introductory section is composed of three chapters which outline the perspective I held at the outset of the research. The second section contains three chapters which describe the experience of trying out the initial ideas in two pilot schools and the changes in my thinking this experience brought about. The third section is composed of five chapters which describe the more formally conducted change interventions carried out in three further schools, the conclusions drawn from the experience of those schools and from across the research as a whole.

Each of the three sections into which the research is divided is introduced by a short overview of the discussion which is to follow. This first overview outlines the discussion that will take place within the introductory section. The first chapter of the introductory section (Chapter One) discusses how my thinking at the outset of this study was informed by previous research I had conducted. That research was within a primary school at which I was teaching (Templewood School). The account of events at Templewood (Morton 1986) was a description of difficulties in implementing change in the way envisaged by advocates of school self evaluation (e.g. Elliott 1985, Raggett 1983b) and the success of the revised approach that was developed. The product of the Templewood research was a planned model for change.

In this study it was intended to test the effectiveness of that model in a number of primary schools.

After the completion of the 1986 research it appeared that the intervention at Templewood had, in addition to influencing teachers' practice, paved the way for future initiatives. Simons (1987) suggests that school self evaluation cannot proceed unless "privacy, hierarchy and territory are replaced by openness, rational autonomy and shared critical responsibility". The revised approach adopted at Templewood appeared to leave a residue of openness, rational autonomy and shared critical responsibility there. During this current study it was intended to investigate how widely applicable Simons' description of the closed climates of schools might be. It was also intended to investigate whether the initiative would have the effect of opening up the climate of schools in which the research was to be conducted.

Chapter Two of Section One looks at the mathematical element to the study. In order to investigate the effectiveness of the model in implementing change and in influencing the overall climate of the school an idea was required that represented change to teachers. As a result of studies conducted at London University (e.g. Walkerdine 1982, Brown 1984) I had developed a learning strategy for children to develop their mathematical understanding. This learning strategy had been something 'new' to teachers at Templewood and it seemed reasonable to assume it would represent change to the wider group of teachers who would

participate in this study. At Templewood the starting point for the research was a concern to use the learning strategy to influence colleagues. This study was not to be primarily concerned with mathematics. The learning strategy was to be a vehicle within which to investigate the change model proposed. Chapter Two then covers the preliminary planning phase of the model to plan a mathematical initiative.

The final chapter of Section One (Chapter Three) deals with the overall research design of the study. The mode of inquiry adopted within the Templewood study was action research. It did not appear at the outset of the study that the Templewood experience could be directly converted into quantitative measures of change. To do this could mean that the research focused on initial rather than emergent variables. It seemed likely that such additional variables would emerge during the research. The model was untested. It also centred very much on what was required only at Templewood. The research hypothesis was based on Simons' turn of phrase rather than on a precise set of terms. What seemed to be required before conducting formal interventions was a period in which the wider applicability of the model was investigated and Simons' terms made more my own.

Cohen and Manion (1985) describe two elements to action research: "diagnostic" action research is that in which problems are analysed; "therapeutic" action research is that in which hypotheses are tested. Cohen and Manion's terms however appeared very much to centre the research on the change agent's diagnosis and solution. Because of this the phrases "analytic" and "reflective" action research are used. In this study these two elements would be linked into a combination design. The first phase then would be a period of "analytic" action research in which the key variables in two pilot schools were explored. The second phase would be a period of "reflective" action research in which a consciously directed change experiment was conducted.

The implication of the combination design was that only at the end of the analytic phase of the research would it be possible to devise formal measures of the effectiveness of the change model. In order to maintain a chronological account of the study there would be a second methodological chapter (Chapter Seven). In this chapter the experience of the analytic phase would be converted into formal measures for use in the 'reflective' phase. The first phase of the research though would be the extension of the period of naturalistic inquiry that had taken place at Templewood.

Having provided an overview of the three chapters that comprise the introductory section of the research, I now wish to describe more fully my thinking at the outset of the study (Chapter One), the mathematical element to the study (Chapter Two) and the overall research design (Chapter Three).

Chapter One : Starting Points For The Research

This chapter discusses the starting points for the study. The first section describes my experience of difficulty in instigating change based on school self evaluation at Templewood School and the subsequent development of a revised approach to change that met with greater success. It then outlines the change model that derived from the Templewood study. The second section of the chapter discusses the way in which the climate of staff interaction at Templewood initially did not support attempts at school self evaluation, and then moves on to describe the positive residual effect that the revised approach appeared to have on staff relations. A research hypothesis concerning the effect of the change model on staff relations is then proposed.

My Experience of Change at Templewood School

In 1986 I conducted a study into school based curriculum development in mathematics at Templewood primary school (Morton 1986). That study was informed by the observation of an unsuccessful attempt to develop science practice at the school. This had involved a science co-ordinator using a staff meeting to advocate that teachers adopt a series of worksheets she had devised. The initiative had little effect on teachers' practice and engendered widespread hostility toward the co-ordinator. At that point I tried to interpret the failure of the science initiative in terms of the 'problem solving' approach to curriculum development (e.g. Raggett 1983b, Elliott 1983a, Hopkins 1985). Thus it appeared that the science development had failed because teachers felt little ownership or involvement in it. The failure of the science initiative led me initially to instigate change in mathematics from the perspective of the problem solving approach. Within this perspective the only acceptable stance for the change agent is 'what the user needs and what he thinks he needs' (Raggett 1983b). Crucially then 'the change agent remains non directive, rarely if ever violating the integrity of the user by setting himself up as the expert' (Raggett 1983b).

My initial approach to developing mathematics practice at Templewood was to use the GRIDS format (McMahon et al 1984). I considered this would stimulate the collective involvement of teachers in school based reviews and development. Whole staff discussion would lead to a collaborative definition of where the school might need to go in mathematics teaching. My role was to facilitate collaborative reflection. The involvement and participation of all teachers in problem solving would then stimulate their 'ownership' of the initiative.

In fact, the discussion that emerged in the staff meeting to instigate change in mathematics was characterised by mistrust, suspicion and defensiveness rather than collaboration. There were conflicting and wide ranging suggestions for improving mathematics. Moreover any questioning of the usefulness of these suggestions was seen as probing for errors in the mathematical understanding of the person putting forward the ideas. The meeting appeared more concerned with the mathematical status of those involved than with an inquiry into developing children's understanding of mathematics.

Following this meeting I attempted to put forward an idea for the consideration of colleagues. This I considered to accord with the "collegial" approach to staff development, (e.g. ILEA 1985, Campbell 1985, DES Welsh Office 1985, Lomax 1989). (Although the precise meaning of this phrase has never been clear [Campbell & Southworth 1990]).

The idea I proposed revolved around a basic problem with mathematics teaching that teachers had discussed with me in private. Children seemed unable to remember mathematical rules and procedures. The rules they could remember they were unable to apply to problem solving contexts. My own mathematics practice derived from studying with the Open University (Walkerline 1984, Floyd 1982) and from an Advanced Diploma in Curriculum Studies taken at London University. These studies had very much directed my mathematics teaching toward building conceptual understanding in children and I wanted to use the learning strategy to influence the practice of other teachers within the school.

To highlight the problem that teachers had discussed, I made a video recording of children within my own class working in ways that appeared to further their mathematical understanding. The video would focus discussion on the learning strategy and engender collaborative reflection about ways in which mathematics practice needed to move forward. Again, however, the meeting following the video appeared to be characterised by defensiveness and hostility. The problems that people had raised privately were not aired in the meeting. Rather than acting as a springboard for discussion the video created unease. There were two approaches to teaching number operations at Templewood prior to the initiative. The approach adopted by some teachers was a traditional one in which the teacher showed the children the algorithm which was required to get the correct answer. The children would then rehearse that algorithm until they could remember it. The other approach was one in which the children's initial attempts to rehearse the algorithms were supported by the use of apparatus. The apparatus was then withdrawn when it was felt the children had picked up the idea. Teachers who used either approach reacted unfavourably to the video. Teachers who used apparatus alongside standard algorithms felt that the implication of the video was to use apparatus in teaching mathematics. They thus felt the project missed the point by stressing something they were already doing. Teachers who used traditional methods were left with the implicit criticism of what they were doing.

There was then a sense of disquiet about the initiative: a lack of confidence in a project that seemed to imply strategies which were already being used; a concern on my part of a loss of control over the project; solutions proposed by teachers in terms of perspectives that appeared to be inappropriate.

My reaction to this was to make the learning strategy more explicit. I set out to model the approach to teaching mathematics in teachers' classrooms. Securing teachers' agreement to this modelling was the starting point of an initiative which was continually modified in the light of the

problems which emerged. As a result of modifications made, the initial negative reaction to the initiative was replaced by one in which my ideas were considered an intelligent assumption, worthy of putting to the test of practice.

A Model for Change

Viewing events at Templewood retrospectively led to the development of a model for planned change. In this study I intended to investigate the wider applicability of the model for implementing change in primary schools. Study into models of curriculum change have a considerable history within educational research. During the 1960s and 1970s information accumulated that large scale projects which were to diffuse curriculum expertise to individual class teachers did not produce the desired or expected results (Dalin 1974a, Berman and McLoughlin 1975). Studies that focused on the implementation phase revealed a much more untidy institutional reality than 'rational' models of curriculum change had allowed for (Chin and Benne 1972). The context within which implementation took place came to assume a significant role in curriculum change, with a growing appreciation of the autonomy of the school and an increasing movement to play down the relevance of the outside expert (McDonald and Walker 1976, Becher and McLure 1978). The movement toward the expertise of the teacher was also developed within the writing on school self evaluation (Stenhouse 1975, Elliott 1978, 1985, Skilbeck 1984, Rogers and Richardson 1985, Hopkins D, 1985a, 1985b, 1985c) the collegial school (ILEA 1985, Campbell 1985, DES Welsh Office 1985) and institutionally in later Schools Council Projects (1982, 1983a, 1983b).

However, the Templewood experience led me to question the benefit and practicality of problem solving at the school level. For Raggett (1983a) the problem solving model involves paramount consideration being given to the user's need. The only acceptable value stance for a change agent is what the user needs and what he thinks he needs. The Templewood experience was that teachers did not see the problem and if they did, they were too hard pressed to devise a solution.

This experience also led me to consider that the role of expertise was a central one. For Elliott (1985) "the change agent should be non-directive, rarely if ever violating the integrity of the user by setting himself up as an expert." For Blake (1985), however, the research literature contains the reflections and findings of a large community which had addressed many of the problems faced by teachers, and to ignore this resource runs the risk that teachers are continuously having to learn from scratch about issues which have been tackled by others. Indeed it was reading around the research literature that had led me to devise the mathematical learning strategy and develop the 'expert' role adopted during the later stages of the Templewood initiative.

My experience of initial failure also led me to question the 'irrelevance' of outside expertise claimed by advocates of the problem solving model. My reservations about the irrelevance of outside expertise echoes the views of other authors. Historically the move away from large scale projects toward the

context of implementation was accompanied by a down playing of the role of outside expertise and a focus on the perceived needs of each individual classroom teacher in his or her unique setting. For Skilbeck (1987), however, teachers experience common problems and search for common solutions. This can be seen, for example, within the widespread success of published schemes. Moreover studies which documented the effectiveness of large scale projects (e.g. Sutherland et al 1981) show that it was not outside expertise that was rejected as being irrelevant to the unique needs of the individual teacher but that problems came about because that expertise was distanced from immediate practical and contextual problems. Curriculum projects would have a more successful take-up if 'representatives were sent directly into schools to discuss the new ideas and start an initial programme under their supervision' (Sutherland et al 1981, p43).

As a result of these considerations, and the Templewood experience, a model for change was developed which sought to reconcile a role for outside expertise with a focus on teachers' needs. The model suggests a planned approach to implementation. It involves the change agent in communicating the need for change and presenting a practical picture of what the change will look like in teachers' classrooms. It then involves the change agent supporting teachers as they try out the ideas for themselves. Throughout the process of implementation, the change agent also aims to unblock communication with participants in order to detect difficulties, discontent, interferences and unexpected snags.

Fullan (1987), reviewing the history of change research, concludes that a stage has been reached in which factors which might bring about success have been identified. Thus the models proposed by Skilbeck (1982), Fullan (1986) and Waugh and Punch (1987) list the imperatives in curriculum planning and development. The model proposed here contains a dynamic thrust, a developed sense of process that describes how curriculum development might be played out in practice. Fullan (1987) concludes his review by suggesting that "what is needed is a plan and that plan needs to acknowledge that it will be departed from". The model proposed here shifts from an early phase dominated by the change agent to increasing ownership of the change by recipients. The model in its original form is set out in Table 1.1.

Table 1.1 - A Strategy For Change

Stage 1. **Preparing for Change**

- 1.1 Identify the basic problem or opportunity.
- 1.2 Focus on the driving and restraining forces before implementing the change.
- 1.3 Decide who is likely to be affected by the change and the reasons that might lead them to resist it.

Stage 2. **Implementing Change**

- 2.1 Increase the driving forces and reduce the restraining forces first through Demonstration and Communication, then through Facilitation and Support.

Stage 3. **Unblocking Communication**

- 3.1 Devise feedback mechanisms for detecting difficulties, discontent interferences and unexpected snags.
- 3.2 Invite contributions to the change and suggestions for modification.
- 3.3 Convert emotional opposition into constructive criticism.
- 3.4 Remain open to the possibility that change may have drawbacks not recognised by the innovator.
- 3.5 Support modifications and adaptations.
- 3.6 Be prepared to modify the change when experience indicates improvement is possible.

Stage 1. **Preparing for Change**

The first phase of the model involves 'preparing for change'.

One element of 'preparing for change' phase of the model had been considered at the outset of the Templewood study. That was identifying the basic problem or opportunity. The problem identified was the inability of children to remember rules and procedures. It was also the difficulty children had in applying those rules they could remember to problem solving.

Teachers' reactions to the science initiative, and initially to the mathematics strategy, suggested it was not enough to have an idea and talk about it. Another factor pertinent to change appeared to be to focus on the driving and restraining forces.

The second element of the 'preparing for change' phase of the model was for the change agent to focus on the driving and restraining forces before implementing the change. The literature I studied at London University led me to consider the possibility that the approach to teaching mathematics that I had used did not develop understanding in children. This in turn led me to search for a solution. A driving force for change then was a realisation that my actions were not producing the consequences intended. It seemed reasonable to assume that this would be the motor for change in others. Indeed it could be argued that a realisation that our actions are not producing the outcomes we intend is the motor for all human change. At Templewood, however, teachers grasped only hazily the idea of the link between their approach to teaching mathematics and the problems children had in remembering rules and procedures. Stimulating this driving factor for change seemed to involve crystallising for teachers the link between particular teaching methods and confusion in the children. For much of the initiative at Templewood I was unsure of how to achieve this crystallisation. It was only while working in teachers' classrooms that a way was seen in which this driving force for change might be stimulated. In the classrooms in which I worked children appeared to reveal the sort of confusion observed within my own class. I videoed children who appeared confused as they attempted to perform calculations, and showed this to the rest of the staff. I had used a video of children developing their understanding of mathematics in the way the learning strategy implied at the start of the initiative at Templewood. This had produced little response. However the video of children having difficulties with performing calculations appeared to have more impact. Retrospectively it appeared that the path to change would have been smoother had this driving force for change been evoked at the outset.

It was suggested above that a driving force for change is when we come to see that our actions are not producing the consequences we intend. However, this motor for change appeared blocked during the attempt to instigate change in science that had preceded my own initiative at Templewood. Teachers had accepted that they weren't teaching science in the way they would wish for in an ideal situation but felt the ideas were impractical with a class of thirty children. A restraining force then was that although teachers accepted that they weren't achieving the outcomes they intended, they felt that theirs was the only course of action possible given the circumstances. Overcoming this constraint seemed to involve presenting a clear, practical picture of what the change required. Again for much of the initiative I was unsure as to how to achieve this. However, after working within several classes, I translated the psychological descriptions of learning (Floyd 1981, Walkerdine 1982) into a clear, practical framework illustrating what the learning strategy would look like in the classroom. Retrospectively it appeared that had the project's ideas been clearly and practically communicated at the outset of the Templewood initiative initial restraining factors would have been reduced. The preparing for change phase of the model would also involve focusing on restraining factors.

The third element of the 'preparing for change' phase of the model suggests that the change agent decides who is likely to be affected by the change and the reasons that might lead them to resist it.

Within the science initiative at Templewood, teachers' lack of knowledge about the classroom implications of the proposed ideas was not the only barrier to them changing. Teachers appeared to see the change as an implied criticism of their previous teaching. Fullan (1982) argues that occupational identity represents accumulated wisdom and change threatens this by implying that accepted skills developed through trial and error are symptoms of failure. The implications of this were that careful attention would need to be paid to respecting the professional identity of members of staff. Because teachers are apparently sensitive to implied criticism, the initiative was to focus on the practicality and usefulness of the learning strategy. My initiative was therefore planned to allow teachers to scrutinise the mathematical ideas which I was put forward.

Stage 2. **Implementing Change**

The second phase of the model involved implementing change. This phase would involve increasing the driving forces and reducing the restraining forces. What was actually involved in this phase at Templewood developed from teachers' needs rather than as a result of any pre-planning. During the research at Templewood two groups of teachers could be identified. One of these groups was distinguished by their adherence to teaching mathematics using traditional approaches. This approach involved the children working incrementally through the pages of text books, with the teacher acting as a resource, responding to individual problems as they emerged. It also involved the teacher working with a group of children to explain on the blackboard what was required of them to work their way through a particular page. For these teachers the new mathematical approach represented a fundamental change in their practice. A second group of teachers used apparatus to support children's thinking and then removed these when they considered the children had picked up the idea. For this second group the new mathematical approach represented an incremental rather than a fundamental change in their practice. This involved linking apparatus with standard algorithms through written language and pictures.

This experience suggested an important distinction in two types of teacher response, which in their turn required two different forms of support from the change agent. These differences are set out in Table 1.2.

Table 1.2

Implementing Change

Teachers experience the change as:

	A Fundamental Change	or	B Incremental Change
<u>Focus</u>	The innovator's materials, strategies and beliefs.		Practitioner's materials, teaching strategies and beliefs.
<u>Evaluation</u>	Of the extent to which the practitioner is able to engage in self-sustained inquiry.		Of the extent to which the practitioner's practice is changed.
<u>Direction</u>	Determined by the innovator.		Multi-directional determined by the individual changes might include the use of materials, classroom organisation, role relationships, etc.
<u>Involvement</u>	Of the innovator is a directive consultancy presenting knowledge so as to develop understanding.		Of the change agent in a non directive consultancy role responding to questions, problems and reservations.
	Of the teacher with the proposed change.		Of the teachers own practice with the innovations implications.

Change Agent Response

The change agent therefore supports the teachers by:

A Demonstration & Communication	or	B Facilitation & Support
Largely unilateral support by the innovator communicating the projects ideas.		Involves multi-lateral discussion and decision making.
Involves the innovator teaching in the classroom selling the project to the teacher.		Involves the practitioner trying out ideas in simulated and real classroom settings.

(Based on : Morton 1986)

For those teachers to whom the ideas represented fundamental change my role at Templewood was initially that of a 'salesman'. I demonstrated the ideas to teachers in the private domain of their classroom and communicated the learning strategy to them. At the end of this phase of demonstration and communication, these teachers joined those for whom the ideas represented incremental change into an inquiry with the feasibility of the ideas. At this point my role changed to that of 'enabler' - I facilitated and supported teachers engaging in self sustained inquiry. The path to change then was a single line. The starting point for participants along that line was dependent on whether the ideas represented fundamental or incremental change to them.

Stage 3. **Unblocking Communication**

The third element of the change model proposed here involves the change agent unblocking communication so as to respond to change. It was noticeable within the science initiative that teachers had a number of reservations about the ideas but did not communicate these to the teacher instigating the change. Rather their reservations were discussed with others to create and perpetuate the widely held view that the ideas were impractical and unworkable. It appeared to be important for teachers to feedback their problems and reservations about the ideas that were being proposed. At Templewood teachers eventually became engaged in modifying and testing the ideas proposed. Central to achieving this spirit of constructive criticism was that teachers considered I remained open to the possibility that the change had drawbacks that I had not recognised. My reaction to the doubts teachers raised privately appeared to convey this. Teachers initially told me of their doubts about the learning strategy only in the private domain of their classrooms. They appeared to do this in order to protect my own feelings. My reaction was to raise these reservations in the public domain of the staffroom. This conveyed to teachers that I was prepared to modify the changes when experience indicated improvement was possible. It also communicated that I wished to invite contributions to the change and suggestions for modification. The knowledge that I did not view the learning strategy as 'correct' resulted in teachers feeling free to feedback difficulties, discontent, interferences and unexpected snags. The change model then removed the blocked communication that had characterised the science initiative. In doing so it acted to reduce resistance.

Staff Relationships at Templewood

One intention for the current study was to test the effectiveness of the change model in a number of primary schools. The study was also an investigation into the effect of the initiative on patterns of staff interaction in the schools in which the intervention took place. At Templewood the experience of attempting to instigate change based on the problem solving approach was that the climate of staff interaction did not support such an exercise.

During the time that has elapsed between setting out on and concluding this study there has been a growing focus on the capacity of teachers to work together co-operatively within

schools (e.g. Rosenholtz 1989, Fullan 1991, Hargreaves 1992, Nias et al 1989, 1992). I discuss this focus within the concluding chapter of the study. At the outset of this study, however, the bulk of contemporary literature suggested that the difficulty at Templewood school was exceptional. Set against my experience were a wide range of authors advocating, providing images of and strategies for school self evaluation and collegiality (e.g. Simons 1981, Holly 1982a, Hopkins 1985a, 1985b, 1985c). Underpinning this approach was a description of schools as organisations in which co-operation and collaboration happened as a matter of course. Studies of school review and development (McMahon et al 1984) similarly seemed to have been conducted entirely in schools with climates conducive to the process. Thus Oldroyd and Teller's (1987) research was concerned with schools that LEAs considered had climates supportive "to change from the inside" (p.2). Hopkins and Vickers (1986) suggest that school self evaluation is widely accepted within both schools and Local Education Authorities (e.g. Cambridge Accountability Project 1981, East Sussex Accountability Project 1984). McMahon et al (1984) produced Guidelines for Review and Internal Development of Schools (GRIDS) which was widely used by Local Education Authorities.

But alongside the large number of advocates of school self evaluation and collegiality there was a body of writing within the research literature that confirmed my experience of difficulty. The phrase that encapsulated my own experience was that used by Simons (1987). For Simons the fundamental difficulty with school self evaluation is that the organisational climate does not exist to give the exercise legitimacy. Simons also suggests that democratic self evaluation is mistaken in its view of schools being characterised by "rational autonomy, openness and shared critical responsibility" (Simons p172). For Simons this is a description of how we would like schools to be, not how they are: the 'privacy, hierarchy and territory' (Simons) in which teachers engaged in whole school evaluation are breaking the rules of the institution. Simons' description applied to secondary schools in the context of self evaluation. The phrase 'privacy, hierarchy and territory' also appeared to capture the essence of a pattern of staff interaction that had undermined my initial attempts to instigate change at Templewood primary school. I now wish to identify how privacy, hierarchy and territory manifested themselves at Templewood.

Privacy

Teaching, like any profession has its rules: some codified and formal; others tacitly accepted as informal rules of thumb. For Lieberman and Miller (1984) one such rule is 'be private'. That is, do not share experiences about teaching perceptions. The meeting I set up to discuss ways in which the children's mathematical thinking might be developed appeared to break this rule. Most teachers were prepared to discuss their individual frustrations with me in the privacy of their classrooms. In the staffroom, however, the rule appeared to be maintain privacy over individual practice. Teachers who were often vocal in the usual staff meetings concerned with matters of organisation and the purchase of equipment made little contribution to the meeting discussing ways of developing mathematics practice.

An article written after the outset of this study (Yeomans 1989) describes well the way in which privacy manifested itself at Templewood during the initial staff meeting held to look at ways to develop mathematics practice. For Yeomans the need to 'play God in the classroom can lead to staffroom disaster if fiercely defended classroom infallibility is questioned'. At Templewood the attempted discussion about ways in which mathematics teaching might be developed appeared to be received as an irritating intrusion into an individual teacher's domain. Nias (1987) suggests that primary teachers communicate more effectively about routine organisational matters than about the curriculum. At Templewood moving discussion beyond routine organisation matters into the area of mathematics practice appeared to lead the staff onto dangerous ground. The meeting was punctuated by long silences. The few contributions made appeared to defend each individual's practice as the only possible solution to the situation they found themselves in. Any other possibility did not take into account the behavioural and organisational constraints of a particular age group. The retort to a suggestion that there could be more group work was 'Groups? Oh come on you can't have any idea about what it's actually like teaching thirty-four six year olds or you wouldn't say that.' This comment articulated the tension underlying the meeting and warned that things might go too far. The staff appeared relieved when the meeting concluded. It seemed to confirm that privacy about practice was a much better option than putting mathematics practice on the whole school agenda. To do so brought underlying tensions to the surface and threatened the stability of existing staff relationships. Other authors document the presence of 'privacy' in primary schools. Thus Coulson (1974) and Coulson and Cox (1975) suggest that the relations between head and class teachers encourage restricted professionalism and privacy about practice.

Territory

Being private also means maintaining a territory. That territory at Templewood was the individual teacher's classroom. I felt a strong sense of intrusion merely visiting some classrooms to canvas teacher's individual support for me working to demonstrate Do Talk and Record in their classrooms. Instinctively my reason was to compliment teacher's classroom displays or the work they had done with the children. Indeed with some teachers the initial discussion focused more on this than on the intended mathematics project. For Lieberman and Miller (1984) teachers seldom invite one another into their classrooms. At Templewood teachers appeared to see this as observation. For Lieberman and Miller (1984) observation is equated with evaluation by teachers. Such evaluation seems a threat because it violates an individual's sense of position in the world. Other authors document the presence of territory in schools. For Anderson and Schnyder (1988) teaching is the last profession which it is legitimate to "operate in your own space which is secure against invaders". Research evidence also points to a reluctance to obtrude into individuals' classroom practice. Thus the Birmingham Survey (Primary Schools Research and Development Group 1983) found that class teachers' autonomy restricted co-ordinators' ability to influence them. In the survey

co-ordinators were seen more favourable as responding in a low profile way to the needs of colleagues rather than chairing or leading groups of colleagues developing a curriculum area.

Hierarchy

Individualism at Templewood carried its own problems. If privacy and territory purged the classroom of blame and criticism it also shut out possible sources of praise and support. Galton and Simon (1980) suggest that teachers have a crucial need to be seen as one who is a 'good teacher'. I suggest that the need to be seen as a good teacher derives from teacher's isolation and consequent vulnerability. This in turn leads to a quest to gain and not lose status. For Hargreaves (1982) isolated teachers receive little adult feedback on their value, worth and competence. At Templewood teachers relied on the thinnest threads of evidence to assess one another - the noise coming from next door's classroom or the quality of class performance given to the whole school. It seems reasonable to assume that a group of individuals seeking status will lead to a situation in which there is rivalry and one-upmanship. There appeared then a strong feeling of hierarchy in the school. During the Do Talk and Record initiative early discussions about mathematics seemed more concerned with the mathematical status of those involved than with an inquiry into the best way forward. Other authors document the presence of hierarchy in primary schools. Ball (1985) suggests that curriculum co-ordinators leading staff meetings and basing their leadership on their expertise are operating in a no-mans land in which curriculum areas are 'up for grabs'. At Templewood the science initiative that preceded my own was widely interpreted as empire building by the science co-ordinator. The Durham Survey (Rodger et al 1983) reported that postholders in primary schools were uneasy at the prospect of being required to lead staff meetings and preferred a low key approach that kept intact existing relationships. This left them feeling a "sense of powerlessness to alter the status quo" (rodger et al 1983 p.87). The silence that confronted my suggestions at Templewood conveyed a hostility that left me feeling uneasy about how and if to continue. For Campbell (1987) the picture of conflict and uncertainty identified in the postholder's role are typical of general teaching roles in primary schools.

A reflective analysis of the study of change at Templewood offered a springboard to further study about primary school groups and relationships. At the outset of this study current writing in this area was concerned with documenting the particular and distinctive characteristics of primary schools and the adults who live and work in them (e.g. Campbell 1987, Southworth 1987, 1988). The research at Templewood appeared to document an approach which positively affected the intra group difficulties to which primary schools seem vulnerable.

At one level the intra group difficulties initially experienced were overcome during the course of the initiative. Thus in the first stages of the initiative I acted as a change agent 'selling' the approach to a sceptical staff. As the project

developed we became jointly engaged in an inquiry into the feasibility of the ideas offered for consideration. At another level the initiative left a wider impact within the school.

Fullan (1987) suggests that success with one initiative increases the effectiveness of the organisation to take on others. At the conclusion of the Templewood study I reported that there had been increased 'collegiality' and a readiness to accept new initiatives. However at the outset of this study I found difficulties with the term collegiality. Much of the literature on collegiality was based on prescription rather than description (e.g. McMahon et al 1984, Holly 1985, Hopkins 1985). Moreover although collegiality was a term widely used as if its meaning was commonly understood (e.g. Tomlinson 1986, Richards 1986, Thomas 1987) such writers seem only to mean that teachers should 'work together'. At the time of the intervention the headteacher of Templewood had expressed an interest in the school using GRIDS (McMahon et al 1984) to stimulate the collective involvement of teachers in school based review and development. At the end of the 1986 study I reported that the school was now more ready to take on measures for self evaluation. This outcome of the Templewood intervention appeared to have wider implications for schools wishing to engage in activities such as self evaluation. It also had implications for those authors advocating these activities. Literature on self evaluation and collegiality seemed largely to ignore that, in some schools, the conditions in which they might be realised were not present. Do Talk and Record appeared to offer a way in which those conditions might be created. The essence of the change to conditions at Templewood appeared to be captured by Simons (1987). Simons concludes that school self evaluation cannot proceed unless "the values of privacy, hierarchy and territory within schools come to be replaced by those openness, shared critical responsibility and rational autonomy (Simons 1987, p.182). The initiative at Templewood appeared to dismantle the values of 'privacy, hierarchy and territory' and replace them with 'openness, shared critical responsibility and rational autonomy'.

I now wish to set out the way in which openness, rational autonomy and shared critical responsibility manifested themselves at Templewood.

Openness

At Templewood engaging in curriculum inquiry appeared to foster a feeling of mutual security and consequent openness. Thus towards the end of the mathematics initiative teachers made tentative attempts at an increased openness in staff meetings. One teacher's open admission of his reaction to a child's difficulty typifies this. "Perhaps I should not be saying this but sometimes when I find a particular child cannot do something (in mathematics) I just give them something easier and just say do this because I know then they can do it and they will not bother me". Openness was also apparent in the wider climate of the school. Teachers projected infallibility seemed to diminish. A child being sent to me in class saying "Mrs Jones says she doesn't know how to spell accumulate and she thought you could tell me" seemed to epitomise this new climate. Nias (1989) suggests that within cultures of collaboration teachers value

openness. Following the mathematics initiative at Templewood, teachers expressed the attractiveness of openness. The general feeling was expressed by one member of staff as there "having been a lot of sharing and people have said what they have thought and that has been good."

Shared Critical Responsibility

At Templewood there also appeared to be a shift from individual classroom infallibility to a shared critical responsibility for the whole school's approach to mathematics. Nias (1989) suggests that within collaborative cultures teachers value interdependence. Following the initiative at Templewood a teacher suggested that she set up a workshop to illustrate to other members of staff the ideas she had seen on a music course. Whole staff feedback from courses had not happened before at the school. The suggestion appeared to be aimed at continuing the climate of inquiry with the staff through the vehicle of music. There was agreement that this was 'a new phase'. The music proposed was supported by other teachers who suggested that 'we should pool our expertise more'.

Rational Autonomy

Rational Autonomy also appeared to replace emotional opposition during the initiative. For Nias (1989) a culture of collaboration involves teachers valuing individuals for their contribution and individual expertise. During the initiative at Templewood a need to value teacher autonomy was expressed. Thus teachers' different modifications and adaptations of the mathematical ideas were based on an appeal to the group that 'in the end you've got to let people get on with it as they think best' and 'its such a personal thing teaching'. But this autonomy differed from the privacy and infallibility that had dogged the early stages of the initiative. It was justified on an appeal to a shared feeling of what it was like to be a teacher.

The other intention of this new study was then to explore the effect on staff relationships of implementing the change model developed at Templewood. The working hypothesis was that 'an initiative premised on the change model proposed here acts to dismantle the values of privacy, hierarchy and territory and replace them with openness, rational autonomy and shared critical responsibility. The intention was to try out and refine this working hypothesis in a pilot study and before testing it in a more formal change experiment in a main study. Testing the hypothesis would enable the study to illuminate several questions and concerns about collegiality.

The first of these was an absence in the research literature of a description of what collegiality might look in practice. At the outset of the study those who advocated collegiality appeared to do so on the basis of prescription rather than description. Other research conducted during the course of this study has focused on how collegiality might look in practice (Mortimore 1988, Nias 1989). The study offered an explanation into how teachers might move along a continuum from independence to interdependence.

Secondly there appeared a need for a greater analysis of the concepts connected with collegiality. Wallace (1988) touches upon democracy, consultation, leadership, hierarchy and collaboration but at no time does he examine them. Using and refining Simons (1987) description appeared to offer a starting point for an analysis that took matters beyond a description of teachers 'working together'.

Thirdly the study offered an analysis of in-school obstacles to collegiality on the ground. Writers who question collegiality raise concerns about the capacity of teachers to work in groups. While a mutual aid 'construction of collegiality (Little 1982) is appealing, how teachers develop such a path is not stated. As I suggested above processes and plans for collegiality and self evaluation seemed of secondary importance to creating the conditions in schools for these to be realised. This study offered an explanation of the ways in which open patterns of interaction might be developed in schools.

In September 1987 I set out to research into the effectiveness of the change model in moving teachers along the path to change. I also set out to test and refine the working hypothesis that the change model would have a wider effect on staff relationships within the schools in which it was implemented. As the reader will see, during the course of the study, major refinements were made to the initial conception of what was involved in overcoming resistance and in leading teachers along a path to change. In addition, the initial hypothesis and the change model itself would also be substantially refined in the light of experience.

Chapter Two : Preparing For Change

In order to investigate the effectiveness of the change model, a curriculum development project was required that represented change to teachers. The starting point for the research at Templewood was an approach to teaching conceptual understanding which I had developed and offered to teachers at that school. It seemed a reasonable starting point for this study to assume that this approach might represent change to a wider group of teachers. It was thus proposed to use the mathematical learning strategy as a vehicle for research into the process of change in primary classrooms.

According to the model, preparing for change initially involves the change agent 'identifying the basic problem or opportunity'. In the first section of this chapter the mathematical problem identified within my own and other teachers practice is discussed further. The preparing for change phase of the model also involves 'identifying the driving and restraining forces before implementing the change.' The second section of this chapter then looks at strategies to evoke the driving force for change and to reduce restraining forces. 'Preparing for change' additionally involves 'deciding who is likely to be affected by the change and the reasons that might lead them to resist it.' The chapter therefore discusses the sources of resistance observed at Templewood and suggests how these might be overcome by encouraging open feedback. At Templewood I had been an 'insider' instigating change. In this study I was to operate as an outsider. Deciding on reasons that might lead teachers to resist the ideas also appeared to involve looking at teachers' reactions to outsider based initiatives. Several authors (e.g. Bolam 1982, Brim and Tollett 1985, Daresh 1987) document teachers' scepticism to outside attempts to instigate change. The concluding section of this chapter looks at strategies used by outside change agents, offers an explanation as to why these are reacted to with scepticism by teachers and in turn speculates how this initiative might overcome these difficulties.

Identify the Basic Problem or Opportunity

The mathematical background to the project derived from a common problem felt by teachers at Templewood school (Morton 1986). One concern teachers expressed was the failure of some but not all children to remember standard procedures for performing calculations. Another difficulty teachers had was the inability of children to apply that knowledge of the standard procedures to different contexts.

This perceived problem can be related to the use of teaching techniques which fail to take account of the way in which children learn mathematics.

The various forms of mathematics learning are classified by Gagne (1978). Gagne identifies a model of learning which distinguishes four aspects of mathematics: simple recall, algorithmic learning, conceptual understanding and problem solving strategies. Simple recall refers to a relatively restricted area of mathematics involving number bonds, multiplication tables, etc., which can be learnt by frequent practice. Algorithmic learning refers to the

memorisation of a store of well defined procedures such as how to do long multiplication. Problem solving strategies refer to the various lines of attack which could be put into operation where a method to find the solution is not immediately recognised.

Conceptual understanding implies concepts which are not isolated entries which can be learnt like other areas, but rather a network of relationships. For example, let us take the problem: "If I'm left with a 15.2cm piece of wood after using 23.3cm - what did I start with?" It is unlikely that a child would be able to apply their knowledge of 'take away' procedure to this problem. This is because the mathematical skill involved requires an understanding of subtraction deeper than that required to get correct answers when someone else has told you what operation to use. The clues to use subtraction lie embedded in the language patterns used in the problem. Unless the child is able to associate the language he or she uses to describe the various aspects of subtraction with the operation itself, he or she will not be in a position to pick-up the necessary clues inherent in the problem. As a result he or she will be unable to perceive the relevance of subtraction and so will fail to solve the problem. Conceptual understanding of subtraction then involves a sense of subtraction in all its guises and the ability to apply those skills easily and confidently.

"Although each of the forms of any concept can be taught in an isolated form the strength of conceptual learning is the interconnections between the forms and situations of that concept in particular, the ability to select and appreciate flexible interchange between different operations."
(Skemp 1976 p116)

Margaret Brown (1984) suggests that a lack of emphasis on conceptual understanding causes children difficulties in mathematics. One aspect of this lack of emphasis on conceptual understanding is a consequence of the widespread reliance on published text books and schemes. These invariably present calculations for children to perform at a symbolic level of the standard layouts for algorithms. For Piaget (1969) the origin of conceptualisation lies within the formulation of schemes based upon the interrelation of action upon objects. Skemp (1976) and Ginsburg (1977) make the case for a minimum of three concrete contexts before any concept can be understood. The essence of this is that only when there has been action and experience of concrete objects does it make sense to record a process in the abstract symbol form presented in standard text books and published schemes:

$$\begin{array}{r} 1 \\ 5 \quad \cancel{6}2 \\ - \quad 45 \\ \hline 17 \end{array}$$

This is because, with the opportunity of working with equipment there are tracks laid between the practical experience and the symbols. On being asked to calculate '62 take way 45' then there is no need to remember an incantation for 'borrowing from the ten' because the pictures of the equipment are there in the child's mind to work from. There is also the ultimate fail safe

of returning to the manipulative situation and performing the necessary actions. The freedom to track back to first principles and to work on equipment means that the child is always working from a position of confidence. Eventually this action will be internalised and the child will leave the equipment behind. Moreover, in tracking back from symbols to action there is nothing fundamentally different between the physical manipulation of the apparatus and its succinct symbolic form.

Piaget's description of the abstraction of objects does not perceive language and signs as playing a part in the development of concepts which are already formed through the internalisation of experience.

"The relationship, then, of signifier (language diagrams or pictures) to the signified (object or process) consists in the ability to represent something (a signified something: object, event, conceptual scheme, etc.) by means of a signifier which is differentiated and which serves only a representative purpose".
(Piaget 1952 p33)

This description of the development of conceptual understanding reflects the practice of those teachers who worked with the children using concrete apparatus. Those teachers then removed that apparatus when they considered the child had internalised the idea.

Teachers at Templewood felt that children using this approach demanded their continual attention. Several authors (Walkerdine, Floyd) would also see it as failing to take account of the role of language in abstracting meaning.

Walkerdine (1982) argues that the development of abstract thinking can be explained in terms of language and signification rather than from the actions which are performed upon the properties of objects and their relations. She cites common instances in which teachers provide meaning to relations by talking them through with children. The transcript of the video I made of children at Templewood school gaining concrete experience of decomposition using Dienes apparatus illustrates this:

DM: Do we have enough here (indicates one cube in the units column) to take eight away from?

Tanyia: No.

DM: That's right, if we only have this one (indicates) we can't take all those away (indicates eight cubes that have to be taken away).
(Morton 1986 p33)

In this instance it would appear that the children are not so much experiencing the apparatus as having the correspondence between the value of the numeral and the apparatus manufactured for them. In Saussure's (1974) terms there is a strong relationship between the signified (the apparatus) and the signifier (saying the words). The weakening of this relationship

and consequent abstraction of this idea is illustrated in a subsequent transcript from the video. Thus later, after more experience with the apparatus,

DM: So if we can't take 9 from 3 what are we going to do ... Tanyia?

Tanyia: We get one of these (picks up ten rod) and change it for 10 of these (matches up and counts out ten units).

DM: 9...10... Yes we exchanged the ten.
(Morton 1986 p33)

In this transcript Tanyia is not using language to communicate her understanding of the concept of exchange or represent the concept that has already been formed. Rather she is using language to organise her manipulation and grope her way through the process.

However, it is one thing for children to be fluent with the equipment in front of them but quite another to give an adequate explanation when it is not.

Thus

"We get one of these and change it for 10 of these"

is an adequate explanation with equipment present, although without apparatus it serves little mathematical purpose. An unambiguous explanation would be more elaborate.

"I change 1 ten for 10 units and put them in the units position".

The implication is that it is not enough to provide apparatus with the intention of removing it when the child has internalised the action. Rather the development and refinement of language patterns is the process by which ideas are abstracted (Saussure 1974, Walkerdine 1982). In Walkerdine's terms: "Children do not have actual experience of concrete objects, meaning is created at the intersection of the material and the discussive, the fusing of signified and signifier to produce a sign. These meanings are located in and understood in terms of actual social practice, represented in speech as discourse".
(Walkerdine 1982 p12)

Using apparatus alongside the calculation also fails to provide links for the translation of practical reasoning to formal reasoning. Formal reasoning is entailed in an actual statement, what Walkerdine refers to as the "metonymic axis". Again this is apparent on the video transcript.

Allan: "You can't take 1 from 7 (pauses). Oh you can take 1 from 7, you don't have to bother about splitting them up".

Here Allan is reasoning in an abstract way on the relationship between 1 and 7. Reasoning practically would have entailed checking the statement by reference to the equipment but the sort of checking being undertaken in the transcript is that of reflecting on the internal relations of the statement itself.

The basic problem then that teachers are confronted with in mathematics teaching is the inability of children to remember what they have been taught and to apply their knowledge. This problem, I suggest, can be seen in terms of a lack of teaching of conceptual understanding. The solution, from the argument above, is for teachers to provide tracks by which children can move from concrete experience of objectives and processes to formal reasoning about them. This development of conceptual understanding, I suggest, is what Denvir, Brown and Eve (1988), in their "Attainment Targets and Assessments in the Primary Phase: Report of the Mathematics Feasibility Study" are referring to in their concern over 'informed numeracy'.

My experience of primary schools is that although teachers are aware of the emphasis on the components of the development of conceptual understanding they are unaware of how these fit into an overall process. I shall now map out how this process of developing conceptual understanding might be translated into a teaching framework.

Bruner (1966) argues that instruction should begin with an enactive and iconic approach before introducing any symbolic work, which amounts to saying that it is best to begin with concrete materials when introducing a new topic and leave expressing it in abstract symbols until later. Bruner's stages or levels of development have similarities to Piaget's stages. For Bruner, as for Piaget, the child passes through the modes, gradually integrating and combining past experiences in the transition to the next stage. When organising and manipulating past experience each individual is dependent upon his own unique cognitive structure. But the extension of this cognitive structure can be assisted by teaching which emphasises the person's own recombination and discoveries for himself.

"I suspect that much of our growth starts out by turning round in our tracks and recording in new forms, with the aid of adult tutors, what we have been doing or seeing, then going on to new modes of organisation with the new products that have been formed by these recordings. The heart of the educational process consists of providing aids and dialogues for translating experience in to more powerful systems of notation and ordering." (Bruner 1966 p83)

The teaching task then involves laying tracks by which children can move from manipulating equipment to being able to write about that manipulation using conventional notations of mathematics. I indicated above the importance of helping children to develop the language patterns needed to talk about the various aspects of subtraction. I argued that children's explanations play an equally important role in helping them to understand the standard procedures for decomposition. I also suggested that children's

talk is closely linked to what they are doing on the apparatus. I now want to look at how this 'doing' and 'talking' can be linked with recording.

Bruner (1972) suggests that through developing children's language abilities schools can help them to develop the ability to think abstractly: "written language provides an occasion in which one must deploy language out of the immediate context of reference". Writing then is training in the use of linguistic contexts that are independent of their immediate referents. (Bruner 1972 p47).

Slobin (1971) argues that the process of reflection on the internal relationships of a statement is particularly facilitated by writing. Initially a child's attention will be focused on thinking and doing and talking about that action. There will be no time to consider the intricacies of recording thought on paper. It is only when explanations are no longer so closely tied to the actions and the child talks from images in his or her mind that there is a readiness to move toward recording the process.

However, initial recording may not be most useful in the form of language. As already stated, Bruner (1966) argues that children and adults have three broad ways of representing the world for themselves, referred to as enactive (action), iconic (imagery) and symbolic (the use of a symbol system of words and numbers). Within Bruner's framework the iconic model builds upon the enactive. Thus the transition from enactive to symbolic experience would involve firstly iconic metaphors for mathematical processes and objects. An initial recording of experience with the children physically removed from the apparatus might thus initially be in pictures. The movement from this to 'story' accounts of processes will allow reflection on the internal construction of statements and a transition to a symbolic mode of representation. The successive shortening of statements will allow for an increasing reflection on internal relations and succinct articulation leading to standard notation. In simple terms developing conceptual understanding involves the children 'doing' then 'talking' and then 'recording'. I came then to refer to the learning strategy proposed as "Do, Talk and Record".

Focus on the Driving and Restraining Forces before implementing Change

Having identified the basic problem or opportunity I now wish to discuss the second component of the 'preparing for change' phase of the model. That is for the change agent to 'focus on the driving and restraining forces before implementing change.'

It was suggested in the preceding chapter that the driving force for change was when we see that our actions are not producing our intended outcomes. In order to communicate to teachers that their teaching did not allow children to make tracks from abstract to formal reasoning I made a series of video recordings. A video of children working in the way implied by Do Talk and Record had been shown to teachers at Templewood.

Before beginning the current research, I made an addition to the Templewood video. The new section set out to show that children who had been taught rules that made no sense to them were unable to operate or remember those rules successfully. How this was achieved can be seen in the video transcript.

DM: Now I'd like you to write down the sum.
One hundred and nine take away seventy.
Now talk me through how you'd do it.

C: (Writes sum on blackboard) nought from nine you can't do so
go over to the one and cross it off. That's a nought.
That's a one (writes one beside nought). Cross that off
that's a nine put that one (puts one beside nine). Oh....

DM: Can you see what you've..

C: Yeh I've gone wrong.

DM: Would you like to start again (rewrites sum).
What are you looking at now?

C: The nought.

DM: The nought. What are you trying to decide?

C: How to start.

The significance of Candice's sentence "nought from nine you can't do" was glossed over by her as it represented the start of an incantation that would provide the answer. But the lack of mathematical thinking behind the incantation was apparent in the failure of it to address the relationship between "nought" and "nine". When she found that the incantation was an inappropriate solution and she had no experience of "nought" and "nine" which would allow her, for instance, to try it on her fingers.

The video also set out to convey the impression that it was the way the children had been taught that was a barrier to them developing an understanding of subtraction. This was John's response to $109 - 70$.

J: In this one its 0 from 9. You can't do that so you put 0
down. 0 from 7 you can't do that so that's 0. Nothing to 1
its one. Oh.

DM: If you had 109 and you took away 70 is that how much you'd
have left?

J: No, that's what I realised.

DM: Do you know how much you'd have left?

J: Er, 39.

DM: Good boy, can you tell me how you got that.

J: It's 70, then 80, 90, 100. That leaves 9 so it's 39.

The implication of this sequence was that although John was very weak on "doing" subtraction using decomposition, he was able to manipulate and retain large numbers in his head. From this it is apparent that it is the strategy by which he has been taught subtraction that is questionable rather than his mathematical ability.

The second video concerned problems developed from the 'Concepts in Secondary Maths and Science' (1985) tests. It set out to show children's inability to relate standard algorithms to practical situations. For example, "signposts" showed a picture of a signpost with Grange 22 miles and Barton 19 miles on its arms. The children were asked how far it was from Barton to Grange. Paul (aged 11) gave the following response:

DM: Now tell me how you got the answer.

P: Well, take 22 from 19 and there'll be a remainder and that'll be the answer.

Paul, then, is unable to associate the "tricks" for solving abstract mathematical algorithms with any practical application of the processes that underlie the tricks. This is apparent in the juxtaposition of mathematical phrases "take", "remainder", "answer" in an attempt to explain the logical thought involved in the sum. Evoking the driving force for change then involved using videos to produce uncertainty about the effect of existing forms of mathematics practice.

The model also proposes a focus on the restraining factors within change. It was suggested in the previous chapter that a restraining factor upon change at Templewood was that teachers accepted they might not be achieving outcomes they intended but thought that their existing way of teaching was the only one possible, given the circumstances.

This acceptance derived from teachers' concern about the practicality of the Do Talk and Record. At Templewood a number of teachers were encouraged to see the desirability of Do Talk and Record. However when these teachers were left to try out the ideas in the classroom, they struggled and the initiative floundered. The "practicality of means" appeared as important for teachers as the "desirability of underlying aims" (Doyle and Ponder 1977).

For Eraut (1984) a major problem for teachers is that a change in approach involves unlearning existing routines and decision habits designed to cope in the classroom. The pragmatic considerations of classroom management result in teachers having a low tolerance of change. Overcoming this appeared to involve easing the ideas into the classroom. In order to assist teachers in trying out the ideas in class, a framework of support was devised. The implication of the argument in the previous section is that a framework for teaching mathematics would involve leading children through a process of Doing (action and experience), Talking (language patterns, injected, fostered and developed) and Recording (in pictures and in words with successive shortening leading to standard notation). To make the teaching method explicit the following framework was developed (see Table 2.1).

Table 2.1 : Do Talk and Record, The Framework

Do, Talk and Record

Do - Action and Experience in multiple embodiments.

Talk - Language patterns injected and developed.

Record - In picture and words with successive recording leading to standard notation.

Manipulating, Getting a Sense of, Articulating

Teacher Intervention

Manipulating - confidence inspiring entities which may be objects, numbers, letters or images.

Teacher expounding getting activity started.

Getting a Sense of - what underlies the specific examples.

Teacher listening, injecting ideas and patterns.

Articulating - the sense of an idea crystallising it into a succinct form.

Teacher present only occasionally as a resource.

Each of the three sections of the framework focuses on a different perspective of the psychological framework proposed above.

Manipulating, Getting a sense of, Articulating, was to focus teachers on the knowledge of how children learn that the Do, Talk and Record project was based upon. It suggests that manipulating objects, whether concrete apparatus, numbers or letters, is a necessary preliminary to "getting a sense" of the underlying idea and that both talking and listening are essential in order to bring fullness to the images and patterns which arise from manipulating.

Do, Talk and Record focused on the skills required of the teacher. It outlined the method of teaching implied by the project. It was also a recipe for classroom action which was to help individual teachers to decide on useful classroom activities and the language patterns associated with understanding and with writing effective written records.

The section on Teacher Intervention was concerned with the skills of classroom management implied by Do Talk and Record. The intention was to make explicit to teachers the amount of attention the children would require as they moved along the path implied by Do Talk and Record. Initially the teacher's whole attention might be taken up with the activity. Only as the children became more familiar with the ideas would the teacher be free to turn her attention elsewhere. Reducing the restraining forces involved making explicit to teachers the need to make time and space in the classroom in order to concentrate on Doing, Talking and Recording.

I also felt it would be helpful to offer teachers a planning guide which communicated a clear, practical picture of what using the project's ideas in the classroom would require consideration of. (See Table 2.2). The planning sheet was to be used alongside a blank sheet which teachers would fill in as they planned out their topic. An example of a completed topic sheet is also provided. (Table 2.3)

Table 2.2 : Planning A Topic Using The Do, Talk and Record Guide

Do, Talk and Record

Summarise exactly what you intend the children to do, the sort of discussion you expect to take place and the kind of recording you expect to ensue.

Manipulating, Getting a Sense, Articulating

Use this box to explain the purpose of the activity. Will the children's whole attention be taken up with the manipulating they will be doing be this with apparatus or pencil and paper or are you intending they should get a sense of the underlying idea and possibly be able to articulate this in pictures, words or numbers.

Teacher Intervention

Use this box to summarise the role you see for yourself. Think of the sorts of questions you might find it useful to ask to stimulate the children, when you expect to be present more or less continuously and of times you anticipate being free to turn your attention elsewhere.

Table 2.3 : Example of Completed Topic Sheet

Do, Talk and Record

I want the children to explore as many ways as possible of expressing the relationship between 2 numbers, using cuisinaire rods, if necessary.

I expect them to use accurately the terms, "makes", "gives", "equals", "altogether", "subtract", "more than", "less than".

I expect them to be able to construct number statements using the above terms, and then using mathematical notation.

Manipulating, Getting A Sense of, Articulating

I think that all the children will begin by manipulating the apparatus, but that at least 2 of them will soon be using their fingers.

Of course I hope they will be able to generalise from this experience and to explore different pairs of numbers. I hope they will be able to record their work by - oral means, using the above mathematical language - by drawing and by writing down using mathematical notation.

Teacher Intervention

I expect to revise the work done last term (see Children's Background) and to get children to demonstrate with cuisinaire.

I expect to add the other terms, one at a time and ask children to demonstrate.

I shall give them cards on which will be written one term each "makes", "gives", "equals", "altogether", "subtract", "more than" and "less than".

I shall ask them to choose 2 numbers and to note down as many statements about their relationship as possible by drawing, words, or mathematical signs. I shall hope to leave them to it.

It was envisaged that the planning sheet and the framework might together support teachers' planning. Used in conjunction with the blank teachers' 'topic sheet' (Table 2.3) they would support planning and thus reduce restraining forces.

Decide who is likely to be affected by the change and the reasons that might lead them to resist it

At Templewood the threat proposed by the change had resulted in teachers resisting the ideas. During the science initiative this resistance took the form of teachers talking down the proposed ideas to each other while not feeding back their problems and reservations to the teacher instigating change. Similarly, during the initial stages of the Do Talk and Record initiative, I was aware that the ideas were being 'talked down' in conversations in which I was not involved. To attempt to overcome this I constructed an evaluation sheet at the outset of this current study. It was envisaged that teachers would complete this sheet after trying out a topic (an example of a completed sheet is provided in Table 2.4). One of the aims of the sheet was to provide a mechanism by which teachers might reflect on the action that had taken place. The other aim of the sheet was to provide a vehicle which might encourage teachers to feed back their problems and reservations.

There was one factor in the current study which the Templewood experience did not allow me to anticipate. Whereas at Templewood my role was that of an insider initiating change, I was now acting as an outside change agent. I had reservations about acting as an outside expert. Teachers' dissatisfaction with outside run Inset procedures is well documented (e.g. Bolam 1981, Lynch and Burns 1984, Daresh 1987). Thus Bolam (1982) reported widespread scepticism among teachers about the quality of Inset provision. Moreover outside initiatives appeared to be often ineffective. Lynch and Burns suggested that there is remarkably little hard evidence of the effectiveness of Inset. For Campbell (1987) teachers attending Inset courses appeared to gain very little in the way of knowledge that was directly transferable to practice. Daresh's (1987) review of studies of outsider based staff development found there was little discernible effect on attitudes and behaviour and widespread scepticism about the effectiveness of Inset.

In order to investigate this scepticism I interviewed seven members of the Homeshire mathematics advisory service. I also observed a day course entitled 'Games in Mathematics' held at a local teachers' centre and interviewed teachers attending this course. Although the research was concerned with school focused Inset, observing a course provided a useful insight into the work of the advisory service. This was because in interview the advisors said that they saw themselves working in the same way on courses in schools. In both these situations they portrayed a model of practice they felt teachers should adopt. In schools they modelled this with the children in order that the teacher could observe. On courses they portrayed this model of practice using the teachers to play the part of the children.

Table 2.4 - Completed Do Talk & Record Evaluation Sheet

Date Wednesday 14th November Time spent 50 Minutes

Children involved Blue Group

Activities carried out by children

MULTIPLICATION OF TENS AND UNITS BY TENS

Summary

I first wrote on the card $10 \times 1 = 10$ and asked the children to write out sentences about the equation. Jonathan then represented the equation "10 groups of 1 is 10" with the apparatus. Samuel manipulated the apparatus to show "10 groups of 2 makes 20." I asked Julie to put her finished apparatus in the correct tray. Claire exchanged her 30 units for 3 ten rods and put them in the tens tray. Using this pattern the children all attempted to manipulate and exchange the apparatus to multiply a number by 10. "So you're going to exchange those for four tens." Gave the children some language pattern on which to develop from their manipulations. After some time Samuel said "You just change it into a ten and multiply it by one", and Jonathan: "You just move it up one column". "Let's see if Jonathan's right" I asked and the children after manipulating more specific examples of their own devising confidently agreed that this was the case. I allowed Jonathan, Samuel and Julie to make a longhand account of some specific examples while the other children were working on other examples. While I was working with this group I set Red Group off on writing some longhand accounts in pairs, which they then read to their friends for them to see if the accounts made sense - while Green Group played rectangular arrays.

INITIAL COMMENTS ON ACTIVITY

What do you think of the doing, talking, and recording that took place?
 The children's lacking was the best yet. Jason's argument against Carol's suggestion was independent of any intervention on my part.

Are further experiences in this area going to be necessary? Extensions to the activity, for example?
 I think the children are going to need more time to make recordings and also to link those recordings with the standard algorithm.

Has the activity achieved what you intended?
 Yes, I was very pleased with the way these children were able to work their way through a complex series of manipulations and write about them. I think there was a lot of involvement, when Carol told Craig to "shut up" she didn't want someone who knew the answer to break her chain of thought and tell her.

What do you think of the interventions you made?
 I gave more clues and spent more time allowing the children to see the necessity to split the multiplication into tens and units, but it was worth it to see their involvement in solving it. I think if I had left them a bit longer they would have got it. I rather rushed the exchange of units for tens, giving the children more than I would have liked.

Were there any examples of specialising, generalising, conjecturing, or verifying? Any examples of the rubric?
 I think Jason was generalising when he saw the problems encountered with using the units to multiply 10×3 would apply to 11×3 . There was lots of specialising at both splitting and exchanging. I think Carol was mulling over a Rubric when she told Craig to shut up!

Are you going to have to change your plans at all in the light of what happened?
 The children are going to need more time to look at exchange and more opportunity to make fluent recordings.

Games in Mathematics

The course 'Games in Mathematics' involved the advisory team presenting a series of model lessons. It was apparent from interviews conducted after the end of the course with the advisory team and with teachers that the activities were viewed from two distinct perspectives.

This distinction appeared to centre around the notion of the 'practicality' of the ideas being proposed. The advisory service's perception of practicality appeared to relate to Doyle and Ponders (1976) typology which conceptualises the behaviour of teachers as they react to proposals. Doyle and Ponder suggest that most teachers conform to the pragmatic sceptic type who adheres to the practicality ethic in which 'the practicality of means is more important than the desirability of underlying goals.' This view of 'practicality' appeared to underpin the views of the advisory service.

"Most teachers want something practical, not a lecture".
(Advisory Teacher)

Teachers, however, appeared to hold a different view of practicality. They scanned the ideas proposed on the course in relation to two concerns: how does this accord with a realistic picture of what constitutes day to day classroom teaching? (the cost of the initiative) and how does this model of practice accord with my experience of managing groups of children in the classroom? (the risk of the initiative).

The Cost of the Initiative

The picture of mathematics practice envisaged by the advisory service was of creative and active learning.

"The trouble is we don't allow children to create mathematics. The model of creativity and discovery we use in other subjects... teachers freeze back into formality when confronted by mathematics. We need to change teachers approach to mathematics. Lots of activity, making it stimulating... get away from sitting down with a pencil and paper and use other senses. More movement, more drama. Variety and creativity in grouping, content and presentation. Children discovering mathematics, engaging in collaborative problem solving. Maths as excitement and an activity.
(Advisor)

This approach to mathematics teaching was modelled by Advisory Teachers working in schools.

"I suppose that 25% of my time I work with the whole class... I set up activities for the different groups so they're all actively learning and I go round talking to them (the children) and discussing their ideas ... they're (the activities) usually ones that don't involve exposition ... so I can take the teacher round and say look isn't it good what this girl's done, praising the child as well... then they can see it works in class, that it can be done.
(Advisory Teacher)

This involvement of a whole class in active learning that the Advisory Service modelled within schools was similarly suggested on the mathematics course. Course members acted as a "class" by standing on the squares of a large number board marked from one to one hundred and the advisor acted as a class teacher moving the "class" around within a game situation.

The idea that a lesson should consist of games, continual discussion and a high level of physical input ignored the fact that teachers work to pace the energy requirements of the classroom. Teachers' response to this model of practice was that it represented an unreasonable expenditure in energy and time.

"Hardly ever do I have lessons comprising of just talk, well, hardly ever. I do mental testing but that's only for a few minutes. I usually follow up initial input by allowing the children to practice the ideas themselves and do some recording. After a while they get too restless to talk too, and that's not conducive to learning."
(Teacher)

"I soon realised that (problem solving) was basically child centred, very much so and therefore very demanding compared with normal class teaching."
(Teacher)

The Risk of the Initiative

Before discussing teacher's comments in relation to the "risk" involved in the lesson plan I wish to outline more fully what constitutes 'high risk' in the classroom.

Olsen (1982) sees teachers acting to minimise ambiguity in the classroom. I suggest that teachers are required to reduce the stress implied by situations of 'high risk' occurring in the classroom. Situations of high risk I see as those which are likely to lead to teacher overload or teacher loss of control.

Teacher overload refers to situations in which rather than the teacher managing the direction of learning, he or she is responding to the individual and differing demands of more children than can be coped with. These demands can take several forms: groups involved in collaboration on an activity failing to perform collaboratively and drawing a teacher into having to offer leadership and direction to that group, when the rest of the class also require attention (Pollard 1985); more children than can be coped with coming out to have their books marked and

credited with a tick (Payne and Hustler 1980); or a failure by the teacher to be ready to direct children in response to them wanting to know what to do next. (Morton 1986)

Teachers' anxieties about apparently "high risk" activity can be drawn from interviews with teachers attending the course.

"The advisor gave a presentation of the possibilities of calculator games in the classroom. He mimed standing in front of a group/class of children, asking questions and responding to comments as children looked for sequences and patterns in the activities suggested. An exchange was acted out in which a child called out a pattern he had discovered (signified by the advisor placing his hand beside his ear). His response to the child's observation was 'just have a chat about it and I'll come back to you'.
(Fieldnote)

The high risk and ambiguity implied by the adviser's presentation was commented on by teachers.

"I can't imagine how (the presentation) would look in the classroom. What do you do with the children when they've found something? They won't just wait for you... with some of my lot they'd all be playing about... you can't just talk to thirty four children.

"I know what he means but it won't work. An individualised curriculum. They can't work on their own".
(Teacher)

My observation of the day course and the interviews conducted pointed to factors that might increase the chances of success for the Do Talk and Record initiative. One was to convey a classroom teachers' perspective within participating schools; the other was to scan the ideas proposed in relation to their Cost and Risk.

Summary

This chapter has described how consideration of the preparing for change phase of the model led to the development of support materials to increase the chances of successful change in mathematics. Firstly, the basic problem or opportunity was identified as a failure to lead children along a path from concrete experience to abstraction. Secondly, a focus on the driving forces for change led to the development of video recordings aimed at communicating to teachers that their actions were not achieving intended outcomes. Thirdly, a focus on the restraining forces led to a framework with which to support implementation. Finally, an evaluation sheet was devised to concentrate teachers on the ideas proposed rather than on any criticism of their existing practice.

The observation of the day course was to have wider implications for this study however. As problems developed in my own interaction with teachers, the fieldnotes and interview data obtained from this study of the advisors were reviewed. This led to the development of a theory of patterns of interaction which was to prove crucial to the research. Before discussing the detail of the study I wish, however, to outline the overall research design. It is to this I turn in the following chapter.

Chapter Three: Research Design and Fieldwork Issues

This chapter describes the overall action research design of the study and issues within the fieldwork. In the first section of the chapter I initially describe the research design used during the Templewood study and examine difficulties within that design. I then discuss the requirement to further investigate several issues central to this current study. As a result of this discussion I propose a combination design for use in this study. In the second section of the chapter I discuss the criteria by which the schools in the study were selected. In the final section I anticipate difficulties in working in schools and develop a series of strategies to overcome those difficulties.

The Research Design used during the Templewood Study

The action research methodology adopted during the Templewood study developed from difficulties within an action research initiative premised on the 'teacher research' model. Kelly (1983b) suggests that action research has come to refer to the teacher researcher model heralded by Stenhouse and developed in a number of projects and by a number of authors (Adams 1975, Bolam 1982, Elliott 1979, 1983a, Wallace 1987).

A key feature of Kemmis et al's model (1981) for action research is a spiral of steps which involves planning, action and evaluation of action. The process begins with a general idea that some kind of improvement or change is desirable. Having decided where to begin in making improvements the general idea prompts a reconnaissance of the circumstances of the field and fact finding about them. A general plan of action is then decided upon and then broken down into achievable steps. The first step is implemented, data coming back is monitored and the effects of the action described and evaluated. The general plan is then revised in the light of the new information and subsequently a second step is then implemented, monitored and evaluated, so continuing the spiral of action, monitoring, evaluation and replanning. Thus it is in the nature of the action research design and it is not rigid and that action is changed on the basis of monitoring and evaluation.

The initial 'General Plan' at Templewood was to take as a starting point teachers' perspectives and to facilitate a group situation in which teachers might collaboratively reflect on problems in mathematics to arrive at a mutually agreed framework for mathematics teaching. My own value position would not dominate the discussion, neither would I press my own views or set myself up as an 'expert'.

In line with Kemmis et al's spiral model described above, implementing the first step of a general plan of action suggested severe difficulties in sustaining the approach and a consequent need to modify the research design. These difficulties can be described in terms of Elliott's (1983a) enabling conditions for teacher researcher action research. Elliott premises action research methodology on 'collaboration', 'the linkage of experience' and 'discussion' (1983a p.127). The Templewood

experience was that discussion brought to the surface underlying tensions within the teacher group and engendered conflict and defensiveness.

Elliott further suggests that the user's needs are central and that the change should not violate the integrity of the user by problem definition. Problem definition by teachers at Templewood was in terms of their conflicting and contradictory perspectives on mathematics. They also appeared to address themselves to the effects of an underlying problem, not the causes of it. Within the teacher-pupil interaction and the quality of learning project (Elliott 1983a) teachers became concerned about the amount of time that reflection on problems required. At Templewood teachers were too hard pressed to devise solutions.

As a result of these difficulties the approach was modified so that it accorded with the simultaneous action research model suggest by Holt and Lenning (1980). At the time of the Templewood study I was unaware of this model but it describes the revised approach well. For Holt and Lenning, simultaneous action research "simultaneously assists in practical problem solving and expands scientific knowledge ... it is performed collaboratively within a mutually acceptable ethical framework." I now wish to look at the methodology of the Templewood study in relation to Holt and Lenning's definition.

- (i) "Simultaneous Action Research assists in practical problem solving and expands scientific knowledge." As well as contributing toward the build up of a body of knowledge on change intervention, the change initiative offered ideas for the consideration of colleagues. Thus putting ideas into action tests theory. Research is used to evaluate action, and action provides an experimental situation for research.
- (ii) "...it is performed collaboratively". In the "Girls into Science and Technology Project" (Kelly 1983), teachers initiated and chose strategies but in practice this took a long time. Also the project team's initial commitment was, at least at the beginning, greater than the teachers. In a similar way within the Templewood research, teachers engaged with, criticised and developed the Do Talk and Record later in the project. Moreover the direction of the research came to be increasingly determined by participants' needs. It had been envisaged that teachers would be able to try out the ideas after a short period of modelling. Some teachers, however, required four or more sessions of modelling before they were prepared to explore the ideas for themselves. Collaboration does not imply identical roles; but offering initiatives for the professional scrutiny of colleagues does not imply a hierarchical relationship between 'expert' and practitioner. Moreover teacher collaboration was fostered by an approach which directed conflict toward intellectual engagement with the project rather than defensiveness about existing practice.

- (iii) "...within a mutually acceptable ethical framework". The teacher researcher model takes the teachers' position as central and plays down the researcher's value position. Like Kelly (1983) I found this position a frustrating one. I felt the sort of problems that teachers experienced were ones to which I had developed some sort of solution based on my studies at London University. I switched to being actively engaged in offering ideas for teachers' consideration.

Problems in the Research Design used at Templewood

As this study build on the Templewood study it initially appeared that a similar action research framework could be utilised. For Chisholm (1984) action research typically involves naturalistic observation and an emergent research. However I had reservations about continuing solely with the naturalistic methods of inquiry used at Templewood within this current study.

This was because the Templewood study (and potentially this current study) appeared liable to distortion. There were two immediately apparent ways in which my account of change at Templewood might have been a distortion of events. Both of these derived from the extent to which my perspective was central.

The first area of possible distortion was a direct result of the enthusiasm I felt for Do Talk and Record. Do Talk and Record had been devised by myself as a solution of problems in my own mathematics teaching. The feeling that the mathematical ideas offered a solution to problems teachers had with their practice sustained me during difficulties at Templewood. But that feeling was also a source of weakness in that study as a whole. It left the validity of the Templewood study open to question on the basis that the zeal I felt for the ideas may have blinded me to other possibilities. My involvement with the mathematics framework may have made me see only what I wished to. For example at Templewood I attributed teacher's resistance to problems of presentation or to the threat that the change offered. Another possibility might have been that teachers were not impressed with Do Talk and Record.

In fact re-examining the Templewood study makes the possibility that teachers were unimpressed with Do Talk and Record seem unlikely. The actions and comments of teachers both during and after the initiative indicated that Do Talk and Record did take root in the school. A light-hearted comment made by one teacher that he had become a 'born again mathematician' typified the general positive reaction. There were teachers who appeared unimpressed at the outset of the initiative. However these teachers later engaged with and manipulated the ideas to make their own. The contrast between these two reactions was so marked that it offered one investigative strand that might be pursued in this current study. An initial denial that the change was relevant appeared in some way to be part of the process of change, not the final verdict on it. Another factor that influenced some teachers initial lack of reaction to the initiative was an apparent reluctance to contribute in staff meetings. This observation again offered a starting point of this current discussion. Teachers who appeared impassive and

unimpressed in the public arena of staff meetings were much more open to suggestion in the privacy of their classroom. In discussion it became apparent that there was a general reluctance amongst teachers in the school to admit to problems in their practice in staff meetings. This was because of a common feeling that to portray anything other than infallibility was tantamount to admitting professional incompetence. The evidence of the Templewood study does then suggest that residence and threat and a climate based on privacy, hierarchy and territory were more of a barrier to teachers taking up Do Talk and Record than any inherent difficulty in the mathematics framework itself.

The mathematical background to Do Talk and Record also made it seem unlikely that teachers would be uninterested. The mathematical ideas did not offer something controversially 'new' to teachers; 'Doing' before 'Recording' captured the essence of a general mathematical approach well established in the research literature (e.g. Piaget 1969, Skemp 1977, Brown 1984). The general approach was also familiar to teachers. Indeed Do Talk and Record was often equated with work on Piaget encountered in teacher's initial training. Schools were also familiar with the support materials for this approach. The apparatus used to give children concrete experience of calculations had been purchased for that purpose by all the schools in the study. This apparatus was readily available in maths resource areas and in teachers' classrooms.

As I discussed in Chapter Two, teachers found the general approach desirable but impractical in the classroom. The 'new' element of Do Talk and Record derived from work on the place of language in children abstracting meaning (Walkerdine 1982, Floyd 1984). This work build on and enhanced the approach advocated by a wide range of authors (e.g. Piaget 1969, Skemp 1977). The 'new' linguistic element also provided a means by which the general approach could be made practicable in the classroom. It offered a way in which written language and pictures could be used to structure children's experience with the apparatus and enable them to engage in self sustained manipulation. Overall then it did not seem likely that teachers were disinterested in Do Talk and Record.

The second area of possible distortion in the Templewood study was a by-product of my enthusiasm for Do Talk and Record. Rogers et al (1983) note that primary schools are small communities in which teachers are obliged to face each other every day. Because of this, he suggests teachers strive to avoid confrontation so as to 'keep existing relationships in tact'. It seems possible that teachers might have felt unwilling to confront the initiative. My enthusiasm for Do Talk and Record might have made me only see its merits and be defensive about its weaknesses. In this situation teachers may have sought to avoid conflict and 'played along' with the initiative.

The evidence of the Templewood study suggests that this is unlikely. The study provides an account of my increasing awareness of the necessity to secure feedback and the strategies I adopted to secure it. The study also documents my growing awareness of the link between the behaviours I adopted and teachers' involvement in the initiative. It seems unlikely,

then, that teachers at Templewood would have felt reluctant to provide feedback. Increasingly my aim as a change agent was to provide them with control and ownership of the initiative. Increasingly they manipulated and reinterpreted my initial ideas to make them their own. The relationship between my open behaviour and teachers' involvement was so marked as to offer a further strand for investigation in this current study.

The evidence of the Templewood study then suggests that teachers there felt that Do Talk and Record was worthy of consideration. The evidence also suggests that teachers did feel able to provide open and 'critical' feedback. However the general weaknesses of the study remains. A study in which I interpreted how others received a message I felt worthy of consideration was prone to distortion. The use of case study to evaluate change compounded this weakness. Several authors (e.g. Elliott 1982, Fortune and Hudson 1984) suggest that case study is the most appropriate means of evaluating change. The case study of change at Templewood was my account of how others received an action research initiative involving me putting forward ideas I considered useful. This weakness in the Templewood study takes place against concerns raised by other authors (Tepestra 1982, Woodman 1985, Cohen and Manion 1985) about distortion in action research. Tepestra's (1982) survey of action research initiatives found there to be an inverse relationship between the methodological rigour of the research and the degree of success accorded to the intervention. Thus initiatives in which outcomes were evaluated in case studies appeared more successful than studies in which quantitative measures (such as closed questionnaires and attitude survey) were used. For Woodman (1985) the absence of such quantitative measures weakens usefulness of action research initiatives. He suggests that case studies of action research initiative are biased toward positive findings.

The use of quantitative measures

The problem of possible distortion in the Templewood study could have been reduced by the use of quantitative measures. These would have provided a mechanism by which my perception of events could be checked against those of others. Because of this need it was decided to weave quantitative measures of change into the current study. Elements of the current study appeared at the outset to lend themselves to quantitative analysis. One such element was the hypothesis that 'an initiative premised on the change model acts to dismantle the values of privacy hierarchy and territory and replace them with openness, rational autonomy and shared critical responsibility'. The two sets of behaviours that Simons describes appeared to cluster around either end of a continuum. As such they could be converted into an attitude survey such as Likert's scales (Oppenheim 1985). Before the initiative participants would rate the degree to which the climate of the school in which they worked was dominated by privacy, hierarchy and territory or by openness, rational autonomy and shared critical responsibility. After the initiative attitudes could again be surveyed to establish any change. The current study would then be a change experiment in which hypotheses were tested. In Kemmis' (1984) terms it would be "research into action in the strictest sense of the word".

The use of qualitative measures

However I had reservations about directly converting the Templewood experience into a consciously directed change experiment. I considered that designing attitude surveys and questionnaires at the beginning would weaken the research as a whole. Its effect might push the study into focusing on variables identified at the outset rather than on those that might reflect more accurately the emerging situation. This was particularly the case as two key issues in the research appeared to require further investigation.

The first issue that it appeared necessary to investigate further was the effect on the initiative of the school's climate. One outcome of the initiative at Templewood had been to change patterns of interaction between teachers at the school. As I discussed earlier the phrase that summed up this changed pattern of interaction was that used by Simons. The change involved 'dismantling the values of privacy, hierarchy and territory and replacing them with openness, rational autonomy and shared critical responsibility' (Simons 1987). However this description did not appear to be immediately practical as the basis of a consciously directed change experiment. Achieving this would require: firstly an identification of what constituted privacy, hierarchy and territory in the field; secondly a measure of a move from this openness, rational autonomy and shared critical responsibility could be measured. Moreover, Simons' description was a turn of phrase rather than a precise set of terms. What seemed to be required then was a period of naturalistic inquiry in which the description became more of my own.

A second issue concerned the change journey that teachers undertook. During the Templewood study it appeared that teachers for whom Do Talk and Record represented fundamental change would require long term classroom demonstration before they were ready to embark on a self sustained investigation into the feasibility of the learning strategy. However, following the initiative the most dramatic change was in the mathematical practice of a teacher for whom Do Talk and Record represented fundamental change. This was despite the fact that less time had been spent demonstrating the ideas to her than to any other teacher. It appeared that a further investigation was required into the relationship between how fundamental a change the initiative implied and the degree of support teachers required. This issue linked with that of an initial apparent rejection by other teachers at Templewood. The change journey undertaken by teachers required further investigation.

Because these issues required further investigation it seemed appropriate to start the study with a phase of naturalistic inquiry using qualitative measures. This phase would enable there to be a sharper focus on the mechanisms by which the change model affected teachers' practice, overcame emotional opposition and acted to dismantle a prevailing closed climate.

Combination Design

What seemed to be required for this study was an approach which capitalised on the strengths of both quantitative and qualitative methodologies. Combining these approaches would create a situation in which distortions deriving from the centrality of my perspective could be reduced. Such a research design would also avoid the study being pushed into rigidly maintaining initially defined variables.

The design I adopted for use in this study has some precedence in evaluation literature. Katz and Nicolas (1985) suggest an evaluation plan that changes or rolls in response to incoming information. This 'rolling' design has been used in the appraisal of the residual effects of a course for primary school principals (Sadler 1984). Such an approach appeared to lend itself to conversion into 'combination design' approach to action research for use in this study. The cycle would be one in which within the first two schools a naturalistic approach was employed as a means of determining which were the key variables at work. These variables could then be operationalised and converted into a more quantified measuring mechanism.

The action research methodology proposed above appeared to suit both phases of the research. Burn (in Cohen and Manion 1985) identifies two elements in action research: diagnostic action research and therapeutic action research. The diagnostic phase is that in which problems are analysed and the therapeutic phase is that in which any hypotheses developed are tested in a consciously directed change experiment. These two phases appeared to fit into the combination design developed. It was intended however to change Cohen and Manion's terms. This was firstly because of a sense of certainty about a prescribed solution they conveyed. Cohen and Manion's terms imply clinical diagnosis of a problem and prescription of a remedy which was to be therapeutic recipients. This was far from the intention of this study. It aimed to contribute tentatively towards the accumulation of knowledge about change. It did not presume to find a remedy and prescribe that to schools. Moreover Cohen and Manion's 'diagnostic' and 'therapeutic' terms implied a central role for the change agent that differed greatly from the focus of the model. Within the model the ownership of teachers was central. Control over the initiative was to expand as the initiative unfolded with teachers taking an increasingly central role. Because of reservations about Cohen and Manion's terms the two phases were termed 'analytic' (in the sense that they inquired into variables) and 'reflective' (in the sense that they looked back at the wider applicability of hypotheses identified). The first two of the five schools in which this current study was to be conducted would be pilot schools in which a naturalistic enquiry into the key variables at work in the system would be undertaken. These two schools would constitute the analytic phase of the research. The reflective phase of the research would then be a consciously directed change experiment undertaken within three further schools. The variables emerging from the two schools in the analytic phase would be converted into a pre and post intervention questionnaire and used to measure the effect of the initiative within the main study.

An Analytic Phase

The first phase of the research would therefore be an extension of the phase of naturalistic inquiry that had taken place at Templewood. It would involve working in two schools. One intention at these schools was to rehearse the initiative and refine the change model in the light of experience. The fieldwork design derived directly from the change model described in Chapter One. In Kemmis' terms it was a 'General Plan' which was to be modified and adapted as experience of its implementation indicated. Below the fieldwork design for the analytic phase of the research is outlined.

1. Initial Meeting

The change agent makes an initial presentation using the video to highlight problems children have in remembering mathematical rules and procedures.

The change agent emphasises his/her practical classroom context perspective.

The outcome of the project at Templewood is discussed - how the ideas came to be modified and adapted and how the project served to build the staff as a team.

The joint ownership of the data is discussed.

The staff make a decision about whether to participate.

2. Communication of the Framework to Individuals

The researcher works with a group of children from each teacher's class to illustrate the implications of the framework for teaching a topic of the teacher's choice.

The researcher provides extensive feedback to the teacher after each session.

Having worked with each class, the researcher makes a video of the children to illustrate the framework to the staff group. Problems and reservations about the ideas are to be brought up at the meeting.

3. Teachers Practice Ideas in Simulated Classroom Settings

Each teacher and the researcher plan a topic around the Do Talk and Record framework and planning sheet. Each teacher tries this out with a small group of children while the researcher supervises the rest of the class and is available for support and advice.

4. Open Feedback Sessions

The staff feed back ideas in the meeting. Problems and reservations brought up privately are aired at this meeting after the agreement of those concerned is secured.

5. Teachers Practice Ideas in Real Classroom Settings

Each teacher plans another Do Talk and Record topic using the planning sheets and implements this in the classroom. Their findings and impressions are recorded using the activity sheets.

6. Implications of Do Talk and Record are Discussed by the Staff in a Meeting

No particular time was to be allocated to each section of the intervention as I felt that this would derive from teachers' needs. The intention was to spend around four days a week for seven weeks within each school. There would also be some overlap between the two schools. It was envisaged that at the stage when teachers at the first school were trying out the ideas using the activity sheets to support their thinking I would be able to commence my research with the second school.

The analytic phase of the research would also be a period of investigation into the extent to which the change model reproduced the outcomes observed at Templewood. These outcomes were a change in practice, a conversion of emotional opposition into constructive criticism and a wider dismantling of a privacy, hierarchy and territory and their replacement with openness, rational autonomy and shared critical responsibility.

A Reflective Phase

To some extent it was difficult to predict accurately at the outset of the study what would be involved in the reflective phase of the research. This was because the reflective phase would very much depend on variables that emerged during the analytic phase. There were however some precise intentions for elements of the reflective phase of the research.

One area in which there were precise aims was with regard to the hypothesis that "an initiative premised on the change model acts to dismantle the values of privacy, hierarchy and territory and replace this with openness, rational autonomy and shared critical responsibility". As I discussed, it was intended to test the strength of this hypothesis during the reflective phase by using quantitative measures as well as naturalistic measures of inquiry. The intention was to use an attitude survey as the quantitative measure. This would enable my perceptions to be checked against those of others.

In the analytic phase what constituted privacy, hierarchy, territory, rational autonomy, shared critical responsibility and openness in the field would be identified and converted into attitude surveys.

The second issue to be tested during the reflective phase of the research was the path along which participants journeyed to change. I was unsure at the outset of the study as to whether this change journey would differ depending on whether the ideas represented fundamental or incremental change to participants. The intention was to research this issue during the analytic stage. I was unsure, at the outset of the study, as to whether this issue could be investigated through the use of attitude scales in the reflective stage of the study. This was because the emotional opposition encountered appeared in some way to be part of the change journey along which some participants travelled. Teachers who were reacting negatively to the change would be unlikely to wish to place their degree of resistance on an attitude scale. Because of this it initially appeared that it might be more appropriate to use fieldnotes and interview data to tease out common patterns within participants' journey to change.

The change model, in addition to reducing resistance, appeared also to affect teachers' practice. Again assessing this did not appear to require quantitative instruments. Any change in practice would be apparent in the recording that children carried out in their exercise books after the initiative. Children's notebooks, together with interview data, would provide evidence of a change in practice.

Having refined the change model in the analytic phase it would be maintained throughout the reflective stage. The reflective stage would then be a consciously conducted change experiment. It would be "research into action in the strictest sense of the word."

So far in this chapter I have examined the research design used in the Templewood study and the appropriateness of quantitative and qualitative measures for evaluating change. I have proposed a combination design for use in this current study as this appeared to offer the strengths of both approaches. I have described how the analytic and reflective phases of the research weaved into this combination design and discussed what would be involved in each phase. Having outlined the research design in the study I now wish to describe the criteria adopted to select the schools in which I was to work. I also wish to discuss the strategies I adopted to secure the support of teachers and head teachers in those schools.

Selecting the Schools

The schools in which this study was conducted were selected from a long list compiled after informal discussions with LEA officers about schools in which headteachers were "keen to implement change". Headteachers were then contacted by telephone and the mathematical element of the project and its positive effect as a 'team-building' exercise discussed. Where headteachers expressed and interest in the project I visited them and provided a further description of what was intended. Visiting the schools also allowed me to make a snapshot analysis about the climate of staff interaction in an establishment.

The chosen schools were ones in which privacy, hierarchy and territory were prevalent. The criteria I used to select these schools included a very different look to each classroom (display format etc.) different mathematics approaches in individual classrooms and an absence of whole-school policies or sharing of equipment. These factors were used to make judgements about the presence of individualism, self reliance and curriculum autonomy.

The characteristic profile of the schools was of an established staff with a relatively newly appointed headteacher. Four of the schools (Countess Anne, St Mary's, Stonehill and Weston) fitted this profile well. The other school, Court Farm, was chosen because it allowed me to explore the impact of the initiative in a school with an 'open' climate and what might constitute 'openness' in practice. At this school the presence of whole school approaches was apparent in the layout of classrooms and through the presence of school approaches to mathematics and other curriculum areas. The headteacher's comment that the staff openly acknowledged and shared their strengths and weaknesses in particular areas again seemed to indicate the presence of an open climate.

Headteachers still interested after an initial visit were asked to discuss with their staff the possibility of involvement and, subject to their agreement arrange an initial meeting. During this meeting the video of children at Templewood having difficulty remembering rules and procedures was shown and the way in which the staff at that school came to develop the approach to mathematics outlined. The team-building effect of the project at Templewood was also discussed and the way in which teachers there became involved in more sharing and felt less isolated following the project. During this meeting it was made clear that the research was to be conducted in accordance with an ethical code that gave each staff member the right to veto use of any interview material for which she/he was responsible and any observations of events in which she/he was involved. In later schools the questionnaire which was to measure the effect of the initiative on the school was also discussed. The staff were then asked to take time to consider whether or not they were willing to be involved in the project and for me to observe their reactions to the change and its effect on staff relations.

In all but one case (where the head had been in the post for sometime) the heads contacted me to express a willingness on the part of the staff to allow me to work in the schools on the project. As well as implementing the project I was to act as a supply teacher and generally help with plays, assemblies and school trips in each school as required. I worked in each school in the study for four days a week for a period of around two months.

My intended role with class teachers

Before working in schools I spent some time anticipating potential difficulties in my role. At Templewood I had been a colleague offering ideas for others to consider. In the current study I was an outside change agent.



Chapter Two discussed the way in which a group of teachers had appeared to react to a course conducted by the mathematics advisory service. Observation of the course suggested a way in which the widespread scepticism teachers feel for initiatives run by outsiders could be reduced (e.g. Bolam 1984, Daresh 1987). As a result of observing the course it was intended to show teachers that I shared their perspective on the necessity to consider energy requirements and organisational demands when working in the classroom. It was felt this would encourage teachers participation in the change from a 'classroom' perspective. My role was intended to be a 'colleague' rather than a mathematical 'expert'. I offered a framework devised by the staff at Templewood for the further development and professional scrutiny of teachers at other schools. The assumption behind Do Talk and Record was that it was a practical approach to developing the children's conceptual understanding. I knew the realities and constraints of the classroom and wished Do Talk and Record to be scrutinised from this perspective.

One factor that might have impinged on this intended role was my 'ownership' of Do Talk and Record. In conversation with teachers and in meetings this ownership was played down. The slant placed on events at Templewood and that some initial ideas put up for consideration had been chopped and changed around by the staff into a workable form. The project invited teachers to mould these ideas further or indeed reject them.

A potential message about my 'ownership' of Do Talk and Record was conveyed in the initial video recording. This showed me interviewing children so as to highlight their inability to member rules and procedures. As discussed earlier the staff at Templewood had identified this as a problem. Through the video I suggested that the problem was the effect of teaching methods which did not develop understanding. The video sought to crystallise this link for teachers and stimulate their involvement and interest. The possibility remained however that teachers might feel discouraged from participating in a project in which I appeared on screen as an 'expert' identifying the problem and then proposing a solution. At worst this might give the impression that the meanings teachers brought to the initiative were an irrelevance. All that was required of them was to follow a pre-determined pattern and they would inevitably arrive at the conclusions reached at Templewood. Because of possible messages about the irrelevance of other perspectives the video was prefaced by an emphasis on the role of other teachers at Templewood in selecting the children and holding the camera. The slant taken was that the success of the initiative there derived from the involvement of the staff. The current project would involve the ideas being further developed and scrutinised by the teachers at other schools.

The other video that had been used at Templewood showed me working with children in the way implied by Do Talk and Record. Because it contained further possible messages about the irrelevance of other perspectives this video was abandoned. It was intended instead to involve teachers at each of the schools in modelling their interpretation of Do Talk and Record for the

rest of the staff. It was anticipated that this would reinforced Do Talk and Record as a dynamic and interactive framework whose meaning would be modified and adapted by individuals.

My role with teachers in practice

In the event when teachers in the selected schools watched the video they seemed most struck by the children's evident confusion. Characteristically teachers shook their heads and "tutted" when watching. Their responses included "they just haven't been taught properly" and "those kids have been short changed somewhere along the line" and "that's just what happens in my class". In practice the impact of the video appeared to overshadow any messages about my 'expert' role.

A further factor that might have restricted my intended role as a colleague was the extent to which I was seen as involved with the LEA. Teachers might have felt reluctant to share their concerns with someone perceived as an agent of the LEA. Moreover they might not wish to have their reactions to the initiative broadcast to an advisory service who had power and influence over promotion. To some extent my own contact with the LEA would convey messages to teachers about their involvement. In fact the LEA allowed me free licence. The secondment was seen solely as part of my professional development. I had no brief to report my findings. Having helped in offering advice about schools in which heads were keen to engage in 'change' the LEA gave me a complete freedom of choice about which schools to work in. Indeed other than being asked to give an afternoon presentation on a head's course, I had no contact with the LEA during the year. It also seemed reasonable to assume that my own intentions for the year would also convey messages to teachers in the schools about my role in relation to the LEA. I saw myself puzzling over the implementation of curriculum change, exploring the prevalence of privacy, hierarchy and territory in primary schools and how these behaviours might be softened. I faced toward the research literature and schools rather than toward the LEA.

The interview transcripts, field notes and descriptions contained in this thesis suggest that teachers did see me in the role of a colleague rather than an outside expert. In the initial meetings the difference between my perspective and that of the advisory service was emphasised. Staff did appear to continue to maintain a distinction. This was particularly apparent in the reaction of teachers in one school.

"At the end of my presentation (a teacher) commented that the problem with the advisory staff was that they didn't seem to realise that teachers had other things to do in school - the dance, the drama, the music - I think David's made it very clear his perspective isn't like that" replied another teacher.
(Field note of conversation)

Day to day discussions also suggested that I was viewed and accepted as a class teacher and colleague. Teachers shared perspectives that it seemed unlikely they would have wished to share with an agent of the LEA. For example as I worked as a supply teacher one day, it was suggested that I could work as

follows to save marking. "Just do a bin lesson. Do you know what a bin lesson is? You just get them all to write it on a piece of paper then throw it in the bin afterwards".)
(Field note of conversation)

My intended role with Headteachers

A further factor that was anticipated before the initiative was my intended relationship with headteachers. Events at Templewood suggested that the initiative posed a threat to the head there.

In the evaluation of the project the headteacher said that she sometimes felt "out of it". At one stage during the implementation phase there was the sense of a collective sharing of ideas and mutual problem solving throughout the school. At this point the head's role was confined to covering my class while I worked with other teachers in their classes and led discussion. Not surprisingly she felt hostility towards the project. It was implied that a change in who determined what was to happen was not endorsed: "I just go where David tells me, after all I'm only the Head!" My real function was seen as in the classroom: "There he is; he spends more time out of his class than in it".

Because the head's agreement had been secured earlier I was able to go to her in the face of this resistance. She conveyed how pleased she was with the way things had opened up during the initiative and agreed for a special needs teacher to cover my class while I continued supporting other colleagues for a further three sessions.

In retrospect it was unsurprising that assigning the headteacher at Templewood to a childminding role while I and the rest of the staff engaged in whole school curriculum development threatened her sense of person identity. At the outset of this study several studies of primary headteachers' roles (Coulson 1976, Alexander 1984, Southworth 1987a) placed this experience of difficulty in a wider context. These authors suggested that traditionally primary school headteachers regarded the school as 'theirs' and may feel threatened by other's attempts to instigate change. For Southworth (1987a) headteachers may perceive collegiality as not only decreasing their power but also their identity.

The Templewood experience also suggested a strategy by which this difficulty might be overcome. The headteacher at Templewood felt the initiative had taken the school in a direction she wished it to go and despite the threat it offered, was prepared to further support it. During the Primary School Staff Relations Project (Nias et al 1989) teachers appeared to work well together on an organisational culture founded on shared values and beliefs. These originated from headteachers and determined the nature of social relationships within the school. Because of this headteachers at such schools did not lose their sense of identity nor feel their authority to be diminished when taking on other than a leadership role. Although I was unaware of Nias' finding at the outset of this initiative, it endorses the strategy adopted to overcome potential difficulties. I set out to work with headteachers who shared my values and beliefs and who would

support the intended changes. It was intended to work with headteachers who wanted to create a climate in which ideas were shared and practice developed. In initial meetings with headteachers I stressed the team building effect of Do Talk and Record at Templewood. Do Talk and Record was offered as complimenting their overall strategy and contributing to their aims for the school. Headteachers sought to nudge schools forward Do Talk and Record offered the climate another shove in the right direction.

My role with headteachers in practice

In practice it needed little encouragement to secure the interest of headteachers in a project that aimed at building the staff as a team. In initial meetings it was apparent that Headteachers were unhappy about teacher isolation and classroom autonomy. The difficulties they had encountered in trying to overcome that isolation were ones that occupied their attention.

"When I came here I thought, well, I can really make an impact, there's lots to do. But it's not as easy as that. People are stuck in their classrooms and they don't seem to want to change or develop. I mean I did some work on technology with (a class) because there is nothing like that there, but it has no effect".
(Fieldnote of conversation with head)

"When I was at (a school as a deputy) people were really sparked off by each other's ideas but here it's like they are all in their little rooms not talking to somebody because they didn't return their scissors in 1976".
(Fieldnote of conversation with head)

Sometimes attempts to bring the staff together had appeared to produce an adverse effect. In one instance this was doubly destructive. Not only had it led to disagreement but left teachers feeling that divisions lurking under the semblance of unity had been exposed.

"We tried to get some sort of way of getting the children off the playground at the end of playtime which you think would be easy. But (the discussion) was awful because it ended up as an argument because some people said (the children) ought to be in silent lines waiting to come off the playground and others said it didn't matter so we were split down the middle and it made me see how wide apart we really were".
(Fieldnote of conversation with Headteacher)

Because headteachers acknowledged the problem of team building, they appeared to welcome Do Talk and Record. It was seen as something that would enable teachers to come together and discuss an issue without a number of the staff having to risk exposing their practice to the scrutiny of others or be seen as empire building. It was characteristically greeted enthusiastically by headteachers in the initial meetings because it would 'shake things up' or 'bring people together'.

The focus of this study is largely on teachers' rather than headteachers' reactions to the initiative. This is because of the need to filter out a mass of detail to examine patterns and

relationships. It is not intended to imply that headteachers were uninvolved. Rather their background support and sponsorship were central. They demonstrated that support explicitly by their presence at the meetings. They also involved me closely in a management perspective on staff relations and maintained close informal contact with me. This close contact was a useful source of feedback and information. For example one headteacher provided the information that "(A teacher) says she is not coming to the meeting because she thinks it's a waste of time but she will you know. It's just because she's frightened of anything different, but she is interested I know that so just wait, and she'll be along...." (Fieldnote of conversation with headteacher)

In this concluding section of the chapter I have discussed difficulties I anticipated in working in schools. These difficulties concerned presenting myself as a 'colleague' to teachers and developing a 'partnership' with headteachers I have described the strategies I intended to adopt to overcome these difficulties I have examined the success and appropriateness of these strategies in practice.

The discussion of my role in schools concludes this chapter on the overall research methodology of the study I shall describe the quantitative instruments devised to use in the reflective stage of the research in a second methodological chapter (Chapter Seven). That chapter follows those discussing the Do Talk and Record initiative at schools in the analytic phase of the study. It is to this analytic phase I turn in the next section of the thesis.

Section Two : An Overview

Section One of the study discussed the ideas held at the outset of the research. Section Two describes the analytic phase of the research. That is the experience of trying out those initial ideas within two schools (Countess Anne and St Mary's).

Chapter Four deals with the intervention at Countess Anne. For much of the intervention at Countess Anne I considered the initiative to be successful. This interpretation continued until the overwhelming evidence of failure led me to reinterpret events. This reinterpretation suggested that the failure of the initiative stemmed from my own behaviour as a change agent. My actions appeared to have created a situation in which participants felt unable to discuss the most important issues of the change with me. As a result of this the initiative floundered.

Chapter Five describes events at St Mary's. Because my closed behaviour had limited an effect of the initiative at Countess Anne I revised the approach at St Mary's. At St Mary's this revised approach appeared to unblock communication between myself and participants. The result of this was that participants became interested and involved in the change.

Chapter Five also examines the change journey undertaken by participants at St Mary's. At the outset of the study it had been envisaged that the support strategies teachers required depended on whether the initiative represented a fundamental or incremental change in their mathematics teaching. At St Mary's it appeared that whether teachers came to the initiative 'intent to protect' their existing practice or 'intent to learn' about the ideas was a more important factor determining the support strategies required. Chapter Five concludes by discussing the change journey undertaken by those intent to learn and those intent to protect and examining the extent to which the change model proposed in this study supports that journey.

Chapter Six examines the wider effect of the initiative on staff relationships at Countess Anne and St Mary's. The original research hypothesis was based on Simons' (1987) terms. In Chapter Six Simons' terms are replaced by those that appeared more accurately to describe the situation at Countess Anne and St Mary's and the hypothesis revised. The strength of the revised hypothesis is then examined in the light of the experience of the analytical phase of the study.

Having provided an overview of the analytical phase of the research, I now wish to describe more fully my experience of the difficulty at Countess Anne (Chapter Four), discuss the way in which those difficulties were overcome at St Mary's (Chapter Five), and examine the wider effect of the initiative on staff relationships (Chapter Six).

Chapter Four : Analysing Change : Countess Anne

The analytic phase of the study was an investigation into the wider applicability of the change model devised after the Templewood initiative. It was also an inquiry into the ways in which privacy hierarchy and territory manifested themselves in primary schools. In the first section of this chapter I describe how the journey to change undertaken by teachers at Templewood was not repeated at Countess Anne. I also outline my immediate reaction to events during the course of the intervention. The second section of the chapter suggests an explanation for the lack for success at Countess Anne. I argue that my own action as a change agent closed down relations within the initiative and made teachers reluctant to provide feedback and stifled the initiative. The chapter concludes by looking at the issues emerging from the intervention at Countess Anne.

Before describing the intervention at Countess Anne I shall briefly outline its staffing composition. The school was built and run as a junior and mixed infant school. There were 192 children in September 1988 and a teaching staff of Head, seven full time and one part time teacher.

Brian had been headteacher at the school for three years. He had previously been class teacher and deputy head at the school and in all had worked fifteen years at Countess Anne.

Roger was in his mid thirties and had moved from another school in the area to take up an 'A' allowance at Countess Anne in September 1986. He taught the fourth year class.

Gwyneth was in her own words a teacher of the 'old school' who had returned to teaching six years ago. She was in her mid fifties. She taught the third year class and had done so for the past six years.

Chris travelled some considerable distance to work at Countess Anne. She had taken up her post at Countess Anne at Easter 1988 on a temporary contract for one term and had been offered a permanent contract from September 1988. She taught second year juniors and was in her late thirties.

Audrey had been teacher for over fifteen years at Countess Anne and was in her late forties. She took the first year junior class.

Sally was in her forties and had been deputy at the school for two years and head of infants.

Beverly taught the middle infant class and had an allowance 'A' to music. She was in her mid forties.

Liz was in her second year of teaching and had been appointed by Brian as a probationer. She was in her mid twenties.

The Change Intervention

The initial meeting in which the video was shown and the change initiative outlined was largely received in silence. Teachers agreed that I should work alongside them in school. The ethical framework of the research was similarly received. The only comment that was made was when the video was shown. All the staff shook their heads and some 'tutted'. Audrey commented that "those kids have been short changed somewhere along the line".

The first phase of the fieldwork involved negotiating with individual teachers when it was convenient to come into class. I also discussed with teachers topics I might teach to children in the way implied by Do Talk and Record. It was immediately apparent that some teachers had come to the initiative with the intention of developing their practice.

In an initial meeting with Roger he said that the problems the video identified were problems he had in class.

I spoke to Roger about what he would like me to do with his children. He referred to the video. I really thought it hit the nail on the head. I've got children who can't remember what they've been doing even after I've told them time and time again. They start off subtraction in the hundreds column and all sorts of things like that.
(Fieldnote)

Beverley similarly openly talked about the problems she found.

I met with Beverly to plan what I was going to do with her. "The book says I should be doing lots of practical work, but I haven't got time to spend reading all through it each night to get the ideas and make the games they suggest. You start off a group but you get some away and some can't do it and how do you stop the others coming up to you." Beverly asked me if I thought she ought to reorganise and have a more integrated day.
(Fieldnote)

Discussion with Beverly centred around the two concerns identified on the day course "Games in Mathematics". She was concerned about the existing Fletcher Mathematics Scheme in relation to the cost implied in preparing practical activities each evening and the risk involved in trying to work with one group while having others continuously coming up to ask what to do.

Giving a high profile to an awareness on the classroom did then give me access to teachers' concern about 'cost' and 'risk'. It also cast me in the intended role of 'colleague' rather than 'expert'.

This strategy was also successful with those teachers who came to the initiative with the apparent intention of protecting their existing practice. These teachers talked to me as a colleague. They did not, however, see the need to change.

"I know lots of people don't like Fletcher but I do. I hear people say that it's impossible to do individual work but I think it's just a matter of organisation. I've got all my infants working individually through the books, all at their own level and if they've got any problems they come to me. Otherwise they just carry on at their own pace."
(Fieldnote)

These ideas come round again and again but I'm really happy with what I do. It works for me and that's it.
(Fieldnote)

"I went on a course on using Dienes apparatus - it would be marvellous with a group of eight children but with a class...never."
(Fieldnote)

At Templewood teachers who denied the need to change were those for whom Do Talk and Record represented a fundamental change in their practice. However this pattern was not repeated at Countess Anne. As a result of discussion and classroom observation it appeared that Do Talk and Record implied a fundamental change in the existing practice of Roger, Beverly, Chris, Gwyneth and Audrey. Roger and Beverly, however, appeared to come to the initiative to learn. At Templewood it appeared that teachers for whom Do Talk and Record represented incremental change came to the initiative intent to learn. This pattern was also not repeated at Countess Anne. Liz and Sally, for whom Do Talk and Record represented an incremental addition to their practice also denied the need to change.

"You're preaching to the converted here - I've been saying all along we should do more practical work." I ask Liz when I can come in to work in class. 'Do you think its really necessary?' She says: 'I can't see what I', going to get out of it.'
(Fieldnote)

"As Sally is Deputy and responsible for staff development we discuss its difficulties. She suggests who I might like to concentrate on. She feels that I won't have to work in her class a lot because she says "I'm already doing it."
(Fieldnote)

I did feel some disquiet at the large numbers of teachers who denied the need to change at Countess Anne. However, teachers at Templewood who had initially denied the need to change had all moved on to participate in the initiative. I considered that there would be a similar journey to change at Countess Anne. Once the meaning of Do Talk and Record was made more apparent.

The next phase of the project involved working with groups of children from each teacher's class. During this period at Templewood an initial denial was replaced by teachers questioning

the merits of Do Talk and Record. Openness had also increased as teachers saw that the initiative focused on those merits rather than on their existing practice. At Templewood teachers had strongly expressed their scepticism about Do Talk and Record to me in class. At Countess Anne these vocal criticisms were not apparent.

Within my own school Do Talk and Record was continuously confronted by others experiencing doubts about it. At Countess Anne though teachers appear to completely accept my ideas. They appear to wish to be passively led to a point at which they can experience the ideas. There has been no challenge to them as yet.

(Fieldnote)

At this point I was concerned about how much I was actually affecting teachers' attitudes. I worked for three sessions of about an hour to illustrate the framework to each teacher. The busy pace of school life often meant that I was unable to talk to teachers about the work conducted with the children after the sessions. Those I did talk to appeared to skirt around the issues rather than engage with them.

I talk to Audrey at lunch time about the work I've been doing on the different terms involved in subtraction. She says that the children liked using the playmobile figures I'd used the other day. I show her the recording format I've constructed for the children and say I use this "because otherwise the figures are so attractive they'd probably just play with them." "I do let them play" she says, "I often let them play with the apparatus. I agree that it's important not to do formal work too early. It's very useful for them to have this extra attention" she says, "I'm sure its benefiting them." This left me feeling after the meeting that she felt obligated to say something to me rather than was genuinely interested in the ideas. I can't see her making use of them in the classroom.

(Fieldnote)

This exchange illustrates a common pattern of avoiding discussion of contentious and key issues. Audrey saw apparatus as something associated with play - I saw manipulation of the apparatus as the starting point of the abstraction of a process. Audrey saw me offering the children attention that was extra to what they would be given in class. I highlighted the framework for recording as something that would enable the activity to be carried out in class without it being unrealistically stressful for the teacher. The impasse I had reached with Audrey was similar to that with Gwyneth, Sally and Liz. I was ineffective in getting them to see limitations in their own practice and felt that to be candid would lead to confrontation.

The stage of the initiative in which teachers tried out the ideas by teaching a topic was similarly characterised by a lack of real discussion about Do Talk and Record.

Chris asked me to model the initiative with the whole class which I did. She sat at the back of the class while I worked on addition involving tens and units with the

children. I set two thirds of them work to carry on with and worked with the other third. At the end of the lesson I tried to convey that the difficulties I had had were a result of practical classroom considerations not because of the ideas. Chris said that she could see that the ideas would "work very well in a whole class, very well indeed." I felt she was being polite rather than truthful. As the lesson stood it was demanding and stressful and needed major refinement but despite my attempt to bring this out, Chris said that she could see through the practicalities to the ideas.

(Fieldnote)

I work with Gwyneth, taking two thirds of the children while she works with a group. She's so involved with the children, teasing the thinking and discussion out of them that I don't feel that the practice is transferable to a whole class situation. The children didn't do any recording which might have kept them in the situation on their own. "Well that went about as well as I thought it would", she comments as she leaves the room ahead of me.

(Fieldnote)

I argued in Chapter Two that the advisors' evaluation of teachers was such that they felt that challenging teachers' existing practice was unhelpful in evoking change because it would result in defensiveness. In the same way I considered that the change process was challenging teachers' existing practice, but that this was skirted around in discussion because of the loss in status it implied. Fullan (1982) suggests that the problem of change is that it often implies that previous practice is a symptom of failure. I felt teachers coped with this by avoiding discussion.

Although Gwyneth has been reluctant to talk about Do Talk and Record, she's agreed to plan out a topic and try out the ideas. Perhaps she needs to be armed with more information about it before we can really talk.

(Fieldnote)

This perception that change was happening below the surface was brought into question in a meeting at which I modelled the proposed strategy proposed to the whole school staff.

At the end of the presentation everybody began talking at the same time about how they would go about subtraction using decomposition. In the end Brian banged the desk to call 'order'. When I asked teachers what they felt about the ideas, Beverly said that I'd had the number board pointing toward me rather than to the group of children I was working with, so they'd had to follow it upside down.

Roger said that he thought that the way the sum had been laid out was meaningless to the children. Gwyneth asked me why the children were writing longhand accounts of the process involved in subtraction. It seemed a waste of time to her. "Wouldn't it be better for them to go from the apparatus to the sums?" asked Roger. Brian said that I'd given the children far more than he would in the way of

language. I'd have let it come more from them. Everyone began to talk to each other again. "It must be me because it doesn't make any sense" - Liz said to Audrey as she goes out - "It's just gibberish to me" replied Audrey. It seems significant that only now have they rounded on Do Talk and Record.

(Fieldnote)

I rationalised teachers 'rounding on' Do Talk and Record in the meeting in terms of the climate of the school. A good working description of the organisational and interpersonal climate of Countess Anne appeared to be contained in Simons (1987) view that schools are characterised by 'privacy, hierarchy and territory'. The Do Talk and Record initiative, I considered, was characterised by 'openness, rational autonomy and shared critical responsibility', the values with which Simons suggested schools need to replace existing ones. It was the disjunction between the prevailing patterns of behaviour at the school and the ones modelled that had created the tension at the meeting and accounted for teachers' behaviour. The climate of the meeting had broken with traditional 'closed' behaviour at the school because it invited teachers to openly discuss mathematics practice. The challenge this presented resulted in a defensive reaction. Although there were flaws in this argument, I maintained throughout the initiative at Countess Anne that the meeting provided significant data about what constituted a change in climate. I did not consider that teachers were voicing genuine concerns about the project; I saw them as rounding on it and because of their defensiveness, seeking to expose errors in it.

It was apparent that the journey to change that teachers had taken at Templewood had not been repeated at Countess Anne. Although the focus of this chapter is on the impact of Do Talk and Record at Countess Anne I now want to briefly refer to events at the next school, St Mary's, because they provided a trigger for a re-evaluation of the process of change at Countess Anne. Events there offered an explanation as to the lack of success of the initiative at Countess Anne.

I had started off working to portray Do Talk and Record at St Mary's before teachers at Countess Anne were interviewed about their overall views of the initiative. The initiative proceeded initially at St Mary's as at Countess Anne. I was accepted as a teacher who knew the practical realities of teaching in the classroom and I began work on teaching mathematics in the way implied by the Do Talk and Record framework. I had worked with three teachers when Jim, whom I knew previously, came to tell me that the teachers I had worked with felt I had 'muddled up' their children. None of the three teachers had themselves indicated that the children were 'muddled up'. Indeed they didn't feedback that they had even followed up the work carried out with the children.

At this time I was conducting interviews at Countess Anne - it was apparent that there too children had become 'muddled'.

"The number board didn't work. Sally had to come and teach them subtraction. They could write it out. They couldn't talk about it. They didn't even know what number to take away. They were saying seven take away two. They were so confused I gave up!"
(Interview)

There appeared two problems within the initiative. Firstly teachers felt Do Talk and Record confused the children; secondly they didn't feel able to tell me about this. I firstly sought an explanation for the children's confusion. I examined whether there were problems with Do Talk and Record I had not anticipated. From the interviews it was apparent that the children's confusion did not derive from any inherent difficulties in Do Talk and Record. Rather they were due to a misunderstanding between teachers and myself. The confusion had come about because teachers and myself were using different yardsticks to judge the usefulness of Do Talk and Record. I had considered it enough to illustrate the framework by taking children some way along the path they needed to follow to achieve understanding. I would then relate the activity I had conducted to the overall path implied by the framework. Teachers however used the yardstick of children reaching the end of the path. If Do Talk and Record was a useful approach they considered that children would come back from working with me knowing the ideas in an abstract form.

I then turned to the problems of teachers not raising their problems and reservations. This seemed crucial within the initiative at Countess Anne. It had made the real issues in the change undiscussable. I attempted to unpick what had led teachers to feel reluctant to provide feedback. This led to the development of a theory relating to my closed actions as a change agent to teachers feeling that I was defensive. I set this out below.

Low Risk Behaviour

One way in which relations between myself and teachers appeared to be closed down was the adoption of low risk behaviour. Low risk behaviour involved restricting teachers access to Do Talk and Record. One instance of low risk behaviour can be seen in the decision to work outside the classroom. With each class I taught a topic of the teacher's choosing in the way implied by Do Talk and Record. During a series of lessons I led the children to the point at which they began to record in pictures. After each lesson I returned to the teacher, described what had taken place and showed the ways in which the children had recorded their manipulations of the apparatus. I then related this to the overall Do Talk and Record framework and suggested where teachers might take the children to make the recording more succinct.

In interviews it was apparent that teachers thought I was hiding something from them.

"I suppose I wasn't convinced. You went and locked yourself away with six children and said all these marvellous things had happened but really I wasn't convinced."

(Interview)

DM: When I took the children out to prepare them for when I showed everybody the work I'd done on subtraction you said 'what are you doing with them - training them up' - I know you were joking but did you think I was training them for a show?

Teacher: I did a bit..... it did look a bit like that.

DM: That I was training them up?

Teacher: Yes, sort of.
(Interview)

Another instance of low risk behaviour can be seen at the initial presentation at the outset of the initiative. In this presentation my views about the limitations of the techniques used by the advisory service, chalk and talk methods and text books were all discussed. The only thing that was not discussed were the ideas proposed. At the time I considered a critique of existing Inset practice, coupled with an outline of my area of focus was too much for teachers to take in at the one meeting. For participating teachers, this approach was incongruous.

"It might have been better if you'd spelled out what you meant more at the beginning. We thought it was going to be about the use of various types of apparatus. It wasn't until half way through that it became clear it was about Do Talk and Record."

(Interview)

"I'd have liked to have seen it all upfront at the beginning - all out in the open rather than as being drip fed snippets."

(Interview)

Low risk behaviour then involved restricting teachers' access to Do Talk and Record. They could not judge its usefulness themselves but had to rely on my assertion that it was useful. I did not risk Do Talk and Record openly but maintained control over it. Giving others an idea whose meaning is created for them and validity is defined for them is a powerful control. It is the control we exert over our children. We give them the meanings we feel their lives ought to have.

Low Trust Behaviour

My low risk behaviour appeared to have a knock on effect in closing down relations between myself and class teachers. I did not risk Do Talk and Record in a context in which teachers could judge it for themselves. Because of this teachers were sceptical and considered I had something to hide. They were also reluctant to bring up their reservations.

"I don't think that everyone thought you were approachable about problems in it. Some people thought that as far as you were concerned it was right and that was that."
(Interview)

This lack of feedback created a situation in which I was unsure about how teachers were reacting in the change. My reaction in this situation was to interpret events from the isolation of my perspective. When individual teachers did not move on from a point of denying the need to change I felt this was due to the extent to which teachers at Countess Anne were defensive. An opportunity to rescue the initiative came about at the staff meeting when teachers raised their reservations about Do Talk and Record. I did not take this feedback at face value, however, I again interpreted teachers' behaviour as linked in some way with defensiveness. My behaviour, then, was 'low trust'. I did not trust feedback at face value but gave it other meaning. I interpreted negative reactions within the initiative as evidence of defensiveness.

The presence of low trust behaviours explains the disquiet I felt in meetings with individual teachers in which we 'skirted around' the key issues in the change.

After I work with children in Audrey's class we have a discussion about the work. During this conversation I say to Audrey about how children shouldn't just learn tricks. "Yes" she agrees, "but there's a place for tricks you know like I said to a child if a number such as (216) adds up to a multiple of three then three will divide into it." I wonder, after the conversation, if I should have made it more apparent what I meant by tricks.
(Fieldnote)

The exchange is characteristic of this dilemma. I felt reluctant to push my viewpoint because of the possibility of evoking defensiveness. For example, the reasons why I supported Audrey's statement on using 'tricks' was based on a very different interpretation of mathematics teaching to hers. But although I knew this, I sought agreement. We played it safe by seeking agreement on areas on which we could meet while leaving our different perspectives looming unchallenged below. The possibility of confrontation underlying the exchange created a climate of low trust between us. This is what I was recording in my immediate analysis of the meeting: an unease that we had agreed to disagree because of the low trust between us and the possibility of direct confrontation.

Status Orientation

It is possible that an arbitrary decision to work outside the classroom had a knock on effect in closing down the initiative at Countess Anne. Another explanation is that I felt vulnerable about the initiative and developed low trust and low risk behaviours because of this. Teachers at Countess Anne considered that I was defensive.

You were a bit defensive about it all. You were you know. About being seconded and everything. You'd no need to.
(Interview)

It may have been that the developing situation at Countess Anne resulted in me becoming defensive. At Templewood Do Talk and Record had been seen as a new approach worthy of consideration by teachers. It seemed reasonable to assume that it would be viewed similarly by teachers at other schools. The research literature (e.g. Skilbeck 1987) suggests that teachers encounter common problems and search for common solutions. In discussion the advisory service felt that Do Talk and Record would be something 'new' to teachers.

However the possibility remained that Do Talk and Record would be irrelevant to the requirements of other schools. It may have been that teachers at other schools had developed their own solutions to the problems encountered by teachers at Templewood. The 'new' linguistic element might also have been encountered by other teachers engaged - in service training in mathematics.

The issue was an important one within the research: Testing the change model depended on Do Talk and Record representing 'change' to teachers.

Earlier in the chapter I described the 'disquiet' I felt when a large number of teachers denied the need to change. It seems likely that my vulnerability would increase as the initiative at Countess Anne progressed. At Templewood teachers who initially denied the need to change had moved on to a stage in which they exposed the usefulness of Do Talk and Record. At Countess Anne teachers remained at the point of denial.

In this situation I may have become 'defensive' about Do Talk and Record. Defensiveness involves adopting what I shall term status orientated behaviours. Status orientated behaviour involves a concern with gaining and not losing status. Status orientation picks up on the discussion of the intended role as a 'colleague' rather than 'expert' in the preceding chapter. I had anticipated the difficulties that adopting the 'expert' role might create. An 'expert' might be perceived as one who had a vested interest in the success of Do Talk and Record and worked to get a positive response. The role of 'colleague' was more likely to encourage openness. A 'colleague' was a neutral figure whose intention was to provide teachers with information by which they could make their own judgements about Do Talk and Record.

During the course of the initiative I may have moved from the role of neutral colleague to status orientated expert. In this situation negative feedback about Do Talk and Record was the exposure of error and to be avoided. Low risk and low trust behaviours would serve my purposes well in this situation. Low risk behaviour would allow me to test the ideas yet protect them from damaging feedback. Low trust behaviour would allow me to reinterpret negative feedback as 'defensiveness'. In effect status orientated, low risk and low trust behaviour could seal Do Talk and Record against anything other than that which confirmed its success.

Unpicking what was involved in being seen as defensive suggested a way in which the chances of success might be improved in the next stage of the analytic phase of the research. I resolved that I would unpick status orientated, low risk and low trust behaviours and adopt those that would encourage feedback - providing an insight into teachers' different starting points on the journey to change. As at Templewood it was apparent that teachers initially reacted to the initiative by either denying the need to change or welcoming the opportunity to learn. At Countess Anne, however, these different starting points on the change journey did not appear to depend on whether Do Talk and Record represented fundamental or incremental change. Teachers came to the initiative intent to learn or intent to protect.

Conclusions

The initiative at Countess Anne had little success in influencing teachers' mathematics practice or in breaking down cloud relationships between teachers. In this chapter I have suggested that the behaviour I adopted as a change agent was central to this lack of success. My status orientated low risk and low trust behaviours resulted in teachers feeling I was defensive. This made them reluctant to provide feedback. Without feedback problems that emerged became undiscussable and the initiative floundered.

Events at Countess Anne had, however, highlighted a number of issues which were important for the research as a whole. Firstly the identification of the constraining effect of status orientated, low risk and low trust behaviours which might encourage participation. The closed pattern of behaviour identified also provided a starting point by which to unpick Simons "privacy, hierarchy and territory".

Secondary events at Countess Anne provided an insight into teachers' different starting points on the journey to change. As at Templewood it was apparent that teachers initially reacted to the initiative by either denying the need to change or welcoming the opportunity to learn. At Countess Anne, however, these different starting points on the change journey did not appear to depend on whether Do Talk and Record represented fundamental or incremental change. Teachers came to the initiative intent to learn or intent to protect.

Thirdly, events at Countess Anne had implications for the mathematical element of the study. They suggested that Do Talk and Record represented 'change' to a wide group of teachers than those at Templewood. The problems I observed facing teachers at Countess Anne were those that had stimulated teachers at Templewood to explore the possibilities of Do Talk and Record. Indeed at the end of the initiative the headteachers said he wanted to pursue the ideas further.

"I don't think that it was anything to do with the maths. It was all the rest of it. People just started off suspicious and you lost them. I don't know perhaps I could have done more about it but you seemed to want to be left alone. A sort of Lone Ranger figure... The maths seemed good though.. interesting sound and practical stuff."
(Interview with Headteacher)

Finally, the intervention at Countess Anne had methodological implications for the study. The ease with which it seemed possible to wrongly interpret events emphasised the need for quantitative data to minimise distortion. Maintaining the intended rolls with headteachers and teachers also seemed important. My reluctance to discuss my growing concerns with the headteacher at Countess Anne had reduced my awareness of issues in the change. The intervention also emphasised the central importance of maintaining the role of neutral 'colleague' with teachers.

Having identified sources of difficulty in the intervention at Countess Anne I sought to act in ways that might increase the chances of success at the second school which I was to work during the analytic phase of the search. It is this intervention, at St Mary's JM School, that is discussed in the following chapter.

Chapter Five : Analysing Change : St Mary's

In the preceding chapter I mentioned that two weeks into my intervention at St Mary's I was told that teachers felt the children were 'muddled up' by working with me. This chapter describes more fully the initiative at St Mary's. The intervention up to the point at which I came to see the status orientated, low risk and low trust behaviours I adopted and the effect these had on the intervention is first described. The alternative set of behaviours adopted and the effect of these on the initiative are then discussed. Following this the journey to change participants appeared to undertake is described. The extent to which the intervention changed teachers' practice, overcame the emotional opposition, and affected the climate at the school is then examined.

Before relating an account of the intervention at St Mary's a thumbnail sketch of the school is provided. When I visited St Mary's in November 1987 it had a staff of seven teachers in the junior department and headteacher.

John was in his mid thirties and had been headteacher for two years at the school. Before this he had been deputy head at a neighbouring school.

Jim was also in his mid thirties and held an 'A' allowance with responsibility for games. He had been teaching at St Mary's for some five years and had 12 years teaching experience.

Elizabeth had come to the school at the same time as Jim having followed her husband from the North of England. She had been teaching for 10+ years.

Jenny had been at the school for three years and had been appointed as deputy head in September 1986 - the year following the retirement of the previous deputy.

Shirley had been at the school for ten years and had responsibility for music. She was in her late forties.

Diane was in her early fifties and was the longest serving staff member having worked at the school for fifteen years.

Monica was in her early twenties and had been appointed by Richard as a probationer two years previously.

Myra had joined the staff in September 1987. Having returned to full-time teaching following her own children going to secondary school. She had previously worked on a part time basis at the school supporting children with special needs.

The first two weeks of the intervention at St Mary's took place before I became aware of the constraining effect of my own behaviour as a change agent. During those first two weeks events paralleled those at Countess Anne. In an initial meeting with John he said that he was interested in the initiative's underlying intention of pulling the staff together as much as with the mathematical ideas.

"There are members of staff who have been here for some time and obviously with a change in head there's bound to be a change in perspective and I think one of the things we've got to do is get away from the notion that we're all just responsible for our own little box, because that's when I think things will really happen, but to be honest up until now we've done little in that way ... people are still holding back and shutting themselves away."
(Interview)

The initial presentation to teachers at St Mary's was received in polite silence with the staff agreeing with John that the initiative would be useful for the school. There did, though, seem an element of unease about the focus on teachers' responses to the initiative.

"Am I right in thinking that it's not the maths you're interested in but our reactions to it?" asked Elizabeth. I reply that I'm interested in mathematics but that I'm also interested to see how the way I go about presenting the ideas in received. "So we're the guinea pigs" comments Jenny. I'm not sure if she means this in the sense of me trying out the ideas on them or that they are laboratory animals for me to observe.
(Fieldnote)

The initial stage of the initiative involved removing a group of children from class and illustrating the approach for teachers by teaching a topic to the children in the way implied by Do Talk and Record. After working with the children, I returned to discuss what had been achieved and the recording the children had undertaken in their books.

Teachers' reactions during this initial period paralleled those of teachers at Countess Anne. I felt a vague disquiet about a dilemma in which I was ineffective in getting teachers to see limitations in their own practice, but felt that to be candid with them would invoke hostility.

I took Shirley's seven and eight year old children outside and worked with them in the corridor for three forty minute sessions. We had arranged to have a discussion about the work I'd been doing after the lesson as we hadn't been able to do this before. At the meeting I told Shirley how I'd tried to teach them pages in the Fletcher Book she had suggested. I related the way I had approached teaching the ideas as 'teaching to the pages'. This I in turn related to the Do Talk and Record framework and how this involved starting with the apparatus. "Yes" she agreed, "you do notice they progress quite rapidly using the apparatus". She then adds that you need to get to 5×3 as soon as

possible. I agreed with this. She also said that there was a need for tricks as well. "Yes" I agreed and having in mind a successive shortening leading to symbols added that symbols and tricks are important because the other ways are too lengthy. We agreed that in the end children have to learn to represent ideas in symbols. After the meeting I'm left with the concern that what I've done hasn't made much impact on Shirley. It's one thing for her to agree that children progress with the apparatus but the big problem about apparatus is that it needs to be used in a way that allows children to develop understanding without making unrealistic demands on the teacher. We haven't moved to this."

(Fieldnote)

Thus I avoided points that could have led to a clarification of the implications of the change. I might have built on the suggestion that apparatus helped children to progress to suggest that the problem is that this is too demanding in the classroom. Rather than doing this, I felt the need to agree with Shirley's assertion that children needed to get to 5 x 3 as soon as possible. However, as at Countess Anne, this disquiet was overshadowed by a conviction that the initiative was progressing successfully. Significant events such as a break in the prevailing climate had been observed at Countess Anne. At St Mary's I would come to see these events less hazily.

It was at this juncture that Jim took me to one side to say that teachers felt the ideas were not working. I discussed in the preceding chapter how this comment led to a jolting of my perception of a 'smooth progression through the change' at Countess Anne. As explained in the previous chapter, I came to see that at Countess Anne the impact of the initiative was weakened by my adoption of low risk, low trust and status orientated behaviours. My tendency to adopt these behaviours and the constraining effect they had on the success of the initiative led to the search for alternative behaviours. I therefore sought to adopt behaviours that might unblock communication between participants and myself and thus increase the chances of the initiative being successful. I now wish to describe the inquiry orientated, high risk and high trust behaviours I adopted at St Mary's.

Inquiry Orientation

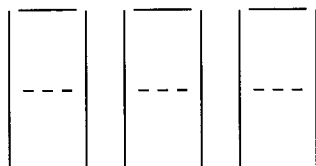
My status orientated behaviour at Countess Anne had blocked communication between myself and teachers. The strategy I adopted to unblock communication was that of conveying that I was inquiry orientated. As a change agent my intention was to involve teachers in an inquiry into the feasibility of Do Talk and Record. This was to be achieved by assisting teachers to find out enough information to judge it. Inquiry orientation is not the opposite of status orientated behaviour. It does not reject the idea of the change agent having aims in mind for the initiative. It does reject the control that accompanies achieving those aims. In terms of methodology, my role at St Mary's was that of 'colleague'. I was aware of the limitations

of the classroom. I conveyed I had no vested interest in Do Talk and Record and had nothing to lose if teachers were unimpressed by it.

High Risk

One way in which I attempted to convey that the intervention was inquiry orientated was through what I shall refer to a 'high risk' behaviour. High risk behaviour involves linking the proposal of an idea with the evidence that led that idea to be formed. Rather than advocating change on the basis of my expertise, the need for change was based on the evidence provided by the children's behaviour. High risk behaviour involved linking the ideas proposed with evidence that teachers could directly observe. This strategy is illustrated in relation to and exchange with Diane.

I was working with a group of Diane's children and getting them to record the various ways in which the concept of multiplication might be expressed. I asked Owen to show me three groups of two with the Unifix apparatus. He attached two blocks together three times and laid them out.

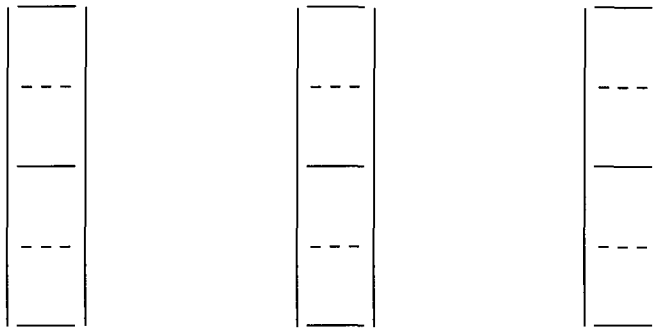


I then gave him some similar examples to perform and record in his exercise book. To save time and because I wanted him to write a sentence underneath his drawing using the work 'groups', I wrote in this book 4×3 . (This was the multiplication example I wanted him to represent).

When I returned Owen had constructed:



By attaching four Unifix blocks to represent the four groups, five blocks to make the multiplication sign and four blocks to make the number in each group. I then asked him to show three groups of four. He set out:



To me, what Owen was doing was the essence of the problem to which Do Talk and Record attempted to offer a solution. He appeared to see no relation between 'times' and any practical real world context to which it might apply. I saw it as such a good example of what was arising that I showed his work to Diane. Initially she thought he was being silly and 'just making things with the Unifix'. I put my interpretation of what he was doing to her. Events 'proved' my interpretation of his behaviour. Each time Diane or myself asked Owen to record 'groups of' or 'sets of' he made the group or set up correctly. However, each time he was given the work 'times' he made the multiplication sign out of the Unifix. Diane came to agree with my explanation. "He obviously hasn't got a clue what times means", she concluded.
(Fieldnote)

The initial meetings with Diane exhibited the characteristic pattern I previously described. Our initial conversation was one in which we sought agreement while leaving the important issues of the change untouched. Thus Diane initially appeared sceptical about the value of apparatus.

You can't just leave them to play - you've got to tell them in the end.
(Fieldnote)

However, the evidence of Owen's lack of understanding removed this characteristic interaction. Rather than advocating change on the basis of my expertise, the need for change arose from the evidence.

Teachers' responsiveness to observable evidence of limitations to their practice is also illustrated by work using video cameras (Hopkins 1986a). Similarly, Roger at Countess Anne saw evidence in the initial video of the adverse effects of the teaching method he used. High risk behaviour involves providing evidence by which others can judge for themselves the usefulness of the ideas being put forward.

High Trust

Another way in which I set out to convey that the intervention was inquiry orientated was through the adoption of high trust behaviour. At Countess Anne I had a low trust of teachers'

reactions. That is I tended not to take negative feedback at face value but reinterpret it as evidence of defensiveness. High trust behaviour involves conveying that any feedback is taken as assisting in the learning of those involved.

The solution to this I saw in terms of taking feedback at face value, not as an indication of how other people felt about my status as expert or their threatened status as teacher. I was determined to trust that the reactions of others were orientated toward generating important information about the initiative.

Inquiry Orientated Behaviours and Participants' Reactions

Having described what constituted the inquiry orientated, high risk and high trust behaviours at St Mary's, I now wish to discuss the way in which this created a climate of inquiry around the initiative. High risk taking and high trust behaviours appeared to change the nature of my interaction with teachers. Focusing discussions around the evidence provided by the children created a climate of inquiry around the initiative. We became jointly engaged in an inquiry into the feasibility of the ideas I proposed. Do Talk and Record was seen as an intelligent assumption worth putting to the test of practice rather than as correct or incorrect.

In order to model open behaviours the change agent needs to accept the following obligations: firstly to present ideas in such a way so as to encourage constructive criticism; secondly, to take any negative feedback as aiming to assist learning; thirdly, to share power and control of the initiative with those who will use the ideas. The consequence of all this is to unblock communication between those proposing and those receiving ideas. Participants will bring to the surface problems and reservations they feel about the ideas. The learning potential of all participants will thus be extended. Learning will no longer take place within the vacuum of an individual's perceptions because ideas will bounce off other members of the group. The result of this will be that mistaken assumptions will be corrected and reformulated. Participants' decisions to adopt the ideas will be based on free and informed choice. The success of the adoption of inquiry orientated, high trust and high risk behaviour at St Mary's suggested a refinement to the model was appropriate. Before moving onto discuss the journey to change at St Mary's I wish to revise the initial change model to incorporate these behaviours.

Refining the Change Model

My intention during the diagnostic phase of my research was to refine my model in the light of experience. At the outset of the initiative the third section of the model 'managing change' focused on the importance of securing teachers' participation and involvement in the change. The section originally listed a series of desirable participant behaviours. The research at Countess Anne and St Mary's now suggested that securing these desirable behaviours depended on the adoption of inquiry orientated high trust and high risk behaviours by the change agent. I therefore extended this section of the model to include two additional tenets.

- Model inquiry orientated, high risk, high trust behaviours.
- Take any feedback as aimed at providing useful information about the change rather than as evidence of defensiveness.

The model in its revised form is set out in Table 5.1.

Table 5.1 : A Strategy for Change

1. Planning for Change

- 1.1 Identify the basic problem or opportunity.
- 1.2 Focus on the driving and restraining forces before implementing the change.
- 1.3 Decide who is likely to be affected by the change and the reasons that might lead them to resist it.

2. Implementing Change

- 2.1 Increase the driving forces and reduce the restraining forces through demonstration and communication and then facilitation and support.

3. Unblock Communication

- 3.1 Unblock communication with participants by modelling high risk, high trust and inquiry orientated behaviours.
- 3.2 Take any feedback as aimed at providing information that will aid learning rather than as evidence of defensiveness.
- 3.3 Devise feedback mechanisms for detecting difficulties, discontent interferences and unexpected snags.
- 3.4 Convert emotional opposition into constructive criticism.
- 3.5 Remain open to the possibility that change may have drawbacks not recognised by the innovator.
- 3.6 Support modifications and adaptations.
- 3.7 Be prepared to modify the change when experience indicates improvement is possible.

Teachers' Path to Change

The intervention at St Mary's also altered my perception of the way in which the model met teachers' differing needs within the initiative. At the outset of the study I considered that those for whom Do Talk and Record represented a fundamental change in their practice would require an extensive period of demonstration and communication (in which the ideas were modelled and discussed with teachers in their classrooms). I considered that those for whom Do Talk and Record represented an incremental addition to their practice would require facilitation and support (in which

teachers trying out the ideas in their classrooms were supported). However at St Mary's teachers for whom the ideas represented 'fundamental' change appeared to require very little communication of the ideas behind Do Talk and Record before feeling ready to try out the ideas.

The children in Monica's class had been working out subtraction. The work the children recorded in their exercise books showed that she had attempted to teach this by getting them to repeat the algorithm until they could perform the method correctly. For Monica then Do Talk and Record represented a fundamental change and I expected that she would need long term classroom support before she could try out the ideas. However, Monica was prepared to abandon her approach and try out that implied by Do Talk and Record.' As I worked in Monica's classroom she asked me to look at some work she had planned on division. This work had been influenced by the video she had watched on Do Talk and Record. "I saw the stuff on the subtraction and that looked good so I thought I'd try the same way of going about it to teach division" she commented.
(Fieldnote)

The argument thus far has been that the adoption of inquiry orientated behaviours increases the chance of successful change. Monica appeared then to approach the initiative in an inquiry orientated way. Her existing practice was an intelligent assumption rather than correct or incorrect. She approached the learning strategy in a way I shall describe as 'intent to learn'. Elizabeth approached the change in a similar way.

"I don't really like Fletcher - I'm just ploughing through the pages and they don't understand what they're doing. I ring this and that in the children's work books but we never get the time to actually sort it out."
(Fieldnote of conversation)

It was argued above that a constraint on change was the adoption of status orientated behaviours. In contrast to those teachers at St Mary's who appeared 'intent to learn' another group appeared to link the correctness of their existing practice with their sense of security and identity. They approached the initiative in a way I shall describe as 'intent to protect' their status. Such teachers appear either to deny the value of the approach or resist experimenting with it.

At Countess Anne I had felt vulnerable when teachers had denied the need for change and expressed scepticism about the practicality and benefit of the ideas and the extent to which they were new. At St Mary's this denial and resistance appeared to be part of the change journey of those intent to protect. Jim's initial reaction was to deny the need for change.

"It's really just going back to all the stuff we did at college. Well I do do that starting with the apparatus and everything." I set out for Jim the difference between Do Talk and Record as an approach to division and the way he

performs it using the apparatus. "It's really a matter of style, everyone's different. Your way's probably right for you but I wouldn't do it like that."
(Fieldnote)

Shirley's initial reaction was also to deny the need for change. However this initial reaction changed to one in which she resisted the ideas and expressed her scepticism about them.

I talk to Shirley about the work on subtraction using decomposition that I've been doing with a group of her children. "The extra input is really helping them", Shirley comments. "I'd never get the time to do this." I try to show her that what I've been doing isn't overly demanding on the teacher. "They should be able to do it without me being present tomorrow" I suggest. "Do you want me to give the rest of the class something easy to do tomorrow then", asks Shirley. I say "it would be helpful". "So they can't be left to get on with (Do Talk and Record) on their own that much then" she comments.
(Fieldnote)

Whether teachers came to the initiative 'intent to protect' or 'intent to learn' appeared to be independent of whether Do Talk and Record represented fundamental or incremental change to them. Teachers who were 'intent to learn' required only a small degree of education and communication before trying out the ideas. For teachers who were 'intent to protect' long term classroom demonstration was required.

After one lesson Shirley commented that she thought I'd had my hands full. When I returned the next day my sole purpose during the lesson was to show that the children could work on the ideas while leaving me free to turn my attention elsewhere.
(Fieldnote)

Teachers 'intent to protect' appeared to move along the path to change when I worked in their classrooms modelling the ideas. In engaging in an inquiry into the feasibility of the ideas proposed teachers journeyed from the stages of denial and resistance to a stage of exploration.

My encouragement of open evaluation of how I presented Do Talk and Record seems to secure teachers' interest in the initiative. As I worked with Jim, so a particular problem of implementing the project would be highlighted and the framework's practicality subjected to his questioning. But any rejection is temporary giving rise to problem solving by myself or increasingly by collaboration. Today I was concerned about a group of children's attentiveness while they listened to other children's explanations of them moving the apparatus. I felt that Jim might interpret this as evidence of the idea being impractical. I suggested to him that the children's inattentiveness was because I expected them to concentrate longer than they were able. Jim said that it was not the children's concentration span that was the problem but that they were leaning across a group of art tables. He suggested that by moving the desks

together the children would be able to sit down and would be less fidgety. In rejecting my point Jim came to participate in the project.

(Fieldnote)

Teachers who were intent to protect then joined those intent to learn at a phase of exploration. Teachers intent to learn had started the change journey at this point and had signalled their interest in the project's ideas at the outset. However a real signalling of interest came about when I asked the whole staff to explore the ideas while I facilitated and supported their efforts. This exploration involved them planning, carrying out and evaluating topics taught in the way implied by Do Talk and Record.

Interest was signalled during the exploration phase in the way that teachers appeared to become unaware of the presence of the children. During what I have called the demonstration and communication phase, it was often difficult to talk to teachers because they were distracted by the children. But during the exploration phase, teachers sat surrounded by the trappings of abandoned lessons while they engaged in an intense post-mortem with me. Often during these discussions teachers appeared to be unaware of the presence of the children.

Jenny is trying out a topic on fractions with a group of children. She wants the children to lay out a rod and place four smaller rods of equal size underneath it to signify quarters and then eight underneath that to signify eights. She hasn't enough apparatus for the children to do this though. At this juncture she abandons the lesson and asks me if it isn't enough just to show them one fraction and let them pick up the idea about what a fraction is from that. We discuss whether the children need experience in different contexts to pick up the idea. At one point we leave the children sitting patiently and move to the blackboard because Jenny wants me to show her what the recording would look like. Jenny's involvement in the discussion is only broken when a child asks if he can go home as it was after twelve o'clock. Jenny starts and comments "Oh, I'm sorry, you've all been so good I'd forgotten you were there."

(Fieldnote)

Up to this point the initiative had largely been confined to working with teachers in their classrooms on an individual basis. But as the project ballooned, so it rose up out of teachers' classrooms onto the whole school agenda. At Templewood my role at this point had been to build bridges between members of staff who faced the same problems. I did not wish to solve problems myself but felt that it would increase commitment if teachers found solutions within the group.

I acted in the same way at St Mary's as at Templewood. I attempted to stimulate the involvement of the group in problem solving through several strategies. One of these was to bring up in staff discussion reservations that teachers had discussed with me in the classroom.

Elizabeth told me she felt the project implied something teachers were aware of. In a group discussion I asked teachers if Do Talk and Record did represent something new to them. "It's the written language that's different. We've been telling the children how to do it and you're saying that they should be writing out how to do it" commented Jim."
(Fieldnote)

My second strategy was to build networks of support within the school.

On trying out the planning framework Myra brought up a number of points concerning the use of language in mathematics. Myra felt that younger and less linguistically able children had difficulty in writing story accounts of mathematical processes. She also considered that those who were able to write stories were concentrating on the writing rather than on the mathematical processes behind them.

She further felt children would not be able to write enough stories to get a sense of the underlying idea. The solution to these problems was worked out by Diane (at home) who devised a worksheet which described the process but left blank spaces for the children to fill in. I told Myra, who was also concerned about children writing stories about this. It was only some days later that I learnt Myra had gone to Diane and they had spent some time refining the worksheets and trying them out in their classes. There was no compulsion on them to do this, nor on them to spend time on ensuing meetings working on the frameworks."
(Fieldnote)

The phase of exploration continued throughout the initiative. It was apparent in the interviews conducted at the end of the intervention that teachers were still exploring the feasibility of the ideas.

"Bit early to say yet."
(Interview)

"I need time to work on it more before I can tell."
(Interview)

"Give us a chance!"
(Interview)

Interviews conducted after six weeks suggested that for some teachers the meanings of Do Talk and Record had still to emerge fully.

"I'm still wrestling with it."
(Interview)

At the end of the change journey came the stage of commitment. Some teachers appeared to have reached this stage when interviewed immediately after the initiative.

"I suppose it's affected me in the way that I don't just start with the pages (in the text books) but use them as an end point that I've got to work the children back towards... so I think how does this translate... what apparatus can I use to show (the children) what this means and work back using the recording and everything to work back from that."
(Interview)

"It has taken root in the school I mean it's referred to a lot like the teachers are preparing a curriculum document for new teachers it's got Do Talk and Record at the centre and a flow chart with spokes leading off to the different topics."
(Interview with Head)

There was also evidence of commitment to a change in practice within children's exercise books. Thus Jim's children recorded 'subtraction' prior to the initiative using standard notation. After the initiative the recording of the topic 'multiplication' was that of the successive shortening using words and pictures implied by Do Talk and Record.

I was also shown maths work that the children had completed which teachers obviously felt derived from Do Talk and Record. I was unable to see that link however. Do Talk and Record appeared to have been adapted and modified by teachers to a point at which its original influence was not directly observable.

The intervention at Countess Anne led to a reassessment of the change journey teachers undertook within the initiative. Teachers' starting point along the change journey did not appear to depend on whether the ideas represented fundamental or incremental change to them. Rather it depended on whether individuals came to the initiative intent to protect or intent to learn. Those intent to protect journeyed through the phases of denial and then resistance before joining those intent to learn at a phase of exploration. The end point of the journey was that of commitment.

The Change Model Proposed in this Study and Teachers' Journey to Change

At the outset of the study I had thought that the two phases of demonstration and communication, and facilitation and support, were required to move teachers along the path to change.

Following the intervention at St Mary's it did appear that both phases of the model were crucial to moving teachers along the path to change. However this was not in the way originally envisaged. The demonstration and communication phase of the model appeared useful in moving teachers 'intent to protect' to a point at which they would explore the ideas. In doing so teachers moved from the stages of denial and resistance to a stage of exploration.

This argument is supported by events during the intervention at Countess Anne. At that school, teachers who came to the initiative 'intent to protect' remained at the stages of denial and resistance throughout the initiative. This is consistent

with the argument. At Countess Anne I did not work closely with teachers in their classrooms during the demonstration and communication phase. I did not adopt high trust, high risk and inquiry orientated behaviours. The result of this was that I was unable to convert emotional opposition into constructive criticism. Without the phase of demonstration and communication teachers did not move along the path to change. Because of this the initiative floundered at Countess Anne.

At St Mary's teachers initially 'intent to protect' commented in interviews, conducted after the initiative, about how a climate of inquiry was created during the initiative.

"You came in and sort of said what do you think of this idea, so we looked at it and tried it out, it was like an experiment seeing if the ideas worked or not."
(Interview)

"You didn't seem as if your mind was closed to our ideas and our perspectives. You invited us to contribute to it too, so it didn't just come from you and that was it."
(Interview)

I also asked teachers what they considered the benefits of the demonstration phase of the model to be.

"Having someone prepared to expose their ideas for investigation."
(Interview)

"You set the scene by coming across as never being totally sure until you heard the other person's point of view."
(Interview)

One teacher touched on how her initial stance of being intent to protect her status was reduced during the demonstration and communication phase.

"I don't know if it's just me but as a teacher you're often full of private self doubts and you fear those being exposed. But you avoided this subtly by not being so certain about what you were saying was right and the ideas seemed good so it was worth appearing a bit silly for. I think the way you said have a look at this see what you think removed the threat."
(Interview)

"I didn't mind (having the planning sheets looked at by me) because you obviously weren't threatened by criticism and I suppose I thought the same."
(Interview)

When teachers were asked about the benefits of the facilitation and support phase, the responses indicated that easing the initiative into the classroom had prevented the ideas being overwhelmed by practical constraints.

"It was very useful having you in class to discuss what had happened afterwards. I mean after the (first attempt) I sat back and thought 'blow it' because it was a disaster and I think if we hadn't talked about it that would have been it for me."

(Interview)

Summary

In this chapter I have described how the research conducted at St Mary's developed my thinking about change. I came to see that the high risk, high trust and inquiry orientated behaviours I adopted had secured teachers' participation and involvement. I also came to see that the change journey undertaken by participants did not depend on whether the ideas represented fundamental or incremental change to them but rather whether teachers came to the initiative intent to learn or intent to protect. Those intent to protect went through the stages of denial and then resistance before joining those intent to learn at a stage of exploration and moving on to a stage of commitment. Another issue I wished to investigate at St Mary's was the extent to which the initiative acted to dismantle the values of privacy, hierarchy and territory and replace them with openness, shared critical responsibility and rational autonomy. It is to this issue I turn in the following chapter.

Chapter Six : Influencing Staff Relationships

My interest in the effect of the change model on the climate of primary schools initially derived from Simons' description. I considered that 'privacy, hierarchy and territory' described well the closed climates of schools that I had known. Simons' description further captured the essence of the effect of the initiative at Templewood. The initiative had resulted in 'privacy, hierarchy and territory' being replaced by 'openness, rational autonomy and shared critical responsibility'.

One intention within the analytic phase of this study was to grasp more firmly the behaviours that might signify privacy, hierarchy and territory. The other was to observe the process by which these behaviours might come to be replaced by openness, rational autonomy and shared critical responsibility. In fact the climatic description developed to replace Simons' did not initially develop from within the schools in which the research was conducted. Rather the starting point was my own behaviour as a change agent. The initial attempts to describe my low trust, low risk and status orientated behaviours was tied to Simons' terms. Thus I initially considered that 'privacy' had been maintained over Do Talk and Record by working outside teachers classrooms. As my conception of this behaviour became firmer, Simons' description seemed no longer to account for my closed actions. For example a tendency not to trust teachers' reactions at face value did not fit into Simons' description. Moreover there seemed problems with Simons' phrases. Territory and privacy, for example, appeared interchangeable.

Because of these difficulties, different descriptive terms for the closed climate being observed were developed. The argument has been that I adopted status orientated, low risk and low trust behaviours at Countess Anne. I further argued that teachers responses to the initiative appeared to be inhibited by their adoption of these behaviours. In this chapter I wish to extend this argument to suggest that teachers at Countess Anne and initially at St Mary's not only reacted to the initiative within the confines of these behaviours but adopted them in relation to each other. For Duncan (1981) the concept of organisational climate can be summarised as a relatively enduring quality of the school environment that is experienced by principals and teachers and influences members' behaviour. In the first half of this chapter it is argued that an identifiable quality of the environment at Countess Anne and St Mary's was an interactional climate premised on individuals adopting low risk, low trust and status orientated behavioural patterns. In the second half of the chapter it is argued that the open behaviours adopted at St Mary's acted to dismantle this prevailing climate and replace it with one characterised by high risk, high trust and inquiry orientated behaviours.

Low Risk, Low Trust and Status Orientated Behaviour at Countess Anne and St Mary's

I firstly wish to establish the presence of closed patterns of interaction at Countess Anne and St Mary's.

Galton and Simon (1980) suggests teachers act with children to show themselves to be 'a good teacher': one who can control children and maintain a busy workmanlike atmosphere in class. However, many of those who pass judgements on teachers are not able to see classroom interaction. Governors, parents, inspectors responsible for promotion, headteachers and other members of staff are unlikely to be present when the teacher is actually teaching. Alexander (1992) found that primary teachers were more concerned about classroom displays than children's learning. The argument here is teachers provide the evidence of classroom products to show themselves to be a 'good teacher'.

One of the ways in which teachers at St Mary's and Countess Anne were able to attain status as a good teacher was through class assemblies. These took place once a week with each class in rotation performing in front of the whole school. Class assemblies consisted of one class displaying written work, art, dance, drama and music related to a theme the children had studied.

At St Mary's teachers felt their status was on the line in such assemblies. Thus they were concerned to show off the work they undertook with children to the best advantage.

Lunch time - Jenny, Elizabeth and I talk about Jenny having to get ready for assembly and how much time it takes with young children. I say that at our school we tried to limit the length and spectacle of assemblies - "when you're up there you feel your work is on show", Elizabeth says, Jenny says that she wishes they were abandoned altogether - "you spend all that time getting them ready and its finished in five minutes". She also feels that they become like a competition to see who's the best teacher ... who's doing the best work with the children. We laugh about assemblies in which teachers get dressed up as cats and take part.
(Fieldnote)

Putting on an assembly then was a context in which teachers at St Mary's felt the need to be seen as 'good practitioners'. They feel their status is on show and the need to put on a good performance.

The use of products as evidence of a teacher's status was also recognised by teachers at Countess Anne.

"There's something about teachers - they're competitive - you get it with displays, with art work, even with the children. Three teachers will say oh he's terrible as someone's (a pupil) going through the school. Then the fourth will say I've got no problems with him. Then its back to the fifth and he's awful again."
(Interview with teacher)

A number of individuals acting in a way concerned with their status is likely to create rivalry and competition. This concern with status produced a competitive climate at both Countess Anne and St Mary's.

I talk to Roger about the assembly that he's got to do on Friday. I sympathise with him having to get all the costumes and things out at lunch time. He doesn't mind doing it, he says, because he likes doing assemblies and doing dance, drama and music because the children enjoy them. The trouble is some people get competitive about them. I agree that it's a pity people see them like that. Roger says that after he had finished an assembly on which he had spent ages working it was practically not commented on afterwards at breaktime by several members of staff. The only comment he had from one teacher was as he went to get his children after break. She expressed her annoyance at him. "Someone's got to follow that now" she said. Roger said that after that he tried to moderate what he did.
(Fieldnote)

A concern with status also appeared to produce cover up at Countess Anne.

"I don't know about influencing others. Teachers often shy away from anybody talented. Like Mike Foster who was brilliant at art. While he was here nobody did any art because he made them feel inadequate I think. But when he'd gone people quickly came in to fill the vacuum."
(Interview)

The presence of a concern with status at St Mary's also appeared to create mistrust within the teacher group. Thus one teacher described her surprise at the reaction to her attempt to share her delight in artwork with a new member of staff.

"We had a new girl (teacher) start at the school and we started off nicely. Because she was in the room next door she used to come in and ask how I did that piece of artwork or that display and I used to go into hers and we'd have a chat. But after a while she stopped doing that and hardly spoke to me. Once when I asked her if she liked something I'd done as she went past a display I was doing she said - 'I thought it was meant to be the children's work, not yours', and once when I was telling someone about work that another teacher was doing she said pointedly 'you mean that teacher's children's work'. It made me doubt myself, I thought, well, perhaps I do help them too much and what they're doing is a sham. I think the trouble was that at her other school she was a big fish in a little pool but when she came here she found she wasn't any more. I found out after she'd been round someone's house and phoning her up in floods of tears saying that everyone was better than her and she wasn't any good."
(Interview)

A further way in which teachers provide evidence of being a 'good teacher' is by showing the knowledge base from which their practice derives. Thus, staff meetings provided a further

opportunity for teachers to provide evidence of their status at St Mary's. This well illustrated by a staff meeting on science which I attended in my second week at the school. At this meeting Jim presented his proposed curriculum change in science in a way which demonstrated low risk, low trust and status orientated behaviours. Teachers also responded to the initiative in terms of these behaviours.

Lunch time staff meeting. This is a staff meeting in which Jim sets out to explain the contents of the science boxes he has prepared and relate them to the County Science Guidelines and to the objectives of Science 5-13. The boxes are laid out on the floor and the staff sit in a semi-circle with Jim at one end, facing the staff so that he can explain. He is carefully organised. The six boxes contain all the elements for children to carry out particular science investigations. In addition, he has prepared work cards and sheets to explain what is in the boxes. He's also prepared various sheets which suggest how the work might be used by the staff and a list of the objectives and values of science derived from the science 5-13 worksheets. For most of the time he's talking, there's absolute silence as there is at the end. In fact, Myra responds slightly awkwardly "We're all stunned into silence." "We're all very impressed", says Shirley. The only question is from Diane who asks if the objectives are unrealistic. Jim replied: "Of course you don't have to use them all the time. The idea of the objectives is a loose framework to keep in mind". John spends some time saying that it wouldn't be necessary to follow the work cards - that they can be used in any way. Eventually Jim says: "You may like to work at them or not and try things out. I take it I can leave them in the science area and you can take them to your classrooms or not as you choose". The silence makes the loudest comment of all. There is no response from the staff in general to Jim and though he says - "I take it you'd be happy to use the boxes", it's clear the silence doesn't imply consent. Elizabeth says not a word throughout and towards the end folds the sheets Jim has provided as if to shut the book on the initiative and proceeds to play with her pen. When the meeting has officially finished she says: "Is that it, can I go now?", to John. Conversation switches to discussing how to organise the pigeon fancier who is coming in next week. Myra and Sue talk about some science things they've done, but I'm left with the feeling that some staff will do nothing about it at all and so, I suspect, is Jim.
(Fieldnote)

The pattern of interaction within this staff meeting on science can be seen as a manifestation of the prevailing inhibitory climate at St Mary's.

Jim's behaviour at the meeting can be seen as status orientated and exhibited low risk taking and low trust. From the perspective of status orientation, the format of the science initiative can be seen as an attempt to show knowledge rather than share it. One of the most effective ways of showing knowledge is to control others' access to it, so that the ideas

remain the property of the individual portraying them. This was the way in which I acted at Countess Anne when I felt unsure about how much the ideas I proposed represented change. I maintained control over the ideas by working outside classrooms, so that teachers would not see any possible flaws in the activities I undertook. I then told them about the benefits of the activities the children had undertaken, describing those benefits in terms of the framework I defined as the way to learn mathematics.

I suggest Jim similarly removed the science initiative from a context in which others might have gained access to it. Control was maintained over science by placing the presentation within the theoretical considerations of the schools council project. Science was portrayed as something acceptable to outside experts. Teachers were not party to this expertise and thus were unable to engage with the ideas. Moreover the theoretical focus of the presentation removed science from a context in which teachers could have participated. That is the extent to which science provided benefits to the children that the teachers were able to observe. Instead, Jim evaluated for teachers what was beneficial about science and how to achieve beneficial outcomes. The format for teaching science Jim considered teachers should adopt derived from his knowledge of what science was acceptable to outside experts. His evaluations about science teaching were the visible tip of his iceberg of scientific knowledge. But the evidence that had led him to formulate this view of beneficial science remained submerged. He advocated change on the basis of his status as an expert rather than on an appeal to the evidence. This maintenance of control was also asserted physically by the presence of labelled boxes, work cards, sheets and a science area created by him to which others were to come for equipment.

Jim's behaviour can also be seen as 'low risk'. Removing discussion from a context in which others can take part can be seen as a strategy which reduces the risk involved in putting forward an initiative. This is because it removes responsibility for errors from the individual. Thus when somebody questioned the number of objectives for science as unrealistic, Jim was able to deflect criticism from himself by saying:

"Of course you don't need to use all the objectives; Science 5-13 suggests just using them as a loose framework to keep in mind."

(Fieldnote)

The staff meeting on science also illustrates low trust behaviours. Acting within the confines of low trust behaviour involves perceiving negative or probing feedback as seeking to expose errors rather than to assist in the learning of all involved. Because feedback was seen as putting Jim 'on trial' it was not sought or encouraged. The strategy of defining science within an 'academic' context was one way of preserving the initiative against feedback. It was also preserved by Jim maintaining control over a definition that others would accept the ideas, understand them and will implement them in their classrooms. Thus the science initiative was a one way flow of information at a single meeting. No future meetings were set up to discuss the outcomes of trying out the proposed ideas in the

classroom. No indication was given that Jim would be interested in the reactions of others. Teachers were invited to use the boxes or not as they chose, not to regard the initiative as a proposal worth putting to the test of practice.

The presence of status orientated, low trust and low risk behaviours similarly constrained those proposing curriculum initiatives for colleagues at Countess Anne. Thus individuals putting forward ideas were perceived as status seeking.

Teacher: When you work closely with people you've got to keep tensions and resentments behind you. It's got to be an outsider; someone like you. They could head meetings if they used you as a handle. They wouldn't have enough status on their own - it just increases annoyance - you think "I can do that, I'm just as good as you".

Teacher: Teachers end up like the children. You get it here, you get it at meetings - were they're just going on trying to impress everybody and you just let them get on with it and keep quiet. It kills off any discussion, you just wait for them to finish.
(Interview)

The presence of these behaviours were also commented on by other teachers.

DM: Do you think that teachers might use the approach in the future?

Teacher: I don't really think people do that here. I'm very conscious at staff meetings that one is waiting for the other to say something or that one would hold back. It was as if they thought they would be pulled to bits and thought to be silly.
(Interview)

The authors of the Birmingham Survey (Primary Schools Review and Development Group 1983) suggest a tension in 'teachers, whatever their private fears, being held publicly responsible for the whole curriculum', (1983, p123). My suggestion is that this tension presses teachers toward not risking exposing their lack of knowledge publicly. These low risk strategies underpinned the way in which initiatives were received at Countess Anne.

"I tried to get a library grant for multi-cultural books because we're an all white school in an all white area, so we had a meeting. I'm not very good at meetings anyway, but when I asked people what they thought about multi-cultural education, I got nothing. There was nothing. There was no discussion at all. It was awful, I was the only one who said anything."
(Interview)

Patterns of Interaction within the Wider Climate of the School

The suggestion here is that the closed behaviours observed in staff meetings at Countess Anne and St Mary's were also present in the wider climate of interaction within the schools. Within such a climate there is little public debate of curricular ideas or practice because that constitutes a risk. The reactions of other teachers cannot be trusted. They may feel their status is threatened and react with hostility. They may confront the initiative and seek to expose errors in it. Thus at Countess Anne and St Mary's, teachers tended to avoid situations in which others might interpret their behaviour as status orientated.

"I wouldn't like to do a staff meeting myself, people would think you were really puffed up".
(Interview)

Moreover, they didn't believe that publicly telling everybody 'how well it was going' would be taken at face value.

"The last thing that you want to do in a small school like this is when you know someone's having a bad week tell everybody how well it's going. I wouldn't have it all displayed outside in the corridor or have the children working on something spectacular out there. Perhaps I'm just being over sensitive but I think there would be people who'd feel I was rubbing it in."
(Interview)

Similarly wider issues of classroom practice were not publicly tested. Classroom success was seen as status seeking (status orientation). Classroom problems remained the preserve of the individual rather than the group (low risk). Individuals considered that others would view airing problems publicly as a symptom of failure (low trust). A teacher at Countess Anne referred to the presence of these behaviours in regard to wider issues at that school.

Teacher: I'd like to reach a situation where you could walk into the staff room and come out with something like "oh, I could have strung up so and so", but that just doesn't happen. You just don't discuss problems and neither things that worked.

DM: Why not? Obviously this is a question I've asked myself.

Teacher: I don't know. I've just learnt that because nobody else does it, I don't, so I take all my problems home, which isn't fair on him (my husband), although he's absolutely marvellous and he's not a teacher but he does understand. I've felt for a long time I couldn't tell anybody about it because I thought they would think I was failing although I'm sure I'm not the only one. I'm sure everyone feels that way. I'm sure everyone feels frightened to admit that something has gone wrong in case everyone else confirms the belief they are failing. That's what it is. Teachers are generally very insecure. The thing was that I was

absolutely tearing my hair out because the children were - they know I didn't know what I was doing, I couldn't go into the staff room because I felt I'd failed, because other members of staff didn't really seem to be complaining about their children and it seemed as if I complained I was the only one complaining, therefore, I've got the problem and that reinforced the feeling I was failing.
(Interview)

Seldom did people seek the ideas and opinions of others in public situations such as the staff room. Thus at St Mary's most asking and giving of advice and opinions took place privately or not at all.

Teacher: I don't think we ever discuss anything deeply enough to say 'I don't agree with that'. I wish people would be more open at staff meetings and not go along with things and then think to themselves - 'oh, I don't really agree with that', or even more likely just clam up and ignore it, because I don't think there's anything that anybody can't say, that can't be said in the right way if you see what I mean. I really am a firm believer in that there is nothing you cannot say to somebody if you approach it in the right way.

DM: But it would seem that at this moment (the staff room) probably isn't safe enough for everybody to do that.

Teacher: No I don't think so, well I know it isn't because I know what people say to me when we're not in a staff meeting.
(Interview)

The presence of inhibitory behaviours behind this reluctance to ask and give advice and opinions was recognised by another teacher at St Mary's.

"I think it's because they're scared of loosing face, appearing foolish".
(Interview)

It was argued earlier that teachers compete over the curriculum. An interactional climate based on low risk, low trust and status orientated produced wider competition. Thus at both St Mary's and Countess Anne, relationships between some peers were characterised by rivalry and competition. At St Mary's other teachers choose to avoid rivalry.

It didn't affect me that much because I try to keep out of it. I'm not really interested. Some days you come in and think "I'll just scuttle off to my room and not get involved".
(Interview)

But at Countess Anne teachers became involved:

"There was a stage that you got whisperings in corners and then somebody would come and tell you something but you weren't supposed to let the others know and vice versa and you ended up piggy in the middle, knowing all these bits and not knowing what to say to who and what not to".
(Interview)

I suggest that the tendency for schools to be prone to such a climate derives from vulnerabilities implicit in teaching and from teachers pupil orientated role.

Teacher Vulnerability

The low risk, low trust and status orientated behaviours I adopted at Countess Anne and in the initial stages of the intervention at St Mary's derived from my own vulnerability. One reason why teachers adopt these inhibitory behaviours is because of vulnerabilities that are implicit in class teaching. For Lortie (1975) teaching is structured around a basic tension between creating relationships with children and controlling them. Class teachers find a personal solution to their tensions. They create their own unique classroom within which they attempt to resolve the tension between the need to create relationships with children and to control them. An individual teacher's solution to these tensions is resolved in private. The structure of schooling, despite efforts at establishing open classrooms and team teaching, still press towards the isolation of teachers. Kirk (1988) describes the term 'colleague' in teaching as referring to a relative stranger on the other side of the wall rather than the collaborative partner the term implies.

However, the individual teacher's private and personal solution to these tensions is vulnerable to criticism from a wide public. This public includes children, parents, advisors, governors and non teaching staff.

The vulnerability of teachers to the various perspectives of this public is illustrated by events at both St Mary's and Countess Anne. Thus at Countess Anne, Liz described how insecure she felt when she observed the parents of a child in her class going into the head's office.

At lunch time I talk to Liz about stretching the children in maths. As I talk I say that new ideas make you feel guilty about the old ones you've been using. You always feel like that says Liz because you're accountable for things over which you have no control. She gives the example of the Head showing the parents of a boy in her class into his office. She felt quite tense thinking that they were complaining about her. She ran through all the things she might have done to upset the boy again. As it turned out the parents were only seeing the head to ask if the child could go on holiday with them for two weeks.
(Fieldnote of conversation)

At St Mary's, Elizabeth was vulnerable to the approach to mathematics teaching parents considered to be appropriate. The parents of a child I was working with were concerned about the progress she was making.

I spoke to Elizabeth about the parents' evening that had gone on last night. Elizabeth had said to Mr Duggan (who she felt was very pushy with his child) that she'd been working on an approach to develop his daughter's understanding of decomposition. "She doesn't need that rubbish", Mr Duggan had said when Elizabeth had shown the work his daughter had been doing - "I could teach her that in five minutes."

(Fieldnote of conversation)

That is not to say that teachers do not hold their own educational values or that their practice is merely reactive. Rather that teachers can never feel fully confident in their conception of the extent to which they are doing a 'good job'. The probability that some of their clients will be dissatisfied at some point means that they can never attain a position of security.

My suggestion is that teachers react to the vulnerability of their position by adopting status orientated, low risk and low trust behaviours. These behaviours have been observed by other authors. Galton (1980) suggests that teachers have a crucial need to be seen as one who is a 'good teacher who can control children and maintain a busy workman like atmosphere in class'. I suggest that the need to be a good teacher derives from teachers' vulnerability and a resultant concern with status.

These status orientated, low risk and low trust behaviours are amplified, I suggest by teachers' professional isolation. At Countess Anne and St Mary's the ownership of what went on each teacher's classroom was totally theirs. There was no forum which they could discuss either the effectiveness of approaches they adopted or their individual professional needs. Teachers' practice appeared to be developed within the isolation of their own perceptions.

Teachers' Pupil Orientated Role

A further factor in creating a low risk, low trust and status orientated climate within schools, I suggest, is that teachers' pupil orientated role requires them to rehearse these behaviours. In their minute by minute interaction in the classroom teachers at Countess Anne and St Mary's rehearsed low risk behaviours with the children.

I have been supervising most of Roger's class while he works with a group on Do Talk and Record. The class have been writing a story. At the end of the lesson a child goes to Roger and asks him if he has done enough. Roger clearly thinks he hasn't and picks up other children's stories. He obviously feels that the children haven't been working hard enough. "Most of you have done nothing" he tells them. "Really half a page in an hour is not good enough, I want to see at least two pages of writing from all of you by lunch time or we won't be doing games this afternoon. That's

terrible, I've never seen anything so scruffy" he says to another child whose book he's picked up. "I'm not going to accept that. You can stay in at lunch time."
(Fieldnote)

Acting according to high risk behaviour would involve the teacher proposing 'not doing games' as an idea and linking that proposal with the evidence that had led him to suggest it. Obviously such an approach would be impossible with thirty nine-year-olds. A teacher's pupil orientated role requires him to make decisions based on status and absolute power to adjudicate. It requires him to make low risk, status orientated decisions.

Similarly teachers at Countess Anne and St Mary's rehearsed low trust behaviours on a daily basis. Thus they were required to interpret whether a child's actions were to be taken at face value or had other meaning.

Shirley and I wait for the children to take off their coats before afternoon school. A child comes up to Shirley and says she has a tummy ache. "Go and sit down for half an hour and I'll see how it is then", Shirley replies. She turns to me and says - "I quite often get some of them 'ill' when its PE in the afternoon. It's because they don't like going out for games."
(Fieldnote)

There is an old adage that a teacher is 'a man amongst boys and a boy amongst men'. The suggestion here is that a teacher's pupil orientated role creates a work personality that is low risk, low trust and status orientated. This work personality has some transference into the adult realm. For Yeomans (Southworth et al 1989) this causes problems of interaction between members of the staff group and staffroom disaster if infallibility is questioned. In interaction with other adults, teachers adopt patterns of interaction that derive from the requirement of dealing with children. The work personality that teachers develop as a result of continually dealing with children also presents problems for headteachers faced with the task of managing the schools development. For Caldwell (1989) the headteacher is the school's culture bearer. With no training prior to their appointment, headteachers coming straight from the classroom are likely to bring with them a view of management which is influenced by their experience of dealing with children. That is to win and not to lose, to portray infallibility, and to take feedback not at face value but as seeking to expose errors. Those patterns of interaction are the anti-thesis of the high risk, high trust and inquiry orientated behaviours it has been argued, are required to secure adult commitment and participation.

In summary then the description of school climate proposed here derives from individual vulnerabilities and from teachers' pupil-orientated role. It involves a pattern of interaction in which those proposing ideas equate the correctness of those ideas with their own status. The adoption of these behaviours by those proposing ideas will have a direct consequence on the behaviour of those to whom the ideas are proposed. They will be reluctant to feed back the problems that they perceive within those ideas

for fear that this will bring to the surface underlying tensions. These behaviours also have a consequence for the institution in which they occur. A number of individuals within a group acting according to these behaviours will create a closed climate of interaction in which the governing pattern of interaction is status orientated, low risk and low trust. Status seeking, the communication of only partial information about important issues, competition, intra group rivalry, mistrust and cover up will occupy the forefront of members' attention. Such an organisational pattern of interaction does not legitimate activities such as collegiality or self evaluation. As such, before these activities can proceed, some dismantling of this climate is required. In the following section I look at the extent to which the initiative conducted was able to achieve this.

The Effect of the Initiative on the Closed Climates of St Mary's and Countess Anne

The hypothesis proposed at the outset of this study was that a closed climate will be affected by an initiative carried out in the way implied by the change model. As a result of the experience of the pilot schools I came to see that my own behaviour was an important factor in bringing about change. I now wish to examine the strength of the claim that modelling open behaviours will act to dismantle a closed climate.

Following the intervention at Countess Anne, there was no apparent evidence of a change in climate. Indeed it was largely from the interviews and fieldnotes conducted at the end of the intervention there that the argument in the previous section was built up. There was however evidence of change at St Mary's. The interviews conducted and the fieldnotes taken during the latter part of my intervention indicated that there was an increase in high risk, high trust and inquiry orientated behaviours at the school. I wish now to provide an account of the process of change that appeared to take place.

At first the initiative affected individual teachers within their classrooms. I suggest that this was at least partly as a result of the high risk, high trust and inquiry orientated behaviour which I modelled. As a result, teachers reciprocated with similar patterns of behaviour. I described in the previous chapter how we became jointly engaged in an inquiry into the feasibility of Do Talk and Record as an alternative way by which teachers might achieve the outcomes they intended.

As well as engaging teachers in these more positive behaviours, the initiative further served to reduce their professional isolation. The classroom became a place of research in which teachers and I engaged in a joint analysis of the way forward. This was the significance of engaging in intense discussion while surrounded by the trappings of abandoned lessons and groups of patiently waiting children. We became engaged in learning that no longer took place within the vacuum of an individual's perspective but in which feedback and discussion allowed mistaken assumptions to be reformulated. Teachers' interest in such learning was such that they became unaware of the presence of the children.

One effect of the initiative was on teachers' attitudes to change. Rather than viewing change in a negative way they became attracted to it. Although the initiative was concerned with mathematics, it offered a glimpse of a situation in which the classroom was no longer a teacher's private territory, to be preserved against the discovery of errors. Instead classroom practice was an intelligent assumption to which other perspectives might contribute. During the initiative, teachers were involved in an internal dialogue between status orientated and inquiry orientated behaviours. This was expressed in interview by a teacher who initially came to the initiative 'intent to protect'.

"I think it depends on how self confident you are in yourself as to how you deal with these particular ideas. If you feel threatened by them you wouldn't do them and I think that's why some people on the staff pretend that everything's fine and they know it all because I think that instead of using it as a way of developing themselves they see it that they are being criticised or they will fight against it. But I think that's the same with anything, so if you are totally flexible or open minded about things then you can see the things that you don't think are so good. I mean there are things in (Do Talk and Record) that I would say are not my idea of how things should be but obviously that's always so. It's just if you sort of feel that it's always a criticism against you 'oh well I must be doing everything wrong then' or 'well then I can't possibly do it so therefore I won't try'. I think it's just a way of looking at things in a way of how you are in yourself. If you feel not threatened by whatever it is that's being suggested to you."

(Interview)

The presence of this internal dialogue, and a movement from status orientated to inquiry orientated behaviours, can be drawn from an interview conducted with another teacher at St Mary's. This teacher commented on how she had come to develop an inquiry orientated approach to her practice during the initiative.

"You can think as I did before we started this way of working - ah well that's not going to work, I know it's not. Then you can see ah it is working, ah well there was something after all in what he said then. I think I'm more willing to try things after this - things people suggest to me because if you don't try different things you don't know what they're going to be like, so if you're going to sit there and say 'no I'm not doing it, I'll just stay the way I am' - I mean you're never going to develop so I mean my idea is that you try everything, then you can say 'I have tried it but I don't agree with it'. So, if it doesn't work then we can say it doesn't work and we don't want to do it any more."

(Interview)

The phase of the initiative which followed individual discussion in classrooms involved group discussion and problem solving amongst the whole staff. My role in moving the initiative onto

the whole school agenda was to network ideas and bring problems and reservations about the learning strategy raised in the privacy of the classroom into the whole staff and group discussion. In effect individuals who had been inducted into high trust, high risk and inquiry orientated behaviours were brought together in order that they could continue to discuss the feasibility of Do Talk and Record. As a result teachers responded to each other in terms of the behaviours modelled. This can be seen at a staff meeting which Jenny led. The meeting was concerned with the idea of replacing longhand written accounts by the children with a 'fill in the missing spaces' sheet.

During the meeting Jenny goes out of her way to stress that she is not teaching her grandmother to suck eggs and that the worksheets she's produced are there to be used or not. In fact she's almost apologetic about suggesting that others might want to use her ideas at all. Her manner seems to be signalling that there might well be problems she is unaware of in the worksheets and she would welcome other teachers views on them. The last staff meeting I observed was some two months ago. It concerned Bob telling teachers about the science boxes he had devised. Those ideas had been received in a silence that didn't convey consent. In this meeting there was a greater participation by teachers. Both Marissa and Lesley appeared to be ready to subject ideas to much more careful scrutiny than I had previously observed. Thus, Marissa expressed her concern about how child centred it was to have a predetermined path for each child to follow. Lesley asked if Do Talk and Record wasn't really just a trick in the same way that teaching children the rules for getting the correct answer was a trick. But at the same time it's obvious that this criticism isn't intended to be destructive. Later on Marissa suggested having a bank of Jenny's worksheets in the maths area. At the end of the meeting it's agreed that the teachers will take the worksheets and try them out. 'Then you can come back and pick holes in them', concludes Jenny, smiling. Everyone laughs. The impression conveyed is that it's okay to pick holes in the ideas.

(Fieldnote)

In turn the presence of high trust, high risk and inquiry orientated behaviour allowed participants to experience the possibilities of a situation in which feedback contributed to learning. One of these possibilities was a situation in which mistakes came to be experienced by individuals as intelligent assumptions seen as contributing to learning rather than as errors. This is apparent in the exchange between Jim, Diane and Elizabeth.

Diane came into the staff room with me afterwards (she had been trying out a topic using the planning sheets). How did it go asked Jenny: "Well I mucked it up really. I was trying to get them to move on to writing but they weren't ready." "My turn next", says Elizabeth rubbing her hands together. "You're bound to muck it up first time" - commented Jim.

(Fieldnote)

The fieldnote also conveys the sense of camaraderie that teachers felt in the initiative. The status of being able to get Do Talk and Record right first time wasn't on the agenda and indeed Elizabeth seemed to be conveying humorously that she couldn't wait to see the disaster that would befall her 'try out'. Diane risked publicly portraying her 'failure' in the staff room which led to her experiencing a supportive reaction of humour (from Elizabeth) and an overt expression that her mistake wasn't an error but a reformulation deriving from trying out something that had appeared a good idea at the time (from Jim).

Within the initiative at St Mary's, teachers also experienced that a need for status could be met by contributing within a group rather than projecting that status at the group.

Jenny said that Diane had worked on the idea and had come up with a solution to the problem (that written recording was seen as too time consuming). Myra's already used it so I'd like to try it when we next try out the idea.
(Fieldnote)

The significance of these experiences for teachers was conveyed within the final staff meeting which attempted to make the approach adopted explicit.

During the first part of the staff meeting I described the low risk, low trust and status orientated behaviours I observed the advisory service adopted on the course 'Games in Mathematics'. I then suggested that the consequence of these behaviours was that teachers were reluctant to feed back their problems and reservations about the ideas. I contrasted this with the behaviours I had adopted. I discussed how I had tried to put the ideas up so that participants could observe their practicality in the classroom and benefit to the children. While I spoke I was aware of a restlessness amongst the teachers. It seemed to derive from impending afternoon school. Watches were furtively looked at and at one point John got up to close the door to cut down the playground noise. This reaction contrasted with that within the second phase of the meeting in which I illustrated how we had become jointly involved in an inquiry into the feasibility of Do Talk and Record.

During this phase the restlessness disappeared as teachers sat and carefully listened as I described the contribution members of the group had made to moulding Do Talk and Record into a workable classroom format. As we left the meeting John commented: "I think you've affected us by giving us something that can be continued in the school." I misinterpreted John and thought he was referring to the

mathematical ideas. "I mean the way you've gone about it; it's opened us up and made us think together about what we're doing. We've found we've been able to say why that didn't work and why."
(Fieldnote)

Teachers gave the final part of the presentation close attention because the description of the initiative hung on the pegs of their experience of the change. They had achieved value, worth and camaraderie. An inquiry orientated climate was an attractive and attainable possibility for them.

An increased presence of high risk, high trust and inquiry orientated behaviours at St Mary's following the initiative was commented on in interviews conducted after the initiative. During the initiative not only did teachers interact with each other in an open way but a residue of co-operation appeared to have been left.

"The general implication is that force of circumstances brings people together and that it is worth engineering these circumstances."
(Interview)

In interview a readiness to adopt high risk behaviours was apparent.

"Now that an opening has been made I feel more ready to talk about contentious things."
(Interview)

A feeling of high trust also appeared to have taken root within the school.

"I think we've begun to expose bits of us and it's made us feel more of a group, if you think of a group as somewhere that you can talk about anything connected with school and you wouldn't feel inhibited about it."
(Interview)

"I think what's happened is that we've begun to realise that we can argue without worrying that we're going to, for want of a better word, 'do damage'. "
(Interview)

But perhaps the most striking evidence of a wish to perpetuate high risk, high trust and inquiry orientated behaviours at St Mary's was an initiative which was to follow my own. This was a science initiative which involved Diane going round the classes working with groups of children for teachers to watch. It then involved teachers trying out their own lesson having previously planned it with Diane using planning sheets similar to my own.

For John this approach derived directly from the Do Talk and Record initiative. It heralded a new phase for the school.

"In my view there has always been opportunities for the staff to have their say at staff meetings. It's only really lately that generally everybody has and I think you've got

to take some credit for that. But to take for example we'll say we are changing a little bit about writing and really what it revolves around was a change from the idea of not re-writing basically to the idea of the children writing first drafts and working on it and building up grammar through it and punctuation, etc. as well as improving the writing. But there were one or two members of staff who didn't like that idea and through 'well that wasn't the way children should write and that's it' and there being a certain amount of argument. But the people who didn't like it had been overruled as you might say. So it just increased their tension. So now we got to the next phase which is putting ideas like you've done so people can see why they're useful. That was the thing with the language they couldn't see the relative merits of the approaches. I suppose I'd have done it like that now."
(Interview with Head)

The purpose of the initiative which followed Do Talk and Record was to maintain the spirit of inquiry.

"My feeling about it is that it's the process of doing curriculum development that's going to cause things to happen, not the end product but the actual process of doing it that will bring things about."
(Fieldnote of conversation with Head)

Jenny seemed very much aware that in her role as a change agent it was important to get participants to constructively criticise her ideas.

"I'm kind of feeling my way along a bit, I've got to find out what people feel and I think that one of the most difficult things is getting people to say what they really feel about things, and they're not just saying it on the surface and thinking something else and not to be afraid of what they feel about things because then we can discuss things and there's nothing wrong in saying I don't think that and it's easier if it's there in front of you. So I've had to work my way into that a little bit and I know I've got a lot more to do at that. I'm a bit reticent but I know I've got to come out a bit, expose my ideas."
(Interview)

Why did a nine week initiative result in teachers abandoning well established low risk, low trust and status orientated behaviours?

The climate of inquiry generated around the initiative allowed the group to fulfil the needs of participants. For Maslow (Adair 1989) individual needs can be arranged in order of importance. Within Maslow's hierarchy, above physiological and safety needs are social, esteem and self actualisation needs. Many of these higher needs are met by participating in working groups. Thus esteem needs to fall into two closely related categories of self esteem and esteem for others. The first includes our need to respect ourselves, to feel personal worth, adequacy and competence. The second embraces our need for respect, praise and recognition in the eyes of others. These needs are unlikely to be met within a low risk, low trust, status orientated climate.

For Ball (1987) closed climates frustrate individuals because they are not permitted to define their own goals in relation to their needs. The dynamic for a change in climate is that the pattern of interaction I modelled allowed individuals to experience the possibility that their needs might be fulfilled.

Summary

Within this chapter I have looked at the extent to which the research conducted in the analytic phase of the study provided evidence of the initial hypothesis that my initiative acted to "dismantle privacy, hierarchy and territory and replace it with openness, rational autonomy and shared critical responsibility." This initial hypothesis was changed to account for the low risk, low trust and status orientated behaviours encountered. The hypothesis thus became "an initiative premised on my change model acted to dismantle low risk, low trust and status orientated behaviours and replace them with high risk, high trust and inquiry orientated ones." The evidence of the intervention at St Mary's provided some support for this hypothesis. To further explore the strength of this hypothesis within the second stage of the research I set out to construct quantitative measures of change. It is the construction of these measures I discuss in the following chapter. This chapter follows an overview of Section Three of the research.

Section Three : An Overview

Section Two dealt with the analytic phase of the research. Section Three of the study focuses on the more formally conducted interventions carried out at three further schools (Stonehill, Court Farm and Weston) during the reflective phase of the research and the conclusions drawn from this experience. Chapter Seven describes the research instruments devised for use in the therapeutic phase of the research. The first part of the chapter describes the attitude scales used to assess the impact of the initiative on the climate of staff relations at the three schools. These were to be supplemented with interview data and fieldnotes. The second part of Chapter Seven describes the method used to investigate the effectiveness of the change model in supporting teachers moving along the path to change. Again attitude surveys would be used and supplemented by interview data and fieldnotes.

Chapters Eight, Nine and Ten provide an account of the interventions conducted at Stonehill, Court Farm and Weston during the reflective phase of the research. At the beginning of each chapter the results of the initial attitude survey, fieldnotes and other interview data are drawn on to provide an account of staff interaction at the outset of the intervention. The middle section of each chapter describes the intervention at each school. The final section draws on post test attitude surveys, interviews and fieldnotes to examine the effectiveness of the change model and strength of the research hypothesis.

Chapter Eleven discusses the conclusions drawn from the research. The first section looks at how applicable the change journey identified at St Mary's was to other schools. It also examines the strength of the relationship between the change model and teachers' progression along the path to change. The second section of the concluding chapter looks at the strength of the research hypothesis. This section concludes by looking at the relationship between appraisal systems and the maintenance of high risk, high trust and inquiry orientated behaviours in schools. The final section of this concluding chapter looks at the research in the current context of educational change. The major mechanism with which schools are presented to implement the requirements of the 1988 Education Act are schemes based on school self evaluation. This study raises doubts about the existence in primary schools of the collegiality and openness celebrated in these schemes. It also appears to suggest a way in which high risk, high trust and inquiry orientated staff relationships might be created in schools.

Having provided an outline of the final section of the study, I shall now move on to describe more fully the measures I devised to assess the effectiveness of the planned model for change and the strength of the research hypothesis (Chapter Seven); the formal interventions at Stonehill (Chapter Eight), Court Farm (Chapter Nine) and Weston (Chapter Ten); and finally the research conclusions (Chapter Eleven).

Chapter Seven : Research Design in The Second Phase of The Study

In Chapter Three the overall research design of the study was discussed. A combination design which weaved analytic and reflective action research and qualitative and quantitative measures was proposed. In the analytic phase of the research only qualitative instruments were used. During the reflective phase it was intended to conduct a consciously directly change experiment using quantitative instruments. In this chapter the quantitative instruments developed to test the research hypothesis are firstly described. The refinements made to the initial change model as a result of the experiences of the analytic phase of the research are then discussed and the instruments used to test its effectiveness described. Finally the fieldwork plan used within the reflective phase is outlined.

Testing the Research Hypothesis

During the analytic phase of the study the presence of two interactional climates had been discovered within the schools in which the research had been conducted. A closed interactional climate was distinguished by the presence of low trust, low risk and status orientated behaviours. An open climate was distinguished by the presence of high risk and high trust and inquiry orientated behaviours.

It appeared that these two climates could be seen as either end of a broad continuum. High or low trust behaviours could then be seen as one strand of that broad continuum. Similarly high or low risk behaviours were either end of a continuum as were status or inquiry orientated behaviours.

Because these behaviours represented either end of a continuum they appeared to lend themselves to conversion into an attitude scale. The interactional climate of a school could then be determined by drawing up an attitude scale along which respondents might indicate the presence of these behaviours. Administering the scales before and after the initiative would also indicate a change in climate. For example, before the initiative respondents might indicate that low trust, low risk and status orientated behaviours were prevalent. When the attitude scale was administered after the initiative respondents might then indicate that high trust, high risk and inquiry orientated behaviours were prevalent. This would then provide quantitative evidence to support the hypothesis than "an initiative premised on a strategy for change acts to dismantle low risk, low trust and status orientated behaviours and replace them with high risk, high trust and inquiry orientated ones."

However there was a difficulty with devising attitude scales based directly on high or low risk, high or low trust and inquiry or status orientated behaviours. This was that these behaviours could not be observed without reference to the hypothesis itself. At the end of the intervention the intention was for teachers to become familiar with these behaviours. (The final staff meeting was to make it explicit to participants how I had set out to create a climate of inquiry around the initiative). At the outset of the initiative, however, it seemed unlikely that teachers would be able to infer the meaning of high or low risk,

high or low trust and inquiry or status orientated behaviours. Because of this the behaviours were placed in a category within which they could readily be observed by participants. That is they were converted into the following series of directly observable behavioural statements:

1. Curriculum ideas are presented in ways that let teachers see for themselves how they benefit the children.
2. Curriculum ideas are presented in ways that let teachers judge their practicality in the classroom.
3. Individuals put forward ideas inviting others to confront and even alter them.
4. The whole staff trying out the ideas in the classroom and feeding back their findings.
5. Formal feedback meetings are set up.
6. Informal feedback is sought as to the effects of initiatives in the classroom.
7. Teachers feel completely free to provide feedback even if it is negative and confronts the initiative.
8. Individuals are not defensive about their ideas but open to candid criticism of them.
9. Individuals seek and give advice in the presence of the whole staff group.
10. A large part of teachers learning takes place as a result of them feeding back their problems and reservations.

These statements were used as the basis for the construction of a five point attitude scale (see Appendix 7.1). Taken together the statements would provide an indication of teachers' attitudes toward high risk, high trust behaviours.

Constructing A Scale

The second issue in devising an attitude survey involved the actual construction of the scale. The climate of interaction proposed centred around curriculum development. The presence of low risk, low trust and status orientated behaviours acted to constrain curriculum development. The question to ask participants seemed to be 'How well do you feel the statements describe the practice of curriculum development in your school?' Teachers could then rate their response on the following scale.

Most or all of the time	5
Some of the time	4
Uncertain	3
Rarely	2
Never	1

If the attitude survey was administered before and after the intervention a change could be plotted. All teachers in a school might report that the statements 'never' described the practice of curriculum development before the Do Talk and Record initiative. They might then report that after the initiative these behaviours took place 'all of the time'. This would indicate strongly that there had been a change in climate.

It did not appear to be a fair test of change merely to ask teachers to record their attitudes immediately after the initiative. The intervening period between the initial and second survey would involve an initiative that modelled those high risk, high trust and inquiry orientated behaviours. It would be likely that teachers would refer back to the initiative when surveyed immediately post test. This would mean that participants were focusing on the climate surrounding the initiative itself rather than on the general climate of interaction the initiative left.

Because of this it was not intended to ask participants if the statements described the practice of curriculum development immediately after the initiative but rather to survey staff opinion six weeks later in order to gauge any residual effect within the school.

A change in the practice of curriculum development was not the only indication of change however. A change might also take place in teachers' attitudes. One attitude change might be with regard to teachers' views on the desirability of the behaviours modelled. Another section of the survey then asked teachers - 'How much do you think curriculum development is helped by the following (i.e. ideally rather than in this school)?' Teachers could then rate their responses on the following scale.

A great deal	5
A considerable amount	4
Unsure	3
A fair amount	2
Little or nothing	1

This section of the summary would be administered first before the intervention; then immediately afterwards; and finally, six weeks afterwards. Used in conjunction with the section focusing on the actual practice of curriculum development, the path to a change in climate might be plotted. Thus before the initiative teachers might indicate that the statements 'never' described the practice of curriculum development and helped it 'little or nothing'. Immediately after the initiative teachers might consider the statements to help curriculum development a 'great deal'. Six weeks after the initiative participants might consider the statements describing the practice of curriculum development 'all the time' and as helping curriculum development a 'great deal'. This section then would provide a measure of the extent to which participants had become committed to high risk, high trust and inquiry orientated behaviours following the initiative.

This section might also provide an indication of the factors that might support a change in climate. It seemed reasonable to suppose that a change to high risk behaviours would be brought about more readily when a number of teachers were already disposed in that direction before the initiative. Would the effect of the initiative be more positive when this was the case rather than in a school where initially the behaviours were considered unhelpful?

Alongside teachers' attitudes to the helpfulness of the behaviours was the notion of how practicable was a situation in which they could take place. At St Mary's a teacher touched on this point in interview. She felt that the behaviours were helpful but was, until the initiative, unable to adopt them. This was because she felt it was impossible to be candid with someone who was bound to become defensive.

"I suppose it's a bit naive of me but really we should be more open, I mean I really don't mind what anybody says to me about what they think about what I'm doing. In fact I find it helpful and I don't take it as a criticism but I don't think it's like that with everyone. They'll take it personally which is a pity really."
(Interview)

For this teacher, then, the effect of the Do Talk and Record initiative was to make her see how desirable behaviours could be achieved. One effect of the initiative might be to secure teachers' commitment to the ideas. The other was that the initiative might lead them to see that high risk, high trust and status orientated behaviours were possible for themselves and others. A further section of the survey then asked teachers 'How attainable in practice (i.e. realistic) do you consider the following descriptions to be'. Teachers would then rate themselves on the following scale:

Completely attainable	5
More or less attainable	4
Uncertain	3
Only attainable to an extent	2
Unattainable	1

The section on the attainability of the behaviours would be administered before the initiative, then immediately and six weeks after it. This section would allow another effect of the change initiative to be plotted. Before the initiative participants might feel the statements to be helpful but at the same time they might be seen as unattainable in practice. Post test teachers might come to see the statements as helpful and achievable.

The actual ordering of the sections seemed to be an important consideration. Teachers might not wish to provide a 'damning' account of the school in which they worked. Because of this it was intended to 'hide' the section concerned with the practice of curriculum development at the end of the attitude survey. Section One of the survey would deal with the desirability of the behaviours, Section Two with their attainability and Section Three with the practice of curriculum development at their

school. The attitude survey set out in Appendix 7.1 was then developed (see end of chapter). The points during the initiative at which the various sections of the survey were to be administered are summarised in Appendix 7.2.

Testing the Change Model

Having described the quantitative mechanisms devised for testing the research hypothesis within the reflective phase of the research, I now wish to discuss how it was intended to test the change model. The argument has been that the demonstration and facilitation phase of the model moved teachers' intent to protect through the stages of denial and resistance. The facilitation and support phase cushioned teachers against practical constraints which might have overwhelmed their exploration of the ideas. In this it supported teachers moving from a stage of exploration to a stage of commitment.

In the reflective stage of the research it was intended to establish the link between the change model and teachers' journey to change. One element of this appeared to rest on determining how widely applicable the change journey identified at St Mary's was. I did not feel that quantitative measures to establish a movement involving chronologically denial, resistance, exploration and commitment could be used. Teachers' 'intent to protect' might not wish to record their emotional opposition on an attitude scale. Because of this qualitative measures were to be used. At each stage of the journey teachers would behave in a particular way. In the denial stage they would maintain that there was no need for them to change their practice; in the resistant stage they would be sceptical about the benefit and practicality of the ideas; in the exploration phase they would signal interest in the ideas; in the commitment stage they would engage in a self sustained manipulation and adaptation of the ideas. The movement of individual teachers along the journey to change could then be plotted by their reactions at various times during the initiative. These reactions would 'flag up' their change journey.

The second element it was intended to explore was the relationship between the change model and teachers' movement along the path to change. The argument is that the demonstration and communication phase of the model moves teachers from a phase of denial to that of exploration. This is achieved by the change agent adopting high risk, high trust and inquiry orientated behaviours in teachers' classrooms, which in turn creates a climate of inquiry around the initiative. It seemed that on this point quantitative measures were again appropriate and the attitude survey could be used to provide evidence. A further section of the survey would then ask teachers if inquiry orientated behaviours were modelled during the initiative. Section Four of the survey asked teachers to record whether open behaviours were involved in the Do Talk and Record initiative. Participants would be asked to rate their response on the following scale:

A great deal	5
A considerable amount	4
Uncertain	3
A fair amount	2
Little or nothing	1

Section Four of the survey would be administered immediately after the initiative. It would be used alongside interview data to provide quantitative evidence of the movement of teachers from denial to exploration.

The further argument is that the facilitation and support phase of the model cushions the initiative against classroom constraints which might result in teachers abandoning it. In the reflective phase of the research it was intended to establish this link through interview data and fieldnotes.

Scaling Procedures

The scaling procedures adopted were those devised by Likert (Oppenheim 1984). Having scored each item 1-5 in the way outlined above the item scores are added to obtain a total score.

As there are ten items in the survey there is a maximum possible score of $5 \times 10 = 50$ and a necessary minimum score of $1 \times 10 = 10$. It is then possible to rate scores above the mid-way point of 30 as toward the positive end of the scale and those below 30 as toward the negative end. A score above 30 for Section One of the survey would indicate a respondent considered open behaviours to help curriculum development. A score above 30 for Section Two would indicate that a respondent considered the behaviours to be attainable. A score above 30 for Section Three would indicate that a respondent considered the behaviours to be practised in his/her school. Comparing the total scores for each individual before the initiative, immediately after it and six weeks after it would then provide an indication of any change in climate. It was also intended to calculate average total scores for each section of the questionnaire. This would give a rough but succinct picture of change and enable a comparison between schools. But any such indication would be a rough measure of change. It was intended to supplement the surveys with interview.

Fieldwork

The second phase of the research was to be a consciously directed change experiment. The fieldwork plan for each school followed the 'implementing change' phase of the model.

During the first stage of the research the change agent acts to demonstrate and communicate the change and its implications. After outlining the project to the staff the researcher distributes the initial survey and a time for an initial staff meeting is arranged.

During this meeting the video is shown indicating the need for change. The first section of this highlights the problems children have in remembering rules and procedures. The aim of

this section is to evoke the driving force to change by implying that existing approaches to teaching mathematical understanding are not achieving intended outcomes. The video also shows children progressing through a mathematical topic in the way implied by Do Talk and Record. This section is intended to address restraining forces by communicating a clear practical picture of what the change will look like in the classroom.

The researcher then works with a group of children in each class, teaching a topic (chosen by the teacher) in the way implied by Do Talk and Record. The researcher works in each teacher's class for a period of about an hour a day until enough children in a group have understood the idea to allow the teacher to see the development of the approach. Each 'lesson' lasts for about an hour and its relation to the framework is discussed with the teacher. During this phase the researcher is videoed working with a group of children by a helper. This video is shown to teachers and forms the basis of a second staff meeting.

The second phase of the fieldwork involves the researcher changing roles from that of demonstrator and communicator to that of facilitator and supporter. At the end of the second staff meeting participants are asked to plan a topic using the planning framework. This plan is then discussed with the researcher and tried out in the classroom by the teacher. The researcher is present in the classroom at this time, facilitating the teacher trying out the ideas by minding the rest of the class. The researcher also provides support by observing the try out and discussing the lesson with the teacher afterwards. After several lessons the researcher withdraws, leaving the teacher to try out the ideas alone in an unsupported classroom setting. At this stage the teacher uses the evaluation sheet to record observations and reactions. These are used as a basis for subsequent meetings between the researcher and the teacher.

During this phase teachers should be showing interest in the proposals. The researcher then acts to form networks within the school whereby participants can share ideas. The researcher's role is to facilitate and support the group taking responsibility for the direction and outcome of the change. During this phase staff meetings to discuss issues and informal discussion between individuals are promoted by the researcher. Increasingly the researcher withdraws leaving the teacher group to digest the proposals at the point where they can judge them. A third staff meeting is held to discuss the implications of Do Talk and Record for the school. The attitude survey is then again distributed. Shortly after this a final staff meeting is held in which the involvement of the staff is celebrated. The high risk, high trust and inquiry orientated behaviours that the project has engendered are discussed. These are then contrasted with the negative effect of low risk, low trust and status orientated behaviours. The aim is to leave teachers feeling that their individual needs can be met by working within a group. It is also to leave the staff with an experience of group work to which all can contribute. Interviews are conducted with participants. The researcher then returns six weeks after the initiative and again administers the attitude scale and interviews participants.

The fieldwork plan for the analytic phase of the research was refined as experience of its implementation indicated. In Kemmis' terms, it was a general plan to be modified and adapted in the light of experience. During the reflective phase of the research I would stick rigidly to implementing the fieldwork plan outlined above. The reflective phase of the study then was research into action in the strictest sense of the word.

Having outlined the research design for the second phase of the study I shall now move on to discussing the interventions in the schools in which I set out to conduct a consciously directed change experiment. It is these interventions I discuss in the following three chapters.

Appendix 7.1

Attitude Scales

Section 1: How much do you think curriculum development is helped by the following (i.e. ideally rather than in this school).

Please use the following scale and complete all items :

A great deal	5	A fair amount	2
A considerable amount	4	Little or nothing	1
Unsure	3		

I think curriculum development is helped by :

1.1	Curriculum ideas being presented in ways that let teachers have a chance to see for themselves how they benefit the children.	5	4	3	2	1
1.2	Curriculum ideas being presented so that teachers are able to see for themselves their practicality in the classroom.	5	4	3	2	1
1.3	Individuals putting forward ideas, inviting others to confront and even alter them.	5	4	3	2	1
1.4	The whole staff trying out ideas in the classroom and feeding back their findings.	5	4	3	2	1
1.5	Setting up formal feedback meetings.	5	4	3	2	1
1.6	Informal feedback being sought as to the effects of initiatives in the classroom.	5	4	3	2	1
1.7	Teachers feeling completely free to provide feedback even if it is negative and confronts the initiative.	5	4	3	2	1
1.8	Individuals not being defensive about their ideas but open to candid criticism of them.	5	4	3	2	1
1.9	Individuals seeking and giving advice in the presence of the whole staff group.	5	4	3	2	1
1.10	A large part of teachers learning taking place by them feeding back their problems and reservations.	5	4	3	2	1

Section 2: How attainable in practice (i.e. realistic) do you consider the following descriptions to be.

Please use the following scale and complete all items :

Completely attainable	5
More or less attainable	4
Uncertain	3
Only attainable to an extent	2
Unattainable	1

- | | | | | | | |
|------|---|---|---|---|---|---|
| 2.1 | Curriculum ideas being presented in ways that let teachers have a chance to see for themselves how they benefit the children. | 5 | 4 | 3 | 2 | 1 |
| 2.2 | Curriculum ideas being presented so that teachers are able to see for themselves their practicality in the classroom. | 5 | 4 | 3 | 2 | 1 |
| 2.3 | Individuals putting forward ideas, inviting others to confront and even alter them. | 5 | 4 | 3 | 2 | 1 |
| 2.4 | The whole staff trying out ideas in the classroom and feeding back their findings. | 5 | 4 | 3 | 2 | 1 |
| 2.5 | Setting up formal feedback meetings. | 5 | 4 | 3 | 2 | 1 |
| 2.6 | Informal feedback being sought as to the effects of initiatives in the classroom. | 5 | 4 | 3 | 2 | 1 |
| 2.7 | Teachers feeling completely free to provide feedback even if it is negative and confronts the initiative. | 5 | 4 | 3 | 2 | 1 |
| 2.8 | Individuals not being defensive about their ideas but open to candid criticism of them. | 5 | 4 | 3 | 2 | 1 |
| 2.9 | Individuals seeking and giving advice in the presence of the whole staff group. | 5 | 4 | 3 | 2 | 1 |
| 2.10 | A large part of teachers learning taking place by them feeding back their problems and reservations. | 5 | 4 | 3 | 2 | 1 |

Section 3: How well do you feel the statements below describe the practice of curriculum development in your school. Please use the following scale and complete all items:

Most or all of the time	5	Rarely	2
Some of the time	4	Never	1
Uncertain	3		

In my school curriculum development involves :

- | | | | | | | |
|------|---|---|---|---|---|---|
| 3.1 | Curriculum ideas being presented in ways that let teachers have a chance to see for themselves how they benefit the children. | 5 | 4 | 3 | 2 | 1 |
| 3.2 | Curriculum ideas being presented so that teachers are able to see for themselves their practicality in the classroom. | 5 | 4 | 3 | 2 | 1 |
| 3.3 | Individuals putting forward ideas, inviting others to confront and even alter them. | 5 | 4 | 3 | 2 | 1 |
| 3.4 | The whole staff trying out ideas in the classroom and feeding back their findings. | 5 | 4 | 3 | 2 | 1 |
| 3.5 | Setting up formal feedback meetings. | 5 | 4 | 3 | 2 | 1 |
| 3.6 | Informal feedback being sought as to the effects of initiatives in the classroom. | 5 | 4 | 3 | 2 | 1 |
| 3.7 | Teachers feeling completely free to provide feedback even if it is negative and confronts the initiative. | 5 | 4 | 3 | 2 | 1 |
| 3.8 | Individuals not being defensive about their ideas but open to candid criticism of them. | 5 | 4 | 3 | 2 | 1 |
| 3.9 | Individuals seeking and giving advice in the presence of the whole staff group. | 5 | 4 | 3 | 2 | 1 |
| 3.10 | A large part of teachers learning taking place by them feeding back their problems and reservations. | 5 | 4 | 3 | 2 | 1 |

Section 4: How much do you feel the following behaviours were involved in the Do Talk and Record initiative.

Please use the following scale and complete all items :

A great deal	5					
A fair amount	4					
Uncertain	3					
Something	2					
Little or nothing	1					
4.1	Curriculum ideas being presented in ways that let teachers have a chance to see for themselves how they benefit the children.	5	4	3	2	1
4.2	Curriculum ideas being presented so that teachers are able to see for themselves their practicality in the classroom.	5	4	3	2	1
4.3	Individuals putting forward ideas, inviting others to confront and even alter them.	5	4	3	2	1
4.4	The whole staff trying out ideas in the classroom and feeding back their findings.	5	4	3	2	1
4.5	Setting up formal feedback meetings.	5	4	3	2	1
4.6	Informal feedback being sought as to the effects of initiatives in the classroom.	5	4	3	2	1
4.7	Teachers feeling completely free to provide feedback even if it is negative and confronts the initiative.	5	4	3	2	1
4.8	Individuals not being defensive about their ideas but open to candid criticism of them.	5	4	3	2	1
4.9	Individuals seeking and giving advice in the presence of the whole staff group.	5	4	3	2	1
4.10	A large part of teachers learning taking place by them feeding back their problems and reservations.	5	4	3	2	1

Appendix 7.2

Points During The Initiative At Which The Attitude Scales Were Administered

	Pre-Test (A)	Post-Test (B)	Post-Test + 6 Weeks (C)
Section One (How much the behaviours would help in an ideal setting)	x	x	x
Section Two (How much the behaviours are attainable in practice)	x	x	x
Section Three (How much respondents consider the behaviours to take place in their school)	x		x
Section Four (How much the behaviours took place in the Do Talk and Record initiative)		x	

Chapter Eight : Reflecting On Planned Change : Stonehill

Stonehill was the first of the three junior schools in which a consciously directed change experiment was carried out. This chapter deals with the intervention there. At the beginning of the chapter I describe the staffing composition of Stonehill and the existing mathematics practice at the outset of the initiative. The initial attitude survey, fieldnotes and interview data are then drawn on to outline the climate of the school. The middle section of the chapter is a description of the intervention at the school. The remainder is an analysis of the extent to which the results provide evidence which supports the study's research hypothesis.

Stonehill School was situated in a mixed catchment area of ex-council house and new private development. When I visited the school in January 1988 it had a role of 192 children and a staff of Head and seven full-time teachers.

Catherine had taken her appointment as headteacher in September 1986. She was in her mid-thirties and the school was her first headship.

Richard was in his late thirties and had been appointed as deputy head by Catherine, two days after her own appointment. Thus the head and deputy head started together.

Carolyn had been teaching at the school since leaving college twenty years before. She had been appointed initially as a probationer, then as a Scale 2 and Scale 3 teacher.

Jayne had been at the school for a term, having returned to teaching full-time after her children went to secondary school. She was in her mid-forties.

Lesley had recently returned to teaching after her children had gone to school. Her previous experience was as a Scale 3 postholder in a larger junior school. She had been appointed the year before Catherine and was in her late thirties.

Rita was in her late forties and had a responsibility for games throughout the school.

Julie had been appointed as a probationer and started at the school with Catherine.

Eric was in his early fifties and had been redeployed from another school in the area some five years previously.

Stella worked at the school one day a week to release Richard to attend a Dip Ed course on Management.

Mathematics Practice

Mathematics teaching at Stonehill, prior to the intervention, was based around the Scottish Primary Maths Scheme. In several classes each child worked individually through the scheme's work books with the teacher acting as a resource to be drawn on when problems arose. In others, the teacher grouped the children by their ability to tackle different levels of the scheme. In this case the teacher selected pages from the appropriate level of the book and using the blackboard or the book explained what was required of the children. The use of apparatus was again dictated by the scheme. Thus, children did practical work, e.g. measuring capacity or volume when the pages in the work book directed this. In discussion teachers referred to this activity as the children using apparatus. There was no attempt to use the apparatus as an aid to developing conceptual understanding when the book did not suggest this. However, teachers commented that they directed the children to go back to the apparatus when they had difficulty with concepts. Apparatus was also used as an aid for computation, for example, adding using Unifix blocks.

Attitude Survey

The initial attitude survey was distributed after the staff meeting in which the new mathematical ideas were proposed and the initiative outlined. Section One of the survey asked participants to indicate how much they felt the listed behaviours helped curriculum development. The raw scores when attitudes were initially surveyed are set out in table 8.1A (see Appendix 8.1 at the end of the chapter).

There was then a close clustering of responses to Section One. All the items were seen as helping curriculum development a fair or considerable amount. The only exception was Carolyn's response to item 1.4. She wrote alongside her response that she would not score the item highly because "we must continue to think for ourselves and not be spoon fed." The emphasis that Rita put on individuals not being defensive about their ideas but open to candid criticism of them (item 1.8) was interesting. Each other item was marked by her as helping curriculum development a fair amount. Her high rating of this item perhaps reflected teachers concern with it in Section One. Rita's emphasis seemed to suggest that she saw it as the key to creating a more open climate.

Overall there was a positive response to this section. Teachers considered curriculum development to be helped by open behaviours. This can be seen by looking at the total scores in relation to the midway point between the highest possible and lowest necessary scores (30). It can also be seen by looking at the total scores for each individual which were above the midway point between the highest possible and lowest necessary scores.

The second section of the survey asked teachers if they considered the behaviours attainable in practice. The raw scores when Section Two was distributed pre test are set out in Table 8.2A. (See Appendix 8.1)

The lowest scoring item was 2.8 'individuals not being defensive about the ideas but open to candid criticism of them' all respondents except Stella felt this was unattainable or only attainable to an extent. There was a much wider spread of judgements for each item than in the previous section. There was also a wider range of responses with participants selecting from three or four judgements rather than from one or two as was largely the case in Section One. There appeared less certainty about this section. Comparing pre-test answers to Sections One and Two it appears that participants felt that while open behaviours helped curriculum development, they were less certain about how they could be achieved. This sense of uncertainty can be seen by looking at the range of total scores. There was no clear clustering toward a negative (below 30) or positive response (above 30) in the way that had been characteristic of Section One. There was also a wide range of total scores.

Section Three of the survey asked teachers to indicate 'how well they felt the statements described the practice of curriculum development in their school.' The raw scores pre-test are set out in Table 8.3A. (See Appendix 8.1)

These scores suggest that item 3.8 ('individuals not being defensive about their ideas but open to constructive criticism of them') was the behaviour most rarely observed. My argument has been that a change agent acting in this way produces open behaviours in others. It would be interesting to see if my behaviour at Stonehill would unlock open behaviours in others. The most frequent response was for item 3.7 - 'teachers feeling free to provide feedback even if it is negative and confronts the initiative.' The total scores for each respondent varied by as much as ten points but all were located within a negative area of response (below 30). Overall not one respondent indicated the presence of high risk, high trust and inquiry orientated behaviours.

The initial attitude surveys indicated that teachers at Stonehill already felt high trust, high risk and inquiry orientated behaviours to help curriculum development. They were less certain about how attainable these behaviours were in practice. The pre test average scores summarise this. Taking an average of the total scores for each section, the overall pre test average responses concerning the desirability of open behaviours was 43.7. The pre test average regarding the attainability of these behaviours was 34.2. The average scores indicating the extent to which the behaviours were practised was 24.0. Initial fieldnotes taken and interviews conducted provided other evidence of the presence of this closed climate.

Climate

It became clear from talking to Richard that my initial reaction to Stonehill was similar to his impression when he had first come to the school. One thing that was apparent about the school was the lack of use of the staffroom.

Generally staff don't appear to use the staffroom as a place to unload concerns about the children. Two possible reasons: firstly, because there is relatively little to unload or secondly, because most of them have somebody they work closely with whom they can mutually unload.
(Fieldnote)

Richard also commented on this:

"The one odd thing that I did notice, I can remember thinking about it now, was that people don't go, or didn't go in the staffroom as much as I had been used to. At other schools that I'd been in as soon as the children were out to play everyone dashed and got their coffee and sat down and thought 'Thank goodness for that' and I did notice once or twice that I went into the staffroom and there would be nobody there and I thought 'Why is it that I'm the only one?'. Perhaps it was just odd days, I can't remember, but it did seem to me at first and I suppose not going in at lunch time either, that people didn't use the staffroom as a haven in the same way as they had. At some schools they definitely all dash in there and flop down the moment that the children have stepped through the door, whereas they don't seem to feel the same need to do that here".
(Interview)

Even when all the teachers were in the staffroom there often seemed to be little whole school cohesion. Rather teachers sat in distinct groups of upper school (3rd and 4th year teachers), lower school (2nd and 1st years) and office (Audrey and Avril).

When Jayne comes in, Lesley tells her that she has had a message that two parent helpers are not coming in. Jayne says they are supposed to be helping Julie set up for the reading workshop tomorrow. Lesley says she can't help because she is due out at lunch time. What characterises all the conversations this breaktime are that they are all work related and that they are each specific to either upper junior, staff or lower junior staff without any cross-fertilisation.
(Fieldnote)

There appeared to be more open channels of communication in less public arenas than the staffroom.

It's a wet playtime and the teachers remain in the classrooms to supervise the children. As I walk down the corridor to the upper school I notice Lesley, Rita and Clare engaged in an animated conversation which ceases as I approach.
(Fieldnote)

I think we come together as a staff as and when it's needed, but I think you'll find the real chat goes on in other people's rooms. Like I'm good friends with Jayne and most days I'll go there for a natter or gossip, or whatever and there's a little grapevine that twitches around the school out of back doors and things.
(Fieldnote)

The presence of two tiers of communication appeared sometimes to strain relationships between members of staff.

DM: "Sometimes it appears to me that Stonehill functions quite happily as little mini schools. Does it cause problems ever?"

Teacher: "In a small community it's easy for things to get blown out of proportion and noses put out of joint, so there are sometimes occasions where that happens, but you get that everywhere - don't you?"
(Fieldnote)

There was also evidence of the closed patterns of behaviour I have suggested schools are prone to. Low trust behaviours appeared prevalent.

"When you are talking on a one to one basis with another member of staff, you think 'oh yes' but then you start to get little snippets and you think 'oh perhaps it's not as I thought it was'. Little teeny weenie hints. After a while a pattern forms and you can sort of put two and two together, like odd little things that people have said that you thought 'oh I'm surprised she said that or had that idea or that was the way she saw the situation'. You could not jump to any conclusions, it's just little inklings that grow into a pattern."
(Interview)

The staff meeting that I led went well or I think it did. You're never quite sure how it's received, how you're seen really, for all I know they might be thinking 'who does she think she is teaching us to suck eggs'.
(Fieldnote of Conversation)

There was also evidence of competition and a concern with status.

When I first came and was given the science as well as the computer it obviously put a few noses out of joint and they thought "oh she's been given that as well, has she."
(Fieldnote of Conversation)

Breaktime chat - some discussion between Catherine and Carolyn about the reading progress of a particular child. Rita to Carolyn: "He seems too scared of you to do anything". Carolyn: "It's nothing I do to him". Rita: "Well he was okay with me last year."
(Fieldnote)

There was also evidence of low risk behaviour, thus teachers felt reluctant to 'risk' displaying their work in 'public' areas.

I tend to act in a quiet way (as science co-ordinator), I think it could work badly if I came across as the great 'I Am' - I mean, I help people if they want it but I wouldn't like a higher profile than that.
(Fieldnote of Conversation)

The school also appeared prone to the kind of misunderstandings I have suggested come about as a result of low risk, low trust and status orientated behaviours.

Teacher: "Avril, she used to quite freely come in, and Audrey in the past used to freely come in, but then during the previous head's later days, she encouraged more parental involvement in the school which I thoroughly approved of and it was great. Parents used to come in here and the last head used to say 'Well, if they've been working, if parents have been working with your children, I think they deserve a cup of tea or coffee', so they came up and had coffee with us but like all things it began to go over the top and it got so that we found that very often playtimes, so when Catherine came we brought up the business of parents being in here so much. So Catherine, right from the beginning, made it clear that we could take coffee down to the parents but she didn't encourage them in there. She felt that Catherine had said that only teachers were supposed to be in the staffroom."

DM: "And Audrey has picked that up?"

Teacher: "The vibes up, yes. I find that a shame.~
(Interview)

Having indicated that the climate of Stonehill was characterised by the presence of low trust, low risk and status orientated behaviours, I now wish to discuss factors within the upper and lower school that contributed to this climate. These factors are also relevant to the account of the intervention at Stonehill because they form a background by which events which followed can be judged.

Within the upper school one of the factors that appeared to perpetuate these closed behaviours was a wariness about the change of head.

"A couple of staff (from the school) who had been here a long time found it difficult. They didn't really want any changes as they were so used to doing things their way. It didn't worry me in the least as I hadn't been here long enough to get into the swing of doing this anyway. I think most of the changes have been for the better personally. I didn't feel any more pressure to produce things, or that I would have to change my routine or do anything really differently."
(Interview)

"In some ways she didn't want things to change and I could see that they would change because the school can't continue to be the same school when different people are coming in ...initially one was extremely protective of the school as it had been, but as far as the other goes I think she still probably feels very much that things have been changed and not necessarily the way she wants them changed."
(Interview)

For Richard this wariness reduced the potential for development.

"I think this guarded feeling that's in people quite naturally has stood in the way of change. I mean people aren't ready to reflect on and develop their practice yet."

Similarly, there appeared little cohesion in the lower school.

Although there is a nominated head of lower school there is little indication that the four lower school teachers spend time in co-operation whether as activity or curriculum talk. The craft area is ostensibly shared but frequently empty. Although the wall is knocked down between the two first year classes display screens demarcate the boundaries of the two areas.

(Fieldnote)

"The intention of having the wall knocked down was to integrate the two 1st year classes as one class with two or sometimes three teachers. Like on Friday I did topic work as my special thing and Carolyn did science and then they did art and craft with you - well you know, but really I suppose we go our separate ways."

(Fieldnote of Conversation)

Both the first year teachers acknowledged the difficulty in achieving detailed co-operation. One emphasised physical constraints and a concern about status; the other mentioned problems in reconciling ways of marking. Neither was enthusiastic about co-operation.

"Some of it is geography, but having said that I think when we tried to set it up with Lesley I tended to talk, and probably we shouldn't have done that, but it was her early days and I wanted to be helpful. I don't think it was anything more conscious than that. But having said that Clare says when she first came it was very strange to her and it was strange to me like there are overtones like if this was my room and we were talking it would be my ground."

(Fieldnote of Conversation)

"The idea was that we worked together. I found it difficult because I felt that if you were going to work together you planned more or less together, but then I found that she'd sometimes go off at a tangent and the children didn't like it and you couldn't keep pace with the marking."

(Interview)

Subsequently the head also indicated the mix of personalities as an inhibitor. The difficulty she felt was not having had time to understand the sort of people she had inherited when choosing a partner for Rita, only a term after becoming head.

"I didn't know enough about the school to match personalities. I've said to both of them that at the end of the day it's the children that matter and if they cannot work together then they must work independently of each other. They are working in the same area, but not working together".

(Interview)

The obvious personal issues that seemed to separate the individuals concerned was in the area of status. Their relationship was characterised by a sense of unease of wariness. One of the contributory factors seemed to be the leadership role that Julie was required to take on by Catherine.

"When I first took over and I asked her about her Scale 3 and she wanted to know what I expected of a Scale 3 head of lower school and I told her and she was prepared to take on board all the things that I'll expect from a Scale 3. That wasn't how she worked before, I mean she literally had the position but she wasn't really a leader as such."

(Interview)

There were occasionally open indications of status orientated behaviours.

At lunch time the lower school staff come in to help Rita prepare for the workshop which is to be in the staffroom. Rita initiates the organisation because she is taking the first workshop. As Julie and Stella come in Julie says to Rita with a salute "reporting for duty".

(Fieldnote)

Do Talk and Record at Stonehill

I now wish to discuss the change initiative at Stonehill School. Within this discussion the stages of the change journey I considered participants undertook will be flagged up. The account which follows is structured by the phases of denial, resistance, exploration and commitment. My argument is that the change journey undertaken by participants is related to the phases of the model. The account which follows is also related to the model.

Demonstration and Communication

At the initial meeting, Catherine and I discussed how my working at Stonehill might be mutually beneficial. Catherine appeared attracted more by the underlying intention of pulling the staff together than with the actual mathematical ideas.

"There are members of staff who have been here for some time and obviously with a change in head there's bound to be a change in perspective and I think one of the things we've got to do is get away from the idea that we're all just responsible (for what goes on) in our own little box or area. But to be honest up until now we've done little in that way of whole school development - people aren't really interested, they like to shut themselves away."

(Fieldnote of Conversation with Head)

Catherine had said that the initial presentation to the staff would determine whether they thought the project would be useful to them. The initial video was largely received in silence. Eric commented to Carolyn that the children 'just hadn't been taught properly' during the sequence of children trying to remember rules and procedures for subtraction. The impression conveyed by nods supporting this comment was that teachers at Stonehill were well aware of the problem and had devised their own solutions to it. At the end of the presentation teachers agreed with Catherine that it would be useful for me to work within the school. There were no comments when I said that my interest was in people's reaction to the change in the mathematics. Similarly there was no reaction when I discussed how we would jointly own fieldnotes and interview data. After getting teachers to complete the initial surveys, I arranged to work in classes illustrating the ideas.

The first stage of the change initiative involved working in teachers' classes modelling the ideas proposed. This stage lasted some four weeks.

In conversation during this period it was apparent that two teachers at Stonehill came to the initiative from the perspective of being 'intent to learn'.

"I'm really glad you've come. I could do with a fresh pair of eyes looking at how I'm using (Scottish Primary Mathematics) because I'm not really happy with the children just going page by page through the books so that they're all on different pages and when they come up it's hard to find time to help them."
(Fieldnote of Conversation)

"Jayne asked if I could help her re-organise and have an integrated day."
(Fieldnote)

Denial

But others appeared to come to the change with the 'intent to protect'. In the early stages of the demonstration and communication phase this protection took the form of denying the need for change.

"I know that for some people Scottish Primary Maths isn't flavour of the month but I'm quite happy with it and I've got all the children working at their own pace through it. Perhaps I do rely too heavily on the text books but I like having them. I'm not a maths specialist and really in teaching you've got to find what suits you and how you want your class to be - haven't you?"
(Fieldnote of Conversation)

"At the level of aspiration I'm always seeking to improve myself but practically after twenty years I've got it pretty much taped really."
(Fieldnote of Conversation)

This denial of the need for change echoes the initial reactions of some teachers at Countess Anne and at St Mary's. The chapters dealing with these schools recorded my uncertainty about how to respond to this reaction. At Stonehill, however, I consciously adopted particular strategies in the face of this denial. I did not try to point out difficulties I saw in teachers' practice or indeed react at all. I continued to model a clear, practical picture of what Do Talk and Record implied in the classroom. I also continued to adopt high risk, high trust and inquiry orientated behaviours so as to couch the ideas as an assumption worthy of putting to the test of practice rather than as correct or incorrect.

Resistance

Having worked through the denial phase teachers initially 'intent to protect' then appeared to move onto a phase in which they no longer denied the change was relevant to them. Rather they were sceptical about its practicality.

"The problem with this sort of idea is that it looks at a group of children rather than the class as a whole. I'd never get the time to sit like you did."
(Fieldnote of Conversation)

During this phase teachers' misunderstanding of the implications of the ideas also came to the surface.

I speak to Eric about the work on decimal fractions I've done with his children. I show him how I've translated the ideas into a form in which the children can manipulate them practically. "But they'll get the ideas by doing that section in the book - isn't that what the book's doing anyway?"
(Fieldnote)

The phase of resistance was also characterised by a growing openness among teachers. During this phase teachers exposed more of their feelings about the change. There were not the terse, short statements with which teachers had denied the need to change. Closed comments and a circling round key issues began to be replaced by a more elaborate dialogue between us.

The behaviours I adopted appeared to move teachers from the denial phase to that of resistance. In the phases of denial and resistance I continued to adopt high risk, high trust and inquiry orientated behaviours. During the resistance phase, I also reacted to participants' scepticism. The strategy I adopted was to empathise with participants' reactions telling them that others felt the same about the change initially but had come to see the ideas as useful.

I talk to Julie concerning her reservations about getting children to write longhand accounts of the manipulations they have carried out on the apparatus. Julie says she's not sure how that actually helps the children. I tell her that at another school longhand accounts were rejected and replaced by pre-prepared sentences with spaces left in them for the children to fill in. Julie is also sceptical about this.

(Fieldnote)

All teachers at Stonehill judged to be 'intent to protect' arrived at the resistant stage at different times. But not one acted as if they were in the resistant phase before they had in some way denied the need for change. There was a pattern of denial followed by resistance.

In interviews conducted at the end of the initiative, teachers indicated that the inquiry orientated behaviours adopted during the denial and resistant phases played an important factor in overcoming resistance.

"It went better than I thought to be honest. You avoided pitfalls like being too dogmatic or enthusiastic so you only saw it through your eyes and didn't take on what anybody else thought about how realistic it was."

(Interview)

"It was like you coming in and saying this is an idea I've got and I'd like you to try how it works for you."

(Interview)

The empathy I attempted to convey was also remarked on.

"You were sympathetic to problems that we had so that we didn't think - oh, I can't do it - it must be me then."

(Interview)

Those who viewed the initiative from the perspective of being intent to learn also brought problems and reservations about the ideas to the surface. However, they appeared to be more at a phase of exploring the usefulness of the initiative.

"I think it does help the children when they can see why they're doing something. When (a girl who had been working with me) had to do some problems involving multiplication I found that in her rough book she'd drawn out lots of little pictures of apparatus being moved about so she obviously needed to do it."

(Fieldnote)

The long period of 'demonstration and communication' appeared to be irrelevant to those who viewed the initiative from the perspective of being 'intent to learn'.

Stella had missed the initial three weeks of the initiative because she only worked on one day a week to relieve Richard and on these days I had not been working at the school. She was present at the staff meeting showing the video recording of Lesley's children working on the idea of 'more than' and 'less than'. After the meeting Stella asked if she could join in the 'try outs'. "I want to start off a new topic on 'percentages' tomorrow. How would you go about that?" she asked. We sat and planned out a topic using percentages which Stella said she would use the next day with the children. I asked Stella what made her feel ready to try out the ideas just like that. "Well the stuff on subtraction looked good so I thought - I'll give it a whirl", she replied.
(Fieldnote)

Facilitation and Support

The end point of the first section of the journey was when teachers were prepared to launch off into an exploration of an alternative model. The next section involved teachers exploring the feasibility of Do Talk and Record. During this section the direction of the change was determined by participants. My role changed from that of a 'salesman' selling my idea to that of a consultant responding to participants' perceived needs. The short term goals within this phase were for teachers to plan topics around Do Talk and Record and then try them out in the classroom. I suggested that teachers should now try out a topic at the end of the staff meeting in which I used the video of Lesley's children working on fractions to illustrate Do Talk and Record was shown.

Exploration

In relation to the change journey undertaken by teachers this third phase can be described as that of 'exploration'. For those intent to learn this was the starting point of the journey. These teachers had been ready to launch off into an exploration of the practicality and benefit of the ideas prior to this juncture. Thus three teachers had already followed up the work carried out with the children. However, following the staff meeting all members of staff agreed to try out topics using the framework.

The stage of exploration was characterised by a signalling of interest by those who had previously viewed the initiative from the perspective of being 'intent to protect'.

One way in which teachers' interest was signalled was by their immersion in attempts to resolve problems that came up during 'try-outs'. This is illustrated by Richard's reaction to difficulties involving division.

Richard's try out involves leading children to understand the process of division. His initial aim is to put $12 \div 3$ into a practical context. Richard represents the process of division using three model figures which one ten and two units are to be shared between. The lesson starts with Richard talking the children through the process of division

using the ten rods and unit cubes and the figures. After explaining the process Richard asks the children to share 15 between three figures on their own. His intention is for them to change the ten for ten units, combine all the units to make fifteen and then physically share the units out between the three figures. Some of the children know the answers to these examples without performing the process and quickly say that they've 'done it'. Richard gives them another five similar sums to do. However the children can similarly arrive at the answers without rehearsing the process and thus have finished the sums in minutes. At the same time other children are unsure of the process Richard's asking them to perform and he needs to focus on them. Richard abandons the lesson and begins to talk with me about the value of having children doing something they can already get the answer to. We discuss the need for the children to understand the process and how a format is needed to help the children concentrate on this. "So what we need is a sort of number board" Richard decides and he proceeds to draft one out. Normally Richard is very careful about sending the children out of class one table at a time so as to avoid congestion in the cloakroom. He abandons this today, however, and just turns to the class and asks them to go before turning his attention back to the sheet. (Fieldnote)

Interest was also signalled by teachers, with no compulsion on them, taking ideas home to work on them.

After yesterday's discussion (following a try out) about the difficulties children had in engaging in writing longhand accounts of their manipulations Clare has taken the sheets and the apparatus home to produce a recording format more to her liking. (Fieldnote)

The interest that was being signalled appeared to break with traditional patterns of communication within the school.

Lesley's classroom is some way from Clare's and the two appeared to have had little contact with each other during the six weeks I had been working at the school. However, when Clare devised the worksheets as a solution to the problem of children writing stories she was also concerned about children writing stories. Lesley went to Clare and took the sheets Clare had devised and worked on these to devise a format for her own try out. Moreover the idea had also been communicated to Jayne who used a similar format when she worked in class while I was observing. I was not aware that there had been this exchange of ideas until some three days later when I returned to the school. (Fieldnote of Conversation)

There also appeared to be a change in the normal patterns of communication in the staffroom. Evidence of this openness was provided by Eric's reaction during this phase of the initiative. I considered that Eric's initial scepticism about Do Talk and Record might be part of a pattern in which there was a relationship between the length of teachers' experience and

whether they came to the initiative with an intent to learn or protect. In fact Eric's reaction at this time was the most marked change in behaviour during the exploration phase.

I was sitting in the staffroom at breaktime when Eric, who had been delayed for some minutes, came in for his coffee. He went over to the sink and as he boiled the water he called across to ask me about what he should do after playtime to develop work on difference with his children. When he had made his coffee he came and sat beside me. "I've done it on the apparatus and then I've got them to draw pictures and now we're doing sums and using the apparatus but they still don't know it - what do you think I should do next?" he said. I was concerned about explaining in such a public forum as the staffroom that the idea of the pictures and words was to lead the children away from the apparatus so that when they 'did the sums' the apparatus should not be present. However it was Lesley who in fact replied - "I thought it was that but I think that what David's saying is that the language is the link between the apparatus and the sums". Lesley and Eric then went on to compare her work on decimals with Eric's on subtraction.

The initial exchange with Eric was the first I'd had about Do Talk and Record which he had initiated and the first in which questions had been asked of me about it in front of the whole staff.

The conversation trailed away as Eric began to ask me about 'where he should go' and was replaced by comments on what it was like to experience Do Talk and Record for the first time. A concern with not losing status was being replaced by a public voicing of what would have previously been seen as failure.

(Fieldnote)

The exchange with Eric also appeared to signify a break with the rules of the school. He publicly signified he was engaged in an inquiry into the feasibility of Do Talk and Record. Staff also appeared to register this.

Evidence that the inquiry orientated behaviour modelled with individual teachers in their own classroom was bubbling over into the whole school arena was also apparent in the cross fertilisation that took place during this period.

There appears evidence of cross fertilisation taking place at Stonehill. This was evident today in Richard's first 'try out' using fractions. His sheet appeared very much to build on those developed by Clare, Jayne and Lesley. He says that he went to Lesley to ask her to help him divide a fraction sheet. Cross fertilisation was also apparent during a lunch time staffroom discussion which followed Richard's try out. This involved Jayne, Eric, Richard, Clare and myself. Rita was also in the staffroom marking work at the table. The three upper junior teachers were discussing how they felt that worksheets using pictures were sufficient, without the teacher having to resort to the children writing accounts. As we talk Rita puts down her

pen and turns to me to say that "you'll never get eight year olds to write story accounts." This is the first time I've seen Rita venture an opinion across the staffroom as she's normally very quiet. Her comment comes across very much as one that is a 'risk'. She seems wary either that I might be offended or that she might be intruding in a conversation that is not relevant to her as she isn't in the upper junior group.

(Fieldnote)

The fact that Rita 'risked' putting forward her view point illustrates the way in which, during the exploration phase, the 'open behaviours' rehearsed in the classroom bubbled over into the staffroom. Teachers also came to adopt open behaviours with each other.

Lunch time staff meeting. This has been arranged by Lesley following my suggestion that other members of staff might be interested in the framework she has developed to overcome the difficulty children have trying to write longhand accounts of mathematical processes. Jayne and Richard both appear to be ready to subject statements to the sort of scrutiny which would have been taken on criticism two months ago. At the same time they also ask questions and convey how much they support the idea. At the end of the meeting it's decided that Jayne will leave the sheets out in the maths resource area for people to use as they wish. As the conversation breaks up Jayne calls out "but remember they're not written in tablets of stone" indicating that it's okay to suggest changes. As the meeting breaks up I'm aware of a subtle change in climate. There appears a more relaxed atmosphere. As Richard walks out he asks Catherine if he can work in with the lower juniors doing art with them. Catherine and Lesley both laugh - yes, that'll be a real test of your mettle' they say. The comment seems to imply that both Jayne and Catherine know that the younger children are hard work - a fact that Richard will discover if he works with them.

(Fieldnote)

A subtle change in the climate of the school appeared to have taken place at this point in the initiative. The participation and involvement of the staff in Do Talk and Record appeared to spread to other areas.

It's noticeable that open discussion about the possibilities for the school's development is taking place at the moment. This is not something I've seen taking place in the staffroom up until now. At lunch time as I came into the staffroom Jayne, Clare, Richard and Lesley were engaged in discussion. Lesley notices that it's time to ring the bell for afternoon school and as she's on duty she gets up to find the bell. "We can talk about it later" she says and goes out leaving a list of maths equipment that she's been consulting Jayne, Richard and Clare about. It's the first time I've seen this sort of discussion taking place in the staffroom. Lesley's been so involved in it that the bell is rung five minutes late.

(Fieldnote)

The fieldnote also describes the change in discussion in the staffroom at this time. At the outset of the initiative the staffroom appeared frequently empty or served as a place in which teachers sat during the interlude in their work in their classroom. Discussion was concerned with routine arrangements. The above fieldnote illustrates a change of purpose to that of use as a forum to planning school development.

Catherine had noticed a change in the climate of staff meetings.

"We had a really good meeting yesterday - it was really open and productive."

(Fieldnote of Conversation)

This change in climate was commented on at the staff meeting concerned with evaluating Do Talk and Record.

Clare said that one effect for her had been that now a start had been made, she felt more able to discuss the curriculum with other members of staff. We would do the same thing in another area if anybody would want to do it, suggested Lesley. Eric said that he was lost with music. This comment was not taken up at the time but as the meeting broke up, Jayne said that she'd do something based on a music workshop that she and Carolyn had been on. Her comments were addressed to Eric and Lesley (Richard had left for a meeting) because, I suggest, she had had a major influence on creating the climate surrounding Do Talk and Record and would be able to create this around 'in house' music workshop. Jayne was signifying that the music was to be offered in the same spirit.

(Fieldnote)

The final meeting of the initiative was one in which a strategy for change was outlined in relation to constraints within schools. The outcome intended for the meeting was that the processes by which to dismantle closed climates and create effective learning were made explicit to teachers. At St Mary's the ideas had been left implicit and teachers had found it hard to distinguish between me being open as a person and me adopting this approach as a conscious strategy. I wanted teachers to feel that anyone using the strategy I adopted could create a climate of inquiry around the curriculum.

Because of this concern the meeting was more a presentation than a shared reflection on the initiative. However, there was a shared assumption which underpinned the meeting. That was a feeling of having accomplished something. Teachers felt they had worked as a team to overcome problems in ways they hadn't before and this was an enjoyable and stimulating experience. It was worth repeating because a climate of innovation not only provided useful curriculum outcomes but because it made the staff closer to together.

Commitment

The final point of the change journey to which teachers were led was the point of commitment. Following the staff meeting on Do Talk and Record teachers were interviewed about the extent to which their mathematics practice had been affected by the initiative.

The general response was that teachers had not yet had time to absorb the ideas.

"It's a bit early to say yet as a change in intention isn't the same as a change in practice."
(Interview)

I returned six weeks later to examine the extent to which the ideas had been taken up. Six weeks after the initiative there was evidence that teachers had become committed to the ideas. This was apparent in the way recording in children's exercise books had changed.

Prior to the initiative recording in children's exercise books involved setting out standard sums with the answers filled in the appropriate space, lists of answers referring to textbook questions. Six weeks after the initiative in Eric, Lesley and Carolyn's classes there was a different recording format. In Carolyn and Lesley's class the children used pictures to record their actions and this recording progressively shortened the approach to the standard calculation. Prior to the initiative, Eric had taught a topic on long multiplication using the standard algorithm. During my absence he had 'gone over' this with a group and they had recorded using language patterns in the way implied by Do Talk and Record. Children in Lesley's class had worksheets stuck in their books that recorded their use of the apparatus. Prior to the project, Rita got her children to link numbers in an abstract way, e.g.

9, 3, 27
 $9 \times 3 = 27$
 $3 \times 9 = 27$
 $27 \div 3 = 9$

When I asked Rita if her practice had changed as a result of the initiative she showed me how she now got children to link numbers verbally and suggested that in using stories you could evaluate children's understanding of the computation, e.g.

3 groups of 9 is 27

A boy had 27 cars and he wanted to share them between 9 of his friends, they got 3 each.

As with other pieces of work I was shown which teachers said derived from my initiative, the work Clare showed had no obvious link with Do Talk and Record.

The ideas were not so much taken on board as adapted, changed and modified. This process was described by Eric whose evaluation of the project six weeks after its completion was 'the jury's still out'.

There were also several observable differences in teachers' practice. At the outset of the initiative Richard sat at his table with the children coming to him as they encountered problems. After the initiative, he sat at his desk with a group of children leading them along the path from apparatus to recording. The pacing of Eric's lessons appeared to have changed. Before the initiative, the progression of children's understanding was dictated by the Fletcher Scheme. As I watched him with a group of children, he asked a boy if he was 'ready to try something a bit harder or did he want to do some more of these' (the longhand recording of the process of multiplication). The pacing of lessons had centred around the subject content, it now centred around the children.

In response to the question as to what teachers were doing differently as a result of the project, there were a number of responses. Eric had abandoned 'the DIY approach to maths'; Carolyn had 'taught without using the textbooks for a term 'which I never thought I'd do'; Julie was 'trying to teach according to the adage 'I hear and I forget, I see and I remember, I do and I understand'. Lesley's 'conscience had been pricked' and she was 'trying to be more structured in her teaching'.

Attitude Survey

One of the issues I intended to examine at Stonehill was the extent to which the change model moved teachers along the path to change. The account of events at Stonehill does suggest that the journey to change involved the phases of denial, resistance, exploration and commitment. My argument is that the change model facilitates this movement by providing periods of demonstration and communication and of facilitation and support. During these periods the change agent models high trust, high risk and inquiry orientated behaviours. This results in emotional opposition being converted into participation. Section Four of the attitude scale set out to measure the extent to which a climate of inquiry had been created around Do Talk and Record.

Participants were asked to indicate - "How much do you feel the following behaviours were involved in the Do Talk and Record initiative." The raw scores for Section Four are set out in Appendix 8.2 (see end of chapter).

All teachers surveyed considered the initiative to have involved the behaviours 'a great deal' or 'a considerable amount'. The average total response was a positive 45.5. The results indicate strongly then that participants considered high risk, high trust and inquiry orientated behaviours were modelled during the initiative.

In view of this it seems reasonable to claim that the change model was effective in moving teachers along a path to change.

The Research Hypothesis Post Stonehill

Thus far the discussion has looked at the intervention at Stonehill in relation to the change journey undertaken by participants. In this section the research hypothesis is re-examined, beginning with the question of whether the climate of inquiry created around the initiative left a residual effect in the school.

In Chapter Seven it was argued that a change in climate could be inferred by change at three progressive levels: teachers' attitudes concerning the helpfulness of key behaviours; confidence that that such behaviours were attainable; and actual change in the conduct of curriculum development.

Section One of the survey focused on teachers' attitudes toward the helpfulness of the behaviours. Section One was distributed to participants at the end of the initiative and six weeks after it. The raw scores when attitudes were surveyed immediately post test (Table 8.1B) and six weeks after the initiative (Table 8.1C) are set out in Appendix (8). The scores show little in the way of a range of response between attitudes to the behaviours. Both immediately post test and six weeks after the initiative all participants considered the behaviours to help curriculum development a great deal or a considerable amount. Table 8.1A recorded the scores for this section pre test. Appendix (8) also sets out the total scores for tables 8.1A and 8.1B. It is apparent there was little shift in attitude during the course of the initiative. The average scores for this section indicate this. The pre-test averages were 43.7, the immediate post test average scores 46.0 and the six week post test average scores 45.9 (although Julie had left at this point and influenced this last average score). Both before and after the intervention participants viewed the behaviours as helping curriculum development.

Section Two of the attitude survey asked teachers to indicate how attainable they considered the behaviours to be in practice. Section Two was administered to participants immediately and six weeks after the initiative. The raw scores when attitudes were surveyed immediately post test (Table 8.2B) and six weeks after the initiative (Table 8.2C) are set out in Appendix 8. The survey distributed immediately post test (Table 8.2B) indicates that the behaviours were now seen as achievable in practice. Apart from a random scattering of uncertain responses participants all felt that the behaviours were completely attainable or more or less attainable. 'Individuals putting forward ideas inviting others to confront and even alter them' (item 2.3) received the least positive response with no respondents feeling this item to be completely attainable. 'Individuals not feeling defensive about the ideas but open to candid criticism of them' (item 2.8) also received a less positive response than other items with only two respondents feeling this to be completely attainable.

The scores when Section Two was distributed six weeks post test (Table 8.2C) indicate less confidence in the extent to which the behaviours were attainable in practice. Item 2.3 received a less positive response than had been the case immediately post test.

With regard to item 3.8 six weeks after the initiative no longer did any respondent consider that 'individuals not feeling defensive about their ideas but open to candid criticism of them' was completely attainable. Four respondents now were uncertain about this item and one considered that it was only attainable to an extent. Similarly respondents felt less positive about how attainable was a situation in which teachers felt 'completely free to provide feedback even if it is negative and confronts the initiative.' Immediately after the initiative this was seen as completely attainable or more or less attainable to an extent. Two respondents were uncertain about this item six weeks after the initiative.

However despite this apparent drop off of confidence as to how attainable the behaviours were in practice there was a more positive response to this section post test than had been the case pre test. This can also be seen by comparing average totals. The pre test average was 34.2. The immediate post test average was 44.2. The six week post test average was 39.3.

Comparing the total scores for Section Two pre and post test provides a picture of the extent to which there was a change in climate. Pre test responses hovered around the mid-point of 30. Immediately post test all responses ranged from between 11 and 17 points above the mid-way. It was interesting that the pattern of response remained similar pre and post test. Those who rated the items most highly pre test again rated the items more highly post test. Thus Richard had a high total pre test (37) and again one of the highest totals post test (47). Conversely those who had a low score pre test had a low score post test. Thus Catherine had a relatively low score pre test (29) and again a relatively low score immediately post test (41) (although a good deal higher).

Not one respondent who was relatively pessimistic about how attainable the behaviours were pre test had a relatively optimistic score post test. There appeared to be an optimist factor which existed independently of my intervention. This pattern of responses was continued six weeks after the initiative with a drop in optimism which reflected participants' responses immediately post test. The variance between responses immediately post test and six weeks after the initiative similarly reflected individuals optimism or pessimism.

Section Three of the survey asked participants the extent to which they considered the behaviours to form the practice of curriculum development within their school. I considered that it would not be a fair indication of change to distribute Section Three immediately after the initiative, because the behaviours I had modelled would not have had time to be rehearsed by others. Because of this Section Three was only administered before the initiative and six weeks after it. The raw scores when attitudes were surveyed six weeks after the initiative are set out in Appendix 8. Table 8.3C lists teachers responses to each item six weeks after the initiative. A comparison between the scores when Section Three was distributed pre test (Table 8.3A) can be drawn from Appendix 8.1. The tables clearly show a change in response following the initiative. Before the initiative responses clustered below the midway point. Six weeks after the initiative teachers responses indicated that the behaviours happened 'most

of the time' or 'some of the time'. This change can also be seen by comparing the pre and post test average scores. The pre test average concerning the extent to which open behaviours were practised was 24.0. The six week post test average was 37.4.

The attitude surveys then indicated that there had been a change in the climate of interaction at Stonehill. The indications were that participants had come to see how desirable behaviours could be achieved and had started to model these behaviours with each other. I intended to probe in interview for evidence to support this view.

Interview Data

I now wish to use interview data to examine the strength of the research hypothesis in the light of implementing change at Stonehill School. It was apparent from interviews carried out immediately and six weeks after the initiative that the climate of Stonehill had been affected by the initiative. For Richard the school had moved on to a situation in which differences in opinion could be aired.

I was more used to people expressing that quite explicitly what they thought, what you'd said. I think in my previous school we had 14 teachers at one stage and conflict meant just that: an argument about something. But you could have these arguments. You might feel very strongly about the points they made but I never really tried it out here, because I've never had the confidence that relationships are strong enough to stand it and we've now just got to the stage where relationships are open enough for that."

(Interview)

For some members of staff the effect of the initiative had been to forge links between staff members.

"What I think has happened is the business of openly adopting each others approaches to things, which I appreciate doing more. I think it's right that you should imitate other people when you see things are good and enjoyable and it's a mutual process and there are things that we do collectively, so I think that's much better. And we certainly begin to share our enjoyment or displeasure of the progress that the children make in different things, much more openly than was ever the case before."

(Interview)

One of the spin offs from the initiative within the upper school was a series of weekly meetings.

"I suppose sorting out the maths made us think we could do the same in other areas. I suppose (my initiative) made us see you could pull together. In the first part of the half term we did it about twice a week formally, we said 'right, we need half an hour, we must sort this out, we'll go and sit down for half an hour and do it'. And I suppose by about Easter we were just doing it once a week and then after Easter we had other constraints on us, other people to plan for and think for as well. I suppose we felt it was

less necessary and we didn't do it as much. So obviously the formal side of the interaction dropped off, but we got quite good at sharing ideas and information, less formally than sitting down round the table doing it and when we sat round the table doing it, I think more often than not it was because we had to concentrate hard on details of organisation and planning and communicating generally has been much freer and easier and done in times other than half-hour formal sit-downs, which is much preferable really, because it seems less arduous I think to the people generally when you put things across."
(Interview six weeks after initiative)

These meetings seemed to contribute further to the build up of a climate underpinned by high trust behaviours.

"I mean we've probably all got the same basic ideas about teaching and from the things that you say to each other we are all working on more or less the same lines anyway."
(Interview)

Teachers also felt able to risk the implied loss of status involved in them seeking advice from others.

"I like to go into Jayne's class because she's always got interesting displays and I have a look and a poke about to see what she's doing and Jayne's personality has come much more into play lately as she's got into play as she's got to know people so you don't feel reticent about asking and that's had at least as much lasting effect as a forced co-operative situation where we were brought together."
(Interview)

I now turn to consider the extent to which the climate of inquiry I created around the initiative left a residual effect in the school.

I argued in Chapter Eight that there would be three indications of a change in climate and that these would represent different levels of effect. Change might firstly involve a change in participants' attitudes toward the helpfulness of the behaviours. Change might secondly involve participants seeing the behaviours as attainable. The strongest indication of change could be an actual change in the conduct of curriculum development. Having emerged from their classrooms and formed a group, teachers felt that being jointly involved in an inquiry into the best way forward towards an attractive proposition.

"When I first came here I thought to myself 'if Rita ever leaves I'm going to ask if I can have her room and I'll be all on my own', but now I don't think I would want to be on my own in a classroom any more. It's so much nicer to have somebody else around. If anything funny happens you can go and share the joke, kind of thing. Because actually it's quite lonely to be in a classroom on your own with just the children, with no other adult on hand."
(Interview)

Catherine, too, had noticed a change in the climate of the upper school.

"This term the four upper junior teachers have definitely been talking together more and all the staff get together on an informal basis much more in the staffroom and instead of walking around the school trying to find people to tell them important bits of news, like when the Banda is arriving, you can actually go into someone's classroom and sit on a table and tell them something professional or personal instead of sending a note."
(Interview)

The initiative seemed similarly to have left a residue of co-operation in the lower school. The opportunity for leadership that Do Talk and Record had provided for Lesley appeared to have given her a growing influence in the lower school. This influence was also extended as a result of Julie's departure at Easter and the arrival of Phyl.

Lesley and Phyl's relationship is less structured seemingly than Lesley's was with Julie. There is no special ritual at the end of the session to enable children to clear, tidy up and get out. In her partnership with Julie who was head of lower school, Lesley was the one who made it work very effectively by her flexibility. Julie liked organisation, structure, and led. Lesley was happy to fit in with this organisation structure, enjoyed it and to some extent followed. Now in a new situation as the incumbent, she is leading to some extent but it is a leadership of the one who happens to know the ropes. There is far less ritual, greater informality and her natural organising talents are being revealed through awareness and perceptiveness and sensitivity to others. In other words her flexibility is critical to the success of each of two totally different partnerships.
(Fieldnote)

Lesley's high risk, high trust and inquiry orientated behaviours were apparent to Phyl.

"We just seem to get on and click and seem to have the same ideas about certain things. She obviously told me the way they did it, her and Julie and she said 'we don't have to continue that if you don't think it is a good idea'. Again, although I am a new member of staff, she hasn't said 'this is how we do it and it has got to continue'. It has been discussed and whether we think it was a good idea and if we wanted to change that and do something different. We discussed it and decided on ideas, so all along I felt that if I didn't think something was a good idea I could say so without upsetting her."
(Interview)

Lesley acknowledged the place of the Do Talk and Record initiative in providing an approach which she used in her day to day contact with Phyl.

"It is very interesting actually, that now Julie is not there I kind of find myself being her, do you know what I mean? I'm a different person to the one who is taking the initiative. I've sort of learnt from her but also a bit from what you were doing about how you took people with you. Like Phyl wanted to do the artwork with both classes so I thought OK, fine it has to come from her. That is what she would like to do and I don't mind that. And I think I'd be like that about decisions about the first years like having parents in. I wouldn't say - 'tell you what Phyl - let's do this', I think that's the wrong approach. I would say - 'well how do you feel about doing that, do you feel okay about doing that?' - or I hope I would."

(Interview)

Other teachers in the lower school in addition to Lesley appeared to consciously adopt high risk, high trust and inquiry orientated behaviours. Thus there seemed to be fewer public displays of "infallibility".

I have said to Sandy 'what do you do on this sort of thing with the second years?' Not being terribly sure with them, I keep picking peoples' brains on things to do with them, but I feel they have had the experience.

(Interview)

"I think we are a more close-knit community now. I think there is more contact between our area and Stella and Phyl's area. Yet it is still two and two at times."

(Interview)

"I feel, talking about the first and second years, that they have been quite separate until now. I feel that there is some more communication now."

(Interview)

A similar change appeared to have taken place within the staffroom.

"I do see a change. Perhaps it would have come about this year anyway because I've been here two years now, but I do think you've got to be mentioned in dispatches. Really up until this term it really was very difficult to get a whole staff together. You'd never see the whole staff even at playtime in there. We've come a long way since those days, where you could go in the staffroom for coffee and you'd be the only one in there, because everyone will have come in, made their coffee and taken it back. The staff do discuss things and we do come together and work at things together. Things like you coming have helped. We're working at a production together and it's things like that that are whole school things that have helped. Everyone is contributing but they've all talked together and we've gone through no end of ideas. That in itself, that they can now pull each others ideas to bits or make recommendations shows that we've come a long way since September."

(Interview with Head)

"It comes over to me as me being more relaxed in the staffroom, obviously because you get to know people. This talking and discussing the curriculum has made a difference."

(Interview)

One interview suggested that it was a combination of circumstance and the Do Talk and Record initiative that had created greater openness within the school.

"The people who've come are not extroverts but they're lively-ish people with a sense of humour and the ability to acknowledge mutually in front of other people that not everything is easy, or not everything is tied up, let's say, rather than easy but that there isn't a received way of going on and that you can even in playtime, learn something from a colleague, which you can then do something about after play. Really, I think those are the effective things that people are not so uptight the idea is that you're in it together really and it's a bit of a struggle sometimes. I think that's far and away the most important change that's happened since the change of head. So I suppose it's been growing anyway, being able to get together as a group and make practical inroads and you've ridden that wave."

(Interview)

This analysis seems to be a fairly apt description of the effect of the initiative on the climate of Stonehill. My only query would be the extent to which the initiative was an important factor. To extend the wave analogy, it is possible that the initiative did not so much ride the wave as give it the force to effect change.

Appendix 8.1

Section One: How much do you consider curriculum development is helped by the following (i.e. ideally rather than in this school)?

Table 8.1A - Pre Test

Item	Respondents									
	CA	RI	CY	JA	LE	RI	JU	ER	ST	
1.1	5	4	5	4	5	4	4	4	4	
1.2	5	4	4	4	4	4	5	5	5	
1.3	4	4	4	4	4	4	5	5	4	
1.4	4	4	2	5	5	4	5	5	4	
1.5	5	4	5	5	5	4	5	4	4	
1.6	4	4	4	4	5	4	5	4	5	
1.7	5	4	4	5	4	4	4	5	5	
1.8	5	5	4	4	5	5	4	4	5	
1.9	4	4	5	4	4	4	5	5	4	
1.10	5	4	3	4	4	4	5	4	5	
Totals	46	40	40	43	45	41	47	45	46	

Key : CA = Catherine RI = Rita LE = Lesley
 RI = Richard JU = Julie JA = Jayne
 CY = Carolyn ER = Eric ST = Stella

Table 8.1B - Post Test

Item	Respondents									
	CA	RI	CY	JA	LE	RI	JU	ER	ST	
1.1	5	5	5	5	5	4	4	4	5	
1.2	5	5	5	5	4	5	4	5	4	
1.3	4	5	4	4	5	4	5	5	4	
1.4	5	5	4	4	5	4	5	5	4	
1.5	4	4	5	5	4	5	4	5	5	
1.6	5	5	4	5	5	4	5	4	5	
1.7	5	5	4	4	4	4	4	4	5	
1.8	4	5	5	5	4	5	4	5	5	
1.9	5	5	5	5	4	5	5	5	5	
1.10	4	5	5	4	4	5	5	5	5	
Totals	46	49	46	46	44	45	45	47	46	

Table 8.1C - Post Test + 6 Weeks

Item	Respondents									
	CA	RI	CY	JA	LE	RI	JU*	ER	ST	
1.1	5	5	5	5	4	4		4	5	
1.2	5	5	5	5	5	5		5	5	
1.3	4	4	5	5	5	4		5	4	
1.4	5	5	4	4	4	5		5	4	
1.5	4	5	4	5	5	5		4	4	
1.6	5	4	5	4	4	4		4	4	
1.7	5	5	5	4	5	4		5	5	
1.8	4	5	5	4	5	5		5	5	
1.9	4	4	4	4	4	5		5	4	
1.10	5	4	5	5	4	5		5	5	
Totals	46	46	47	45	45	46		47	45	

NB: The reader will recall the wording of each item was set out in the appendices to Chapter Seven on pages 101-105.

Section Two: How attainable in practice (i.e. realistic) do you consider the following descriptions to be?

Table 8.2A - Pre Test

		Respondents								
		CA	RI	CY	JA	LE	RI	JU	ER	ST
Item	2.1	4	5	5	5	4	3	4	4	4
	2.2	4	5	5	5	4	2	4	5	4
	2.3	2	4	2	4	4	2	2	4	4
	2.4	2	4	4	5	5	2	4	4	4
	2.5	5	5	5	5	5	4	5	4	4
	2.6	4	2	4	4	4	4	5	4	4
	2.7	2	4	4	2	2	2	4	2	4
	2.8	1	2	2	2	2	1	2	2	4
	2.9	2	4	2	2	2	2	4	2	4
	2.10	3	2	2	1	2	2	2	2	4
Totals		29	37	35	35	34	24	41	33	40

Table 8.2B - Post Test

		Respondents								
		CA	RI	CY	JA	LE	RI	JU	ER	ST
Item	2.1	4	5	4	5	5	5	5	4	5
	2.2	5	5	4	5	5	4	5	4	5
	2.3	4	4	3	4	4	4	4	4	3
	2.4	4	5	5	5	4	4	4	4	4
	2.5	4	5	5	5	5	5	5	4	5
	2.6	4	4	4	5	4	4	5	4	4
	2.7	4	5	4	5	5	5	5	4	4
	2.8	4	4	4	4	4	5	4	4	4
	2.9	4	5	5	5	5	5	5	4	5
	2.10	5	5	4	4	4	4	5	4	5
Totals		42	47	42	47	45	45	47	40	43

Table 8.2C - Post Test + 6 Weeks

		Respondents								
		CA	RI	CY	JA	LE	RI	JU*	ER	ST
Item	2.1	4	5	5	5	4	4		4	5
	2.2	4	5	5	5	4	4		4	5
	2.3	4	3	4	4	3	4		2	4
	2.4	5	4	4	4	5	4		4	5
	2.5	5	5	5	5	5	4		4	4
	2.6	4	5	4	4	5	4		4	4
	2.7	3	4	3	4	4	3		2	4
	2.8	3	4	3	3	4	3		2	4
	2.9	4	4	5	4	4	4		4	4
	2.10	3	4	4	5	5	4		4	4
Totals		39	43	42	39	39	38		32	43

*Julie had left when this survey was taken.

Section Three: How well do you feel the statements below describe the practice of curriculum development in your school?

Table 8.3A - Pre Test

Item		Respondents								
		CA	RI	CY	JA	LE	RI	JU	ER	ST
	3.1	1	2	1	2	2	2	2	2	2
	3.2	1	2	1	2	2	2	2	2	2
	3.3	4	2	2	4	4	2	4	2	4
	3.4	2	2	2	2	2	2	4	2	2
	3.5	4	2	2	4	4	2	4	4	2
	3.6	4	4	3	4	2	2	2	2	2
	3.7	2	2	2	2	2	2	2	2	2
	3.8	1	2	1	2	1	2	2	2	2
	3.9	4	2	2	4	2	2	2	2	4
	3.10	3	3	2	3	2	2	2	2	3
	Totals	28	25	18	27	23	20	26	24	25

NB: The reader will recall from Appendix 7.2 (page 105) that Section Three of the survey was not distributed immediately post test.

Table 8.3B - Post Test + 6 Weeks

Item		Respondents								
		CA	RI	CY	JA	LE	RI	JU	ER	ST
	3.1	3	4	3	4	3	3		4	4
	3.2	3	4	3	4	3	3		4	4
	3.3	4	4	2	4	5	4		3	4
	3.4	4	4	4	4	4	4		3	5
	3.5	5	4	4	4	4	5		4	5
	3.6	4	3	3	5	4	4		3	4
	3.7	4	3	4	3	4	3		3	4
	3.8	3	3	4	3	2	3		3	4
	3.9	4	4	4	5	5	3		4	5
	3.10	4	3	3	4	4	3		4	4
	Totals	38	36	34	40	38	35		35	43

Appendix 8.2

Section Four: How much do you feel the following behaviours were involved in the Do Talk and Record initiative?

Item	Respondents									
	CA	RI	CY	JA	LE	RI	JU	ER	ST	
4.1	5	4	5	4	5	5	4	4	4	
4.2	4	4	5	4	5	5	5	5	5	
4.3	4	4	5	5	5	5	4	5	5	
4.4	5	4	5	5	5	5	5	4	4	
4.5	4	4	5	4	5	5	4	4	4	
4.6	5	4	5	5	5	5	5	5	5	
4.7	4	4	5	5	5	4	5	4	5	
4.8	4	4	4	5	5	4	4	5	5	
4.9	5	4	5	4	4	5	5	4	5	
4.10	4	4	5	4	5	4	4	4	5	
Totals	44	40	49	45	49	47	45	44	47	

Chapter Nine : Reflecting on Planned Change : Court Farm

Court Farm Junior School is situated on a large estate in a Homeshire new town. The role of 246 children in April 1988 meant there was a teaching staff of head and eight full time teachers.

Court Farm is situated in the same Homeshire new town as Stonehill and was built at around the same time. In March 1988 the classes were divided between the staff as shown below.

- Irene** was Headteacher and had been head of the school for five years. She had been head of a small village school before being appointed.
- John** was Deputy Headteacher and in his late thirties. He had been at the school for six years having been appointed by Irene's predecessor. John taught the 2nd year class.
- Philip** was in his late twenties and had a Scale 3. He had responsibility for Games throughout the school. He took a 3rd year class.
- Gill** had been at the school for six years and had been appointed by Irene's predecessor. Irene had promoted her to a Scale 2 post. She had responsibility for Art and took a 4th year class.
- Janet** was in her 4th year of teaching and had responsibility for girls' Games. She taught the other fourth year class.
- Annette** was in the school to replace the 3rd year teacher on maternity leave. She had been at Court Farm only two weeks before my arrival.
- Anne** had responsibility for Mathematics within the school. She had worked at Court Farm for twelve years.
- Marissa** had responsibility for English and taught a first year class. Her children were in the adjoining infant school.
- Chris** had started work at Court Farm as a probationary teacher with Janet. They shared a flat in the town. Chris taught the other first year class.

Mathematics Practice

There was considerable variation in approaches to mathematics teaching at Court Farm. A large amount of time was spent with the children working on examples from the pages of the range of textbooks available in each class with the teacher acting as a resource. Introducing new ideas in some classes involved the teacher 'talking through' the page to the children, or explaining what was required using chalk and talk methods and the blackboard. In other classes teachers introduced new concepts by giving the child apparatus to support them 'doing sums' and then withdrawing it when they had 'picked up' the idea. Thus, a girl in Marissa's class performed division examples by writing out the algorithm in her book, counting out the required number of Unifix blocks, sharing them out and then recording her answer in the book. There was some dissatisfaction about the practicality of this approach. Marissa felt the drawback to be 'having maths periods where three quarters of the class are left to get on by themselves while my attention is totally taken up introducing something to a group of children.' There was also some emphasis on creativity and discovery. Thus, work on area was couched in terms of a problem of finding out how many tiles were needed to go on a wall; and tables were taught by children engaging in a variety of games and then testing each other and checking their answers on the calculators.

Attitude Survey

The initial attitude survey was distributed after the first staff meeting I conducted. Section One of the survey asked participants to indicate how much they felt the listed behaviours helped curriculum development. The raw scores for Court Farm are set out in Table 9.1A. (See Appendix 9 at the end of the Chapter).

At that point there was a positive response to Section One. All items were seen as helping curriculum development 'a great deal' or 'a considerable amount'. Marissa's 'uncertain' response to item 1.4 was accompanied by a note saying that the whole staff trying out ideas in the classroom was 'not always necessary and/or desirable'. Gill wrote 'stalemate' alongside her response to item 1.5 'setting up formal feedback meetings'. When I queried this response she said that she considered sometimes too much discussion just went round in circles and a decision sometimes just had to be made even if consensus had not been achieved.

Section Two of the survey asked teachers to indicate how attainable they considered the behaviours to be in practice. The raw scores when Section Two was administered pre test at Court Farm are set out in Table 9.2A. (See Appendix 9). The table indicates that overall there was a positive response to this section. Most teachers considered all the behaviours to be more or less attainable or completely attainable. The items that had the lowest ratings were 2.7. 'Teachers feeling completely free to provide feedback even if it is negative and confronts the initiative' and 2.8 'individuals not being defensive about their

ideas but open to candid criticism of them.' John wrote alongside his 'uncertain' responses to items 2.7 and 2.8 'possibly the most difficult to really attain.'

Section Three of the survey asked teachers to indicate how much the behaviours formed the practice of curriculum development at their school. The raw scores when Section Three was administered pre test are set out in Table 9.3A. (See Appendix 9)

The table indicates that high risk, high trust and inquiry orientated behaviours were seen as prevalent at Court Farm prior to the initiative. The lowest scoring item was 3.8 - 'individuals not feeling defensive about their ideas but open to candid criticism of them'. More respondents indicated this happened 'some of the time' than they did for any other item. John commented that he used his midway 'uncertain' response to indicate that he felt this happened somewhere between 'some of the time' and 'rarely'. However, this item receive a much more positive response pre test than it had at Stonehill. At that school five respondents had felt this to occur 'rarely' and three that it 'never' occurred.

Overall the pre test picture appeared a very different one to that at Stonehill. Teachers at Stonehill considered that the behaviours helped curriculum development but were unattainable in practice and occurred rarely or never. At Court Farm overall the behaviours were seen as taking place most or all of the time and were seen as attainable and as helpful to curriculum development. The attitude surveys indicated the presence of an open climate at Court Farm. This can also be seen by examining the pre test average scores for each section. The overall pre test average regarding the desirability of open behaviours was 46.8. The pre test average concerned with the attainability of these behaviours was 44.6. The average scores indicating the extent to which the behaviours were practised was 46.1. Naturalistic measures of inquiry provided further evidence of this.

Climate

It was apparent that the climate of Court Farm did not conform to the closed pattern of interaction observed at the other three schools within which research had taken place.

Irene had been having her weekly meeting with Gill and as it was now one o'clock she came into the staffroom to run the daily lunch time briefing meeting. At the end of it Irene asks Clare if she had given her a report on a child who was going to be seen by the educational psychologist "because if you have I'm sorry I've filed it away so carefully I've lost it" - "no I gave it to Gill" replied Clare. Gill laughs and says to Irene - "oh and I was busily saying to you that you had it." The interaction contains two elements I have not seen within other schools. Firstly, that Gill was able to say to Irene that she'd lost something. Secondly, that there was no feeling that Gill or Clare or Irene felt threatened by public knowledge of them having lost the report. Indeed as the staff go back to the classrooms at 1.15 the exchange stimulates a general chat about how easy

it is to lose things or forget things as a teacher, because as soon as you meet the children you are bombarded with diversions.

(Fieldnote)

High risk behaviour also appeared prevalent. Thus in a staff discussion about an inspection sheet that Irene had required teachers to 'mark' themselves on the reasons that had led her to ask for the sheets were made apparent.

Lunch time briefing meeting. One of the issues under discussion this lunch time is the classroom survey sheets that Irene required teachers to fill in before their last appraisals at Christmas. The sheet covers aspects such as planning, classroom management, record keeping and assessment. For example, the one on planning asks teachers to rate themselves on a scale of one to ten as to whether there is "written evidence of long term planning available", whether an "activity/lesson fits in with the overall plan"; whether aims are appropriate for age/level of class.

Irene starts the discussion off by going back to the original purpose of the sheet. The intention was that teachers rated themselves on a scale of one to ten and then Irene rated them in the same way. This, Irene felt, would enable teachers to be forewarned about areas where perspectives differed. "People have said to me that they've come to review waiting for the axe to fall."

Teachers are obviously unhappy about the sheets. Janet says "the trouble is that you don't know the criteria of what being good is and that you'd always mark yourself low because you were always seeking to improve". Philip says that "teachers mark themselves low and then are disappointed that Irene's mark wasn't a higher one." Anne says she "feels it a bit demeaning to be marked out of ten."

Irene readily concedes the difficulties in the sheets. She links the faults in them to her concern that an LEA inspection of the school was imminent. "I think it suddenly made me think I'm responsible for everything that goes on in the classroom - which I am. But I suppose it made me rush into thinking everything had to be suddenly perfect."

The meeting then moves on to discuss the ways the sheets can be amended to make them more useful. It's eventually decided that Irene might flag up areas of discussion by highlighting particular statements and presenting these to the teacher. I'm struck by the openness of the meeting. It exemplifies high risk behaviour. Almost every statement made has been accompanied by evidence that led speakers to draw the views they hold. Irene's ownership of the sheets was shared with the staff. The group as a whole appeared to have joint control over whether the sheets would continue to be used.

(Fieldnote)

Philip has been running a series of staff meetings on developing Children's written drafts. In the staffroom at lunch time, Val said that she'd tried it out but found it difficult to organise in class because of the demands of the children. Philip's response was that he hasn't experienced that "because my children are older." Shirley said that space could be created by getting the children to do pictures while they were waiting to have their work drafted with them. There was some discussion as to whether this was just a "time filler" but in the end it was agreed this was worth trying because you had to be practical and that you "couldn't teach them all at the same time."
(Fieldnote)

Thus, Philip's strategy seemed to be to share control of the initiative with others (people tried out the ideas and fed their findings back to him) and to invite feedback (high risk). He didn't react to Val's feedback as seeking to expose errors in the initiative (high trust). The ideas weren't seen as correct or incorrect but as an intelligent assumption which the group could work on together to create the most information possible about it (inquiry orientated). Similarly, those receiving the ideas acted according to these behaviours. Val saw problems with Philip's ideas as discussable. Similarly, Janet was prepared to say she was concerned that using pictures was time filling (high risk). Again, Shirley didn't appear to take the suggestion that using pictures was time filling as criticism. Her response was to make the reasons that led to her advocating using pictures apparent (high trust). The discussion ended with both Janet and Shirley agreeing to try using pictures and asking Philip if he'd have a look at what they did (inquiry orientation).

High trust behaviours were also apparent.

After a morning with a difficult 4th year Shirley comes into the staffroom to say that she could have strung the boy up. Relationships appeared to be secure enough for the staff to both gently tease and support Shirley. Thus John commented that she'd been picking on that poor, unfortunate boy again, when he'd done nothing. Irene said she'd been thinking of making him head boy. "No school bully" said Philip. "He could have a lapel badge with 'school bully' on it."
(Fieldnote)

Humour appeared very much to lubricate relationships.

Part of Irene's style is to look for needs and then help fulfil them; hence this term Irene is on duty once a week. It creates a chance for her to be seen to be a teacher like the rest of them. This morning Stella says "who's on duty?" Irene puts her hand to her mouth and says "I am", and rushes out, there's laughter.
(Fieldnote)

Relationships between the staff also appeared very open. Irene's own approach was very much an 'open' style.

Teacher: She comes into the staffroom and chats.

Reply: As 'the Head'?

Teacher: No, not necessarily. Sometimes, but then she has to. Other times it's just general chat and a laugh. She's part of it.
(Interview)

Within wider patterns of interaction at the school there also appeared to be an openness and sharing.

"One of the things about this school is that we work together. I felt insecure about Art - it's always been my worst thing and I asked Lesley and she said you could do this and we're all like that here. You just don't do it at other schools."
(Fieldnote of Conversation)

I worked in John's class for the afternoon. I commented to Amanda at the end of the day on the rather attractive newspaper figures that the children had done and said how much I liked them, so she explained that she'd needed to get something up fairly quickly - by the way, that's to do with her values. For her it's important that the classroom is made to be lived in, soon and early. I also commented on the acrostics that she and her children had done and she opened up and responded to me. She said that she'd noticed that I'd been doing those triangle poems and she thought to herself: "That's an idea I haven't used for along time, I might use that later". I feel that if I'd been a full time teacher there this kind of process over a period of weeks would have led to a considerable opening up. I could have seen the time when we'd be co-operating fairly closely and producing a lot of, to coin a phrase, 'cross-fertilisation'.
(Fieldnote)

Earlier in the day Philip had said "chat was a high level activity". The truth of this was demonstrated at the end of the day and also revealed the cohesion of the juniors. I sat in the corridor linking through to the juniors, trying to understand the new computer. Junior staff came along the corridor and stopped. First Julie then Amanda, to see what I was doing. Philip came along shortly afterwards and I pointed out we really didn't understand what this computer was capable of, so he then proceeded to demonstrate some of its particular facilities. We began dimly to understand and this common understanding was a further development of cohesion. I really feel I quite belong with the juniors.
(Fieldnote)

"I think we've all seen each other do things with the children in different areas of the curriculum which we've thought of at one time or another and we've said 'yes, that is definitely something I must include' and we've come to a consensus about the general scope of these things."
(Interview)

The Change Initiative

Having discussed the initial climate of Court Farm I shall now move on to the intervention there. Within this discussion the stages of the change journey undertaken by participants will be indicated by using the sub-headings denial, resistance, exploration and discovery. The account which follows also relates these stages of the journey to the demonstration and communication and the facilitation and support phases of the model.

Demonstration and Communication

In an initial meeting with Irene we discussed how my work at Court Farm might be useful. She felt the mathematical ideas would benefit the school. She also considered that the underlying intent of the initiative to build staff relationships was an interesting one.

"I think that the staff are the most important resource within a school and I suppose the situation I want is where we're all feeding off each other and we are like that I suppose to an extent although it could always be better because of course it's not as easy as that in practice."
(Interview)

The initial presentation to the staff involved the video showing children having difficulties remembering rules and procedures. At Countess Anne, St Mary's and Stonehill the area in which the teachers were to view the video was set up and teachers waited for the presentation to begin. At Court Farm there was the sense of a continuing conversation about the school's development whenever the staff met. This was apparent in the arrival of teachers for the initial meeting.

Irene and Philip arrive with Philip passing on information about the children to Irene: "We are going to have to push them." A separate conversation between Marissa and Val: "What's Dean's reading like?" John and Annette discuss pine furniture that John's looking for to put in his daughter's bedroom.
(Fieldnote)

The characteristic pattern of the initial presentation at the other schools had been one of polite silence. There had been little feedback and it was characteristically only while working with individual teachers that they would reveal their individual reactions to the ideas. But at Court Farm there was a group reaction to the suggestion that one of the problems faced by change is that it implies a criticism of existing practice.

Irene comments that she felt that they were all big enough for that not to be a problem. "I mean Eleanor is brilliant at music and we all go to her about that but I'm sure she'll be the first to admit she's not as good at Art as say Lesley and vice versa."
(Fieldnote)

The argument in this study has been that the presence of low trust, low risk behaviours limits learning. This is because they result in a reluctance to negative feedback. I suggest that it was the presence of an inquiry orientated, high trust and high risk climate at Court Farm that resulted in teachers bringing up their problems and reservations about the video during the initial staff meeting. Court Farm was the only school in the study in which negative feedback was provided during the initial meeting. The feedback concerned a sequence in the video which I felt illustrated children having increasing confidence in manipulating the apparatus as they became clearer about the underlying ideas.

"I don't actually know what they're doing" John comments as I stop the video and suggest that the sequence demonstrates the process of Do Talk and Record. "But whatever they're doing they're obviously getting better at it" says Philip at which everyone laughs. The laughter seems to signify that others too don't feel that the sequence makes the point I intend.

(Fieldnote)

The next stage of the initiative involved working within class, modelling a topic based on the Do Talk and Record framework.

At both St Mary's and Stonehill I considered roughly one third of the staff were 'intent to learn' and one third 'intent to protect'. The remaining third appeared to reserve judgement about the initiative. It was apparent from working in teachers' classrooms that almost all the staff at Court Farm appeared to come to the initiative intent to learn. The meetings conducted with teachers after the ideas had been modelled were ones in which interest was signalled about the ideas.

"That looks really good, I hadn't thought to get the children to record like that in their books before, although I'd probably have started off with the apparatus like you did."

(Fieldnote of Conversation)

"I really don't like what I'm doing at moment so any suggestions you make are fine with me, don't feel I'll be offended."

(Fieldnote of Conversation)

The large number of teachers who came to the initiative intent to learn created a positive climate around the initiative. This positive climate was exemplified by the signalling of interest that occurred immediately after the initial presentation.

As the meeting breaks up at 4.45 Shirley and John stay talking to me. John discusses how much the video sequence, showing children having difficulty solving problems, made him think about the problem he has with children tackling problems. "What can you do about it though?" he asks. I talk about the need to show the children the language of subtraction and show how I might go about that. Shirley comments that she might try that with her children. John and Shirley both listen as I go through how the idea could

be used to help develop children's' understanding of multiplication and division. Shirley comments: "I'm paying my childminder to stay here", but she makes no attempt to leave.

(Fieldnote)

Denial

Two teachers however appeared to come to the initiative 'intent to protect'. As at Stonehill the initial reaction of these teachers was to deny the need to change.

"If you'd come in at the beginning and seen what we needed it would have been better."

(Fieldnote)

I discussed in the previous chapter that my response to those I considered to come to the initiative intent to protect was not to challenge their views but to continue to present a clear, practical picture of what the change might look like. This approach is illustrated below.

I show Annette the work I've been doing with the children on fractions and the recording they've done in their books. I've got the children to use the Cuisenaire rods to explore fractions. They've made a long 'whole' by laying out two rods of unequal size and they see how many rods of equal size fit against that whole. They've then recorded how many equal sized rods fit into the whole as a fraction. Thus if five rods fit up against the whole I've got the children to record them as fifths. When I show what I've done to Annette she says that she already does something very similar but using an apple split into four parts. In fact Annette's starting point of showing children quarters and then expecting them to develop an understanding of what a fraction is from that is a long way from Do Talk and Record. This implies that children must experience many fractions to get an idea of the relationship of the parts to the whole. But I decide not to confront Annette with this but to continue to give the children experience of many different fractions.

(Fieldnote)

Resistance

The two teachers at Court Farm who came to the initiative 'intent to protect' next moved from the phase of denial to the phase of resistance. As at Stonehill both teachers 'intent to protect' first exhibited that they were in the denial phase before moving on to the phase of resistance. As at Stonehill during the resistant phase, these teachers expressed scepticism about the change and its implications.

Initially this scepticism was expressed within a low trust, low risk exchange. For example Annette's feelings about the practicality and benefit of the ideas remained largely hidden but conveyed by implication.

"It's good you doing this. It's the sort of thing I'd never got the time to do". Annette comments. The statement conveys a considerable amount about Annette's attitude to the ideas. Firstly that it's impractical for a class teacher. Secondly that it's a bonus for the children to have the experiences I'm providing them, but not essential. (Fieldnote)

Later Annette felt able to explicitly communicate her scepticism.

"I couldn't teach like that. I don't think I'd be able to organise things like that."
(Fieldnote of Conversation)

My other strategy during the phase of resistance was to empathise with the problems teachers saw in the mathematical ideas. I told teachers that I had initially had doubts about the merits of, for example, getting children to write longhand accounts but that I had eventually come to see them as useful.

The interviews conducted after the initiative revealed that my lack of certainty about the ideas was a contributory factor in overcoming resistance.

"I never heard anybody moan about you or get uptight because you were coming in. It was totally non-threatening. You seemed to accept problems we had."
(Interview)

"You led us up the garden path quite nicely. You came across as never being so certain that you wouldn't listen to another point of view."
(Interview)

The involvement of the teacher group in Do Talk and Record had built up gradually at St Mary's and at Stonehill. The pattern was for discussion about the ideas to take place initially in the private domain of teachers' classrooms. It was only after teachers had grasped the ideas that discussion bubbled over into the more public arena of the staffroom. At Court Farm however teachers' attempts to understand the implications of Do Talk and Record did not only take place in the classroom. Teachers appeared to support each other in making sense of the ideas. This was apparent in the second staff meeting in which a video of children at Court Farm working on a Do Talk and Record topic was shown. At other schools this presentation had been received in silence. At Court Farm the video stimulated a discussion in which teachers appeared to wrestle with the meaning of ideas together.

Marissa, after watching the video of the children writing stories about what they had been doing, said she felt that getting the children to record in pictures was as useful and less time consuming. I agreed that the process could be explained enough times by a teacher for a child to remember it when its memory was jogged by a picture. The discussion that followed concerned whether written or spoken language was important. This discussion was concluded by Val's comment that she thought written language helped because it

took the children's attention away from the apparatus so they had to rely on their memory of what had happened. "But it's the language that's important, it links the apparatus with their sums" commented Philip. He seemed to be thinking aloud - summarising his understanding of the ideas.
(Fieldnote)

This dialogue that took place between staff members also appeared to reduce scepticism about the initiative. At all the schools teachers made comments which I shall refer to as 'killer talk'. These were comments which talked down the initiative both to the individual making them and to others listening. However at Court Farm the positive climate around the initiative resulted in teachers challenging 'killer talk'.

"Is it worth it I ask myself" comments Philip as we come into the staffroom following an abandoned first 'try out'. "Oh come on it can't have been that bad." John responds. "Have a cup of coffee" he offers, and gets up to pass a cup to Philip.
(Fieldnote)

Facilitation and Support

The next phase of the change journey was 'exploration'. As at Stonehill those who were intent to learn started the journey at this point. However for all teachers the watershed was when they were required to plan and try out topics.

As at Stonehill not all teachers were at the stage of exploration when asked to try out the ideas. Annette's reaction before trying out a topic indicated that she was still in a resistant phase.

Annette appears too busy to discuss with me the lesson she will be teaching after break using the Do Talk and Record planning sheets. At the end of break she walks onto the playground with Marissa and Anne before turning to me and presenting me with her planning sheet asking me to mark it out of ten.
(Fieldnote)

But actually trying out the ideas in the classroom did stimulate the move to a phase of exploration. Thus the resistance that Annette appeared to show to trying out the idea was replaced by a signalling of interest when the ideas were tried out in the classroom.

As the children try out the idea Annette registers her surprise "oh it does work."
(Fieldnote)

Another way in which there was a signalling of interest during the phase of exploration was in the intense discussions conducted with teachers while groups of children sat patiently surrounded by the trappings of abandoned lessons. I was sought out in corridors and in the staffroom and engaged in problem solving

with teachers. As at Stonehill teachers worked, with no compulsion, on revising initial lesson attempts and trying them out again.

At St Mary's and Stonehill this signalling of interest had been used to involve the teacher group in the exploration phase. Thus I attempted to bring teachers who were wrestling with similar problems together. I also referred teachers with a particular problem to colleagues who had devised some sort of solution. I further brought reservations raised on an individual basis into whole staff and group discussions. My intention was to build school wide decision making networks and co-operation. At St Mary's and Stonehill my role in building these networks was central.

At Court Farm however the networks appeared to exist already. Having provided teachers with information by which they could judge Do Talk and Record, my role as a change agent faded. A collective inquiry into the feasibility of the ideas took place independently of my input. The initiative did not build the problem solving abilities of the group, it merely brought them into play. One example of this was in the way that other teachers' perspectives were mentioned when individual's problems were discussed.

"I think the apparatus bit is fine and the end point but its the shortening of the recording of the apparatus I don't see the advantage of that and I know Marissa thinks the same."
(Fieldnote of Conversation)

The way in which teacher's thinking moved on as a result of discussion provided further evidence of the way in which the group worked.

"I return to Philip's class set to provide an answer to the questions he had raised the previous day. It's obvious that the point I'd been focusing on no longer concerns him because he'd had a chat with Anne about it last night."
(Fieldnote of Conversation)

A further example of group action was provided at the staff meeting which discussed the change process. At St Mary's and Stonehill I had focused on the contribution each member of the group had made. This focus recalled for teachers the spirit of inquiry that had developed within the school during the initiative. Within it teachers had found that it was possible for them to interact according to high risk, high trust and inquiry orientated behaviours. They had found that mistaken assumptions were not errors that posed a threat to the individual but a means of learning for all involved. They had found value and status by contributing as part of a team. But these points were not significant at Court Farm. The climate of inquiry already existed.

I started the discussion off by outlining the contribution each person had made to the initiative. At Stonehill and St Mary's teachers had listened carefully to this account. But as pooling expertise was not unusual at Court Farm the individual contributions were not seen as particularly

significant. When I asked teachers what they felt to be the advantages of my approach, discussion focused on a comparison between my initiative and one that Lesley had conducted. Lesley's initiative had involved her going into the classroom to demonstrate clay work using a group of children. Teachers felt that this was less effective than having someone available to support as I had done with the mathematics.
(Fieldnote)

At Court Farm then the initiative was one of a series on the agenda of ongoing development. This development was underpinned by the existence of a climate of inquiry within the school. In Irene's words.

"We are a team, we do try to work together."
(Interview)

Commitment

The argument here is that the end point of the journey to change is commitment. As at Stonehill, interviews conducted immediately after the initiative indicated that teachers were committed enough to the ideas to work on manipulating and modifying them so as to make them their own.

"It's a bit early to say whether I think it's the answer."
(Interview)

"I'll suspend my disbelief long enough to give it a try."
(Interview)

On returning to the school six weeks after the initiative there was evidence of a growing commitment.

Notable was the appearance of Do Talk and Record 'worksheets' that teachers had devised to apply to other areas of the curriculum. Anne had changed her whole class organisation. During the initiative we had discussed how it might be easier to work Do Talk and Record by rotating a class divided into three groups of ten rather than into the two groups of fifteen she worked with. She subsequently changed her classroom organisation to a three group system. In interview six weeks after the initiative she discussed the reasons for change. She had had one group of fifteen children doing English and one group of fifteen children doing maths. However, she found that taking fifteen children along the path Do Talk and Record implied was too much. She had therefore changed the group size to accommodate this.

At the outset of the initiative, Marissa had argued that she felt it was important for children to devise their own strategies for developing approaches to mathematics and felt that Do Talk and Record worksheets were as monotonous and meaningless as showing the children tricks on the blackboard. Her approach at the outset of the initiative was to let the children devise their own strategies for solving problems using the apparatus or pencil and paper. Thus, children seeking to find how many eggs were in nine boxes of a dozen had recorded their answer by writing out twelve nine times and adding them up. After the initiative there was

evidence of her getting the children to refine their strategies into a more manageable format and of a linking of the children's approaches with standard algorithms. In interview she commented on this change.

"I've always believed that we must make mathematics alive for the children, allow them to create and discover mathematics. My conscience has been pricked. I suppose although I don't see everything as structured as you do that doesn't mean I've never thought that you should just leave them to reinvent the wheel, you've got to relate it back to the standard way of doing it, if you like."
(Interview with Teacher)

When I asked teachers what they were doing as a maths teacher, that they were not doing prior to the project, one teacher commented:

"Using worksheets comprising language, pictures and recording to replace a great deal of my presence when introducing a new mathematical process to a group of children."
(Interview)

There was also evidence of teachers' commitment to Do Talk and Record within children's work books and in the interviews I had when I revisited the school. It was in the area of written language and pictures that teachers' reported the most significant impact.

"I think it's not so much helped my understanding because I knew about the approach anyway but it was the writing and the pictures that I didn't know about. It's helped the children to see why they have to do something which has made them more secure about maths."
(Interview)

Attitude Survey

The account of events at Court Farm suggests that for a small number of teachers the journey to change did involve the stages of denial, exploration and then commitment. Section Four of the attitude scale set out to measure the extent to which a climate of inquiry (in which teachers intent to protect moved from a phase of denial to that of exploration) was created around the initiative. The raw scores and total scores for Section Four are set out in Appendix 9.2.

The results indicate that participants considered high risk, high trust and inquiry orientated behaviours were involved in the initiative. All respondents considered the initiative to have involved the behaviours a 'great deal' or a 'considerable amount'. Overall this is unsurprising. The initial attitude surveys indicated that open behaviours were already in existence in the school. The preceding account indicates that during the initiative open channels of communication came into play and accelerated the development of participants' learning. However, teachers initially 'intent to protect' also indicated the presence of these behaviours. It seems reasonable to assume that

these teachers' involvement in the initiative was stimulated by inquiry orientated, high trust and high risk behaviours modelled for them. Events at Court Farm therefore provide evidence that a change agent modelling open inquiry orientated behaviours produces a reciprocal response in participants intent to protect and in so doing, moves them to the point of exploration.

The Research Hypothesis Post Court Farm

Having described the intervention at Court Farm in relation to the change journey undertaken by participants, I now wish to re-examine the strength of the research hypothesis. It was suggested in Chapter Eight that there would be three indications of a change in climate. First, there might be a change in participants' attitudes toward the helpfulness of the behaviours. Second, participants might see the behaviours as more attainable. Third, there might also be a change in the conduct of curriculum development.

Section One of the survey focused on teachers' attitudes toward the helpfulness of open behaviours. Section One was distributed to participants at the end of the initiative and six weeks after it. The raw scores when attitudes were surveyed immediately post test are set out in Table 9.1B and six weeks after the initiative in Table 9.1C (Appendix 9.1). The scores show little in the way of a change in responses between items or between participants' attitudes to the behaviours. Both immediately post test and six weeks after the initiative participants considered the behaviours to help curriculum development a great deal or a considerable amount. Table 9.1A recorded the scores to this section pre test. From the tables it is apparent there was little shift in attitude following the intervention. Both before and after my intervention participants viewed the behaviours as positively affecting curriculum development. The average scores provide a rough measure of this. The pre test average total was 46.8. The immediate post test average was 44.7. The six week post test average was 45.8.

Section Two of the attitude survey asked teachers to indicate how attainable they considered the behaviours to be in practice. Section Two was administered immediately and six weeks after the initiative. The raw scores for the immediate post test survey are set out in Table 9.2B and six weeks after the initiative in Table 9.2C. Again, the survey distributed immediately post test shows little in the way of a change in attitude than that held pre test. Participants continued to consider the behaviours were completely attainable or more or less attainable. There was little discernible change when attitudes were surveyed six weeks after the initiative. There was none of the drop off in confidence that had happened at Stonehill. Participants continued to feel all items were completely attainable or more or less attainable. The average total scores for this section were pre test 44.6 post test 44.2; six weeks post test 45.3.

Section Three of the survey asked participants to indicate the extent to which they considered in their school the practice of curriculum development involved the listen behaviours. Section Three was administered before the initiative and six weeks after it. The raw scores when attitudes were surveyed six weeks after

the initiative are set out in Table 9.3C. Again there was little indication of change. Pre and post test participants considered that the behaviours described the practice of curriculum development 'most of the time' or 'some of the time'. There was little significant change in the average scores. The pre test average was 46.1. The post test average 45.1.

Discussion

The conclusion must be that at Court Farm the research hypothesis was not confirmed because open behaviours were already in existence at the school. The pertinent question then seems to be what made Court Farm different from Stonehill, Countess Anne, Templewood and St Mary's. In this section I intend to address this issue.

One of the difficulties in pursuing this question was distinguishing between causes and effects. For example, rotas and administration matters were treated with a lot less seriousness at Court Farm than at the other schools. Thus, Irene's inability to remember the days on which she did playground duty was a source of practical jokes.

"Once when Irene was out on duty and she's awful at remembering it so Phil and I put coats on at the end and got cups and saucers and went out as if we were on duty and when she came round the corner - you can't see the whole of the playground, so you could be out with somebody else - so when she came round she saw Phil with a cluster of children round him as if he'd been on duty too. Then she went round to the bike sheds and I was there as if I'd been out too."

(Interview)

However, it was difficult to distinguish whether these jokes were dependent on the people involved or the climate that sanctioned them. A useful avenue of research may have been the extent to which teachers at Court Farm stated what aspects of teaching and learning defined membership of the group. Thus, throughout the intervention, teachers said that they were open and co-operative together. They also appeared to say what they were not. Following the trip to a campsite, there were stories of how another school had been led by "someone marching around with a clip board".

The mechanism that seemed most linked to the maintenance of an open climate at Court Farm, however, seemed to be weekly meetings and termly reviews that staff had with Irene. At no other school were reviews carried out. I discovered the presence of these reviews at a time when there was much discussion of teacher appraisal in the National press. Teachers at Stonehill had expressed hostility to the idea. Teachers at Court Farm felt that if they were conducted in the way practised by Irene they would be beneficial.

In March 1988 the system that operated was one in which Irene conducted appraisal reviews with members of staff each term and then met with each of them weekly for about half an hour. Weekly meetings took place in Irene's office mainly over the lunch period. They appeared popular with staff members.

"I know that when Irene was out that people missed the contact with her (that the meetings provided) because I think they like to feel that they're valued and what they're doing is appreciated and the head putting aside time for each of them each week to talk about what's been going on sort of says that."
(Interview)

"I think they avoid accusations of favouritism that she might spend time in some teachers' classrooms and ignore others although I don't think Irene would be like that but I have seen that elsewhere. I mean everyone's got the same amount of time given to them."
(Interview)

The appraisal reviews conducted at Court Farm involved a meeting of about an hour between Irene and members of staff. During the meeting objectives were agreed which the teachers bore in mind during the next term. These objectives had a whole school and classroom focus. The objectives for Philip for the Spring term 1988 are shown below.

"Dear Philip,

Just to follow up our meeting these are the objectives we agreed for this coming term:

To run a whole school initiative on science teaching. This is to involve running staff meetings and working in other teachers' classes to offer support. Head to provide one morning's cover for each week.

To involve Sally as 'shadow' science co-ordinator. This is seen as her taking responsibility for some aspect of the science initiative (as yet to be discussed) with you supporting.

To demonstrate to other members of staff a lively classroom approach through display and through these assemblies.

To continue with responsibility for Football Club.

If this isn't what we said please get back to me!"

(Copy of Letter)

Termly reviews and objective setting were viewed positively by members of staff.

"I've never been at a school before where there's this idea of growing people through."
(Fieldnote of Conversation)

"It's really part of your professional development - you look at areas you can develop as part of a build up of your skills and professional expertise."
(Fieldnote of Conversation)

For Irene the weekly meetings and the termly reviews were complimentary.

"The weekly meetings give you the opportunity to support planning and be available for advice. If people are trying something new they need time to learn to do it. I mean it's like you were saying that you were teaching your daughter to swim. Well, you didn't just get out of the pool and go home did you? You were there to help and guide.
(Interview)

Irene had clear purposes and goals for Court Farm. The review interviews were directed towards achieving these purposes. But while Irene had purposes for the school, she rejected the control that might accompany having such purposes. Thus, the evaluations she made about teachers' performances were linked to her observations of their teaching. These observations were open to the scrutiny of those being appraised (high risk).

"When you're interviewing someone for a job, it's like being a detective. You're sifting through the evidence for clues but when you're reviewing someone, it's the opposite, you confront them with the evidence."
(Interview with Head)

The questions that teachers answered before the reviews illustrated the extent to which the invitation was to a genuine dialogue (high trust).

"How do you feel things have gone generally this term?"

"What things have you been pleased about in your performance?"

"What things are you dissatisfied with?"

How do you feel about the area of responsibility I have given you?"

"Where do you feel we are now in that area. Where do we need to be?"

"If the position were to be reversed and you were reviewing it - what objectives would you set me for next term?"

"If you could change anything about the school, what would it be?"

"What objectives do you have for next term?"

"How can I help you achieve them?"
(Interview sheet - Court Farm - June 1988)

Irene's commitment to this invitation was apparent in interview (inquiry orientation).

"I don't see myself as a head handing down tasks that people have grudgingly got to accept. We're two people engaged in a discussion about the best way to move forward you've got to listen, finding out what's on their minds is more important than telling them what's on yours."
(Interview with Head)

My argument is that adopting these behaviours secures commitment to ideas. Again, this was at the core of Irene's approach:

"You can't impose a review. It's got to be agreed. If there's one thing I've learnt as a head, it's to get that agreement - it's that commitment, not your authority that gets results."
(Fieldnote of Conversation)

The change model proposed in this study predicts that the result of these behaviours will be to dismantle defensiveness, rivalry, vulnerability and uncertainty. In interview teachers commented that the reviews helped them to 'know where they stood' - 'stopped things from building up' and 'sort things out'. This process was described by one teacher:

"I'd written that I like the extra responsibility but some times felt that it was being taken away from me. In the review I told Irene that I felt this might have been because Irene lacked confidence in my ability to do it. 'It wasn't that' Irene said, it was because she felt that 'you had too much to do and I wanted to help you'. "
(Fieldnote of Conversation)

Another teacher explained how the review had brought about his commitment to the direction the school was moving.

"We had talked about the job I was doing and there were some aspects of it I wasn't doing well - I suppose I saw them as a chore, another thing to do really but when I saw the reasons for it .. that it was important because I needed to set an example of practice for new staff to follow, when I saw that I could see the point of it. But I did say about the other bits, about them being chores and that I felt that I'd been left with all the uninteresting jobs. She saw that and we changed my areas of responsibility to computers which I like. I was good, it cleared the air and I felt that I could change things, that I was in control of what I could do at the school."
(Interview)

I argued that closed behavioural patterns of interaction within schools derived from teachers' vulnerability concerning what constituted achievement and the need for them to provide evidence of being a good teacher. At Court Farm this vulnerability and need was reduced. Teachers received regular feedback about how well they were doing and what they had to do to improve. Hence, they were more likely to be open.

The final question that needed to be answered was how Irene had come to devise the review as a management strategy. Her husband was training director of a large company. He had borrowed training videos on reviewing procedures for her to view and had helped to prepare the reviews in the early stages. The practice of reviews is a common one in industry. The evidence of the intervention at Court Farm suggests it is one from which education will benefit.

Appendix 9.1

Section One: How much do you consider curriculum development is helped by the following (i.e. ideally rather than at this school)?

Table 9.1A - Pre Test

		Respondents								
		IR	JO	PH	GI	JA	AT	AN	MA	CH
Item	1.1	5	5	5	5	5	5	4	5	5
	1.2	5	5	4	4	5	5	4	5	5
	1.3	5	5	4	4	5	5	4	5	5
	1.4	5	5	4	5	5	4	4	3	4
	1.5	5	5	4	4	5	4	4	5	5
	1.6	5	4	4	4	5	5	4	5	5
	1.7	5	5	5	5	5	5	5	5	5
	1.8	5	5	5	4	5	5	5	5	5
	1.9	5	4	5	5	5	4	5	5	5
	1.10	5	4	5	4	5	4	5	4	5
	Totals	50	47	45	44	50	46	44	47	49
Key :	Ir = Irene			At = Annette			Ja = Janet			
	Jo = John			An = Anne			Gi = Gill			
	Ph = Philip			Ma = Marissa			Ch = Chris			

Table 9.1B - Post Test

		Respondents								
		IR	JO	PH	GI	JA	AT	AN	MA	CH
Item	1.1	5	4	5	5	5	4	5	4	4
	1.2	5	5	5	5	5	4	5	4	5
	1.3	5	5	5	3	4	4	5	4	5
	1.4	5	5	5	4	3	4	5	4	4
	1.5	5	4	5	4	3	3	4	4	4
	1.6	5	4	5	4	4	4	4	5	5
	1.7	5	5	4	5	4	4	4	5	5
	1.8	5	5	4	5	5	5	5	5	5
	1.9	5	5	4	4	5	5	5	4	5
	1.10	3	5	4	3	5	5	3	4	5
	Totals	48	47	46	42	43	42	45	43	47

Table 9.1C - Post Test + 6 Weeks

		Respondents								
		IR	JO	PH	GI	JA	AT	AN	MA	CH
Item	1.1	5	5	5	5	3	4	5	4	4
	1.2	5	5	5	5	3	5	5	5	4
	1.3	4	4	4	4	5	5	5	4	4
	1.4	5	4	4	4	5	4	4	5	5
	1.5	5	5	5	4	4	5	4	5	5
	1.6	5	5	5	4	4	4	4	5	5
	1.7	4	5	4	4	5	4	3	4	5
	1.8	4	5	4	4	5	4	3	4	5
	1.9	5	5	4	5	5	4	5	5	5
	1.10	5	5	4	5	5	4	4	5	5
	Totals	47	48	44	44	44	43	42	46	47

NB: The reader will recall the wording for each item was set out in the appendices to Chapter Seven on pages 101-105.

Section Two: How attainable in practice (i.e. realistic) do you consider the following descriptions to be?

Table 9.2A - Pre Test

Item	Respondents									
	IR	JO	PH	GI	JA	AT	AN	MA	CH	
2.1	5	5	5	5	5	5	4	5	5	
2.2	5	5	5	4	5	5	4	4	5	
2.3	5	5	5	4	5	4	4	5	5	
2.4	5	5	5	4	4	4	4	3	4	
2.5	5	5	5	5	5	5	4	5	5	
2.6	5	5	5	5	5	5	4	4	4	
2.7	4	3	4	4	5	4	5	5	5	
2.8	3	3	4	4	5	4	4	4	4	
2.9	5	4	4	4	5	4	4	4	4	
2.10	3	5	4	4	5	4	4	4	5	
Totals	45	45	46	43	49	44	41	43	46	

Table 9.2B - Post Test

Item	Respondents									
	IR	JO	PH	GI	JA	AT	AN	MA	CH	
2.1	5	4	5	4	5	5	4	5	5	
2.2	5	4	5	5	5	5	4	5	5	
2.3	5	3	4	5	5	5	5	4	5	
2.4	4	4	5	5	4	4	5	5	5	
2.5	5	4	5	5	5	5	5	4	5	
2.6	5	4	5	4	5	4	4	4	4	
2.7	4	4	4	4	4	4	4	4	5	
2.8	4	5	5	5	5	4	5	5	4	
2.9	4	5	4	4	5	4	4	4	4	
2.10	5	5	5	5	5	5	5	5	5	
Totals	46	42	42	42	48	45	45	45	46	

Table 9.2C - Post Test + 6 Weeks

Item	Respondents									
	IR	JO	PH	GI	JA	AT	AN	MA	CH	
2.1	4	5	5	4	4	4	4	5	5	
2.2	4	4	5	4	5	5	4	5	5	
2.3	4	4	5	5	4	5	4	4	5	
2.4	5	4	5	5	5	5	4	5	5	
2.5	4	5	5	5	5	5	4	4	4	
2.6	5	5	5	5	5	4	4	5	4	
2.7	4	4	4	4	4	4	5	5	5	
2.8	4	4	4	4	4	4	5	5	4	
2.9	5	5	5	4	5	4	4	5	5	
2.10	5	5	5	4	5	4	4	5	5	
Totals	44	45	48	44	46	44	42	48	47	

Section Three: How well do you feel the statements below describe the practice of curriculum development?

Table 9.3A - Pre Test

Item	Respondents									
	IR	JO	PH	GI	JA	AT	AN	MA	CH	
3.1	5	5	5	5	4	5	5	5	5	
3.2	5	5	5	5	4	5	5	5	5	
3.3	5	4	5	5	4	5	5	5	4	
3.4	4	5	5	5	4	4	5	4	5	
3.5	5	5	4	5	4	5	4	4	5	
3.6	5	4	4	5	4	5	4	5	5	
3.7	4	5	4	5	4	5	5	5	5	
3.8	4	3	4	5	4	4	4	5	4	
3.9	4	4	4	4	4	5	5	5	4	
3.10	5	4	5	4	4	4	5	4	5	
Totals	45	44	45	47	40	47	47	47	47	

Table 9.3C - Post Test + 6 Weeks

Item	Respondents									
	IR	JO	PH	GI	JA	AT	AN	MA	CH	
3.1	5	4	4	5	4	4	5	5	5	
3.2	5	4	4	5	4	4	5	5	5	
3.3	5	4	4	4	4	4	4	4	4	
3.4	4	4	4	5	5	4	4	4	4	
3.5	4	4	5	4	5	4	4	4	4	
3.6	5	5	5	5	5	4	5	5	5	
3.7	5	5	5	5	5	4	4	5	5	
3.8	5	4	5	4	5	4	4	5	4	
3.9	5	5	5	4	4	4	5	4	4	
3.10	5	5	5	4	4	4	5	4	5	
Totals	48	44	46	47	45	40	45	45	46	

NB: The reader will recall from Appendix 7.2 (page 104) that Section Three of the survey was not distributed immediately post test.

Appendix 9.2

Section Four: How much do you consider the following behaviours were involved in the Do Talk and Record initiative?

Post Test Responses

Item	Respondents									
	IR	JO	PH	GI	JA	AT	AN	MA	CH	
4.1	5	4	5	4	4	5	4	5	5	
4.2	5	4	5	4	4	5	4	5	5	
4.3	4	5	4	4	4	5	5	5	4	
4.4	4	5	4	4	5	4	5	5	4	
4.5	5	4	5	3	4	5	5	5	4	
4.6	5	5	5	4	4	5	5	4	4	
4.7	5	5	5	5	4	5	4	4	4	
4.8	5	4	5	5	4	5	4	4	4	
4.9	4	4	5	5	5	5	4	4	4	
4.10	3	5	5	5	4	4	4	3	4	
Totals	45	46	48	43	42	48	46	44	42	

Chapter Ten : Reflecting On Planned Change : Weston

Weston Junior School was situated in the same Homeshire new town as Stonehill and Court Farm. In May 1988 it had a role of 189 children and the following staff members:

Peter was in his early forties. He had moved to take up the headship of Weston from an open plan primary school in the north of England two years ago.

Lindsay was in her early thirties and her second year at Weston as Deputy Head she had come from a school in a socially deprived area 'I came to think of myself as quite innovative in my approach', though 'the teachers, the majority of them had been teaching for quite a while and felt safer using traditional formal methods'.

Jean started her temporary post in September 1987. A new job coincided with a new home and husband, she had moved to the area to marry. She had previously worked in nursery education.

Alison started her teaching career at Weston, arriving as a probationer the term after Peter as his first appointment.

Marion had moved to Weston in January 1986 from a scale 3 post in a socially-deprived area school in another area. She had moved because of her husband's job and had taken a one-term temporary contract. However, when an existing staff member was promoted to a three year seconded post, Marion was given a full-time scale 2 post, theoretically for the three year temporary period.

Ellen came to Weston for her scale 2 post seven years previously from a school in the nearby town. In all she had been teaching over twenty years in several parts of the country.

Maureen had started her teaching career at the school nine years previously.

Juliet had been in the school for nine years.

Mathematics Practice

Mathematics practice at Weston Junior centred around a scheme produced by the Head, Peter. This set clear expectations in terms of pupils' achievements. Thus "it is expected that an average child on going into the third year will know all their tables up to five as well as their ten's." There was however some apparent difficulty in incorporating these curriculum expectations. Peter's directive that 'practical work be carried out at least twice a week' was interpreted as activities such as

weighing and measuring. There was little attempt to relate practical work to developing concepts in some classes and where this did take place it tended to be apparatus alongside standard notation.

One of Peter's concerns was his teachers' tendency to rely too heavily on published schemes which left them as a 'midwife between the publisher and the child'. He stated how he had reacted to 'mutterings' that there were no text books in the school, by collecting them all up and piling them in the staff room for all to see. Again though teachers had difficulties with teaching without text books. I was shown photocopies of pages from published schemes hidden in stock cupboards.

Attitude Survey

The initial attitude survey was distributed at Weston after the first meeting I conducted. Section One of the survey asked participants to indicate how much they felt the listed behaviours helped curriculum development. The raw scores are set out in Table 10.1A. (See Appendix 10.1 at the end of the chapter).

Overall there was a positive pre-test response to Section One. All the items were seen as helping curriculum development 'a great deal' or 'a considerable amount'. Juliet gave an uncertain response to item 1.1 (curriculum ideas being presented in ways that let teachers have a chance to see how they benefit the children) and item 1.2 (curriculum ideas being presented so that teachers are able to see for themselves their practicality in the showroom. She wrote alongside her response that - "This is usually obvious - if teachers can't see the benefit of it why do it." Other comments were written against these two items. Marion wrote - "These two are very similar. For teachers to see their benefit they must see their practicality."

Section Two of the survey asked teachers to indicate how attainable they considered the behaviours to be in practice. The raw scores when Section Two was administered pre test are set out in Table 10.2A. (See Appendix 10.1).

There was a range of response to this section. Items 2.1, 2.2, 2.4, 2.5 and 2.6 were largely seen as more or less attainable or completely unattainable. Items 2.3, 2.7, 2.8, 2.9 and 2.10 were seen as only attainable to a small extent or unattainable. The item with the lowest response concerned individuals not being defensive about their ideas but open to candid criticism. Three teachers felt this to be unattainable and four that this was only attainable to a small extent. Lindsay's uncertain response to seven of the items was accompanied by a comment. She considered an uncertain response was appropriate because "this could be achieved I'm sure but I've yet to see it." Looking at the individual totals overall the response appeared to hover around the midway point (30). Removing items 2.1, 2.2, 2.4, 2.5 and 2.6 there was a strongly negative response.

Section Three of the survey asked teachers to indicate how much the behaviours formed the practice of curriculum development at their school. Table 10.3A sets out the responses when Section Three was administered pre test. (See Appendix 10C).

There were then strong indications of a low risk, low trust and status orientated climate at Weston. Rarely or never did teachers feel completely free to provide feedback even if it was required and confronted the initiative. Rarely or never were individuals not defensive about their ideas but open to candid criticism of them. Rarely or never did individuals seek or give advice in the presence of the staff group. Rarely or never did individuals invite others to confront and even alter ideas they put forward. The total scores indicated a negative response some way below the midway point of 30.

The initial attitude surveys presented rather a similar picture to that at Stonehill before the intervention. Participants at Weston felt high risk, high trust and inquiry orientated behaviours to help curriculum development. They were less certain about how attainable these behaviours were in practice. Closed behaviours also appeared prevalent in the institution. This position is reflected in the pre test averages for each section. The pre test average concerning the helpfulness of open behaviours was 45.6. The pre test average regarding the attainability of open behaviours was 29.7. The pre test average indicating the extent to which open behaviours were practised was 23.2. Interviews were used to identify factors which created and perpetuated this closed climate.

Climate

The argument here has been that a closed climate derives from individuals within an organisation being concerned with winning and not losing (status orientation). Peter's concern appeared to be that teachers would carry out his curriculum philosophy.

"I have said over and over again that the overall philosophy of the school has to be set and that doesn't mean to say that it couldn't be changed if anything challenges it and proves to be better, it would be silly to have that attitude. But like when we go into individual areas of the curriculum the underlying principles and philosophy of these obviously have to fit the underlying philosophy of the whole school or the whole curriculum otherwise we're all going in different directions."

(Fieldnote of Conversation)

Peter attempted to implement his curriculum philosophy through a series of curriculum documents which were written and presented to the staff. These detailed the subject and content of the syllabus for each year and expectations in each curriculum area. For example, one written in January 1988 referred to Art and Display:

"Taste is very much a personal matter but displays can be greatly enhanced by using sympathetic colours when double mounting work. The overall effect can be improved if the end pieces form a rectangular shape. Steel rather than drawing pins, placed in each corner can also improve the effect of a display Displays should be changed regularly (every half term).

(School policy on Art and Display January 1988).

In interview, Peter confirmed his central role in developing the curriculum. He felt the school he inherited needed forthright leadership.

"In the main I suppose everything does seem to come from me, there are pockets where it is otherwise but on the whole initiatives come from me with Rachel supporting and again though I don't want to dwell on this, but I came to a school where nothing was happening, they didn't have staff meetings."

(Interview with Head)

The argument advanced here is that a closed climate is created when individuals are precise about their goals and simultaneously control other people and the environment to achieve the purposes they wish. Peter appeared to think that achieving his purposes for the school involved controlling others.

"I suppose bend them to your will is too strong a term but it is that really."

(Fieldnote of Conversation)

Teachers appeared to recognise this.

"I think it was pretty obvious, particularly at one stage that it was this is the way I want it done and you will do it."

(Fieldnote of Conversation)

"We got the feeling that this is how it is going to be done and we will jolly well have to make it work".

(Fieldnote of Conversation)

The argument of this thesis is that another way in which individuals attempt to control others is through managing the environment in which the transmission of information takes place. The effect of this is for the ideas not to be 'risked' by being open to scrutiny for others. Access to ideas is restricted.

Curriculum documents were presented in the form of an 'ideal'. Teachers did not see them as a classroom guide.

"When I first had the magic file I found it invaluable because I was coming from a different area, a different age range and I wasn't sure what expectations were wanted and I had a really clear view - an ideal put before me. What I failed to realise was that it was an ideal and I did my utmost to keep up with it and it was too much pressure - it was too much. I hadn't got the experience to realise that I was going to fail constantly in different aspects and that I had to find that out as I went along."

(Interview)

"I think as long as you've got the general philosophy right that's what Mr Handley wants - that's what the guide is."

(Fieldnote of Conversation)

Because the documents were couched in 'ideal' terms, criticism of the practicality of the ideas could not be directed at Peter and responsibility for errors was blamed on weaknesses in teachers' classroom practice. The risk in Peter's ideas was minimised by removing them from a context in which teachers could engage with them.

Another form of control was through the presentation of information. The documents Peter presented were drawn up by him alone. The presentation was one way. Peter read out the documents he had written and in staff meetings feedback and comment was not sought.

Individuals also act to control others by controlling the meaning of information. Creating an idea and defining the validity of that idea is a powerful control. Defining an approach to teaching as the 'right way' constitutes such a control. Control over the meaning of information is maintained by not trusting the actions of others at face value but ascribing other meaning to them (low trust). Thus Peter appeared to attribute teachers' success in implementing his ideas to their ability to 'work hard'.

(Interview)

"I think if people are prepared to work hard at the ideas I'm prepared to give them any help they need."

(Fieldnote of Conversation)

By implication difficulty in implementing Peter's curriculum ideas was evidence of not working hard. However there appeared to be other problems in putting Peter's ideas into practice.

"It (the approach advocated) was just so disorganised and I couldn't cope with all the children constantly moving and they - I - couldn't keep an eye on them all."

(Interview)

However, Peter felt that he gave the staff the opportunity to contribute their ideas.

"I don't think I've ever consciously told people without giving them the option to question or respond first. It's never existed that way. Where that has happened is where people have been introduced to ideas, given the opportunity to discuss them and haven't because documents or whatever have been accepted as school policy; and then they're still not doing them so I have a right to complain, haven't I?" But they were very poor or very slow at coming forward with their own ideas, so it has to be telling them things if people won't contribute."

(Interview with Head)

Members of staff however appeared to feel the responsibility for their lack of contribution lay with Peter.

"As for sitting down at a staff meeting and chewing over a concept or doing an integrated day, I don't think many of us would say we didn't like it even if we didn't. "

(Interview with teacher)

Some members of staff appeared very much to support Peter's ideas.

"As far as I was concerned I would have given my eye teeth for change so really I'd back him to the hilt."
(Interview)

But others appeared to react negatively to Peter's forthright approach. To some extent this appeared to divide the staff. There were those who were willing and able to carry out the innovations. There were others who disagreed with the approach and found the way of working difficult. This situation contributed to the low risk, low trust and status orientated behaviours prevalent within the school. These closed behaviours had wider implications for staff interaction. Teachers felt they couldn't turn to others for support because they couldn't trust what their reactions could be (low trust).

"I thought they would think I was failing although I'm sure I'm not the only one. I'm sure everyone feels that way. I'm sure everybody feels frightened to admit that something is going in their classroom."
(Teacher)

Teachers also felt reluctant to risk their ideas, problems or reservations publicly (low risk). Much learning took place in private.

Teacher: "I just didn't know how to keep a record system of what they were doing. I have evolved a record system since then. I've never been shown how to keep a record not even as a probationer so I still don't know if I'm doing it right but as far as I can see I can keep a check on what the children are doing."

DM: "Why didn't you ask someone else?"

Teacher: "I don't know you just don't .. you keep it to yourself I suppose."

A further consequence of closed behaviours, is that there will be an overriding concern with gaining credit and avoiding blame (status orientation). Keeping quiet about records illustrates the process of avoiding blame. In response to my questions about a staff meeting on routine administrative matters, teachers' reactions indicated concern with gaining credit.

"I glowed - I told my husband - I'm already doing those things in my class."
(Fieldnote)

Such closed behaviours will in turn produce uncertainty within the organisation.

"I think (Peter) thinks more highly of me now than he did when I first came to the school. I got the feeling that he thought he had made a mistake by appointing me and so I felt I had to make him feel he hadn't made a mistake."

"I suppose I wasn't used to his forthright nature - if he didn't like something, you know that's it. Mind you, you didn't know about it if he liked it. He wouldn't say. Very, very reserved understatement that's what it is and I suppose really I never knew when he was joking and when he was serious so if in doubt means he's serious."
(Interview)

A further effect of closed behaviour, I suggest, is a lack of commitment.

"There is commitment from some members of staff to the philosophy but not from everybody by any means, and I am quite sure if another head came who didn't have as strong a philosophy as Peter has, that things could change."
(Interview)

The characteristic patterns of interaction at Weston thus were low risk, low trust and status orientated ones. The climate was closed with uncertainty and lack of commitment prevalent. Learning took place within the confines of individual perspectives.

The Change Initiative

I now wish to provide an account of the Do Talk and Record intervention at Weston. It has been argued in this study that teachers who come to an initiative intent to protect undertake a change journey through stages of denial and then resistance before joining those intent to learn at the point of exploration. The final stage of the journey is the point of commitment. The account which follows is structured by the various stages of that change journey.

In the initial interview Peter conveyed that his interest in the initiative was to move teachers away from an over reliance on textbooks. He also expressed his disquiet about some members of staff being slow to come forward and hoped that the long term support in the classroom offered in this initiative would bring people out of themselves.

"I suppose I'd like to see others take a share of the load and as I've said we're some way from that at the moment. So, perhaps being involved in the maths thing is the way to bring it about; to make people come out of themselves and contribute."
(Interview with Head)

Demonstration and Communication

At the outset of the initiative at Weston the response was little different to that encountered in some of the other schools. The initial video engendered little reaction and discussion focused on routine arrangements rather than on the issues raised.

During this early stage of the initiative it was indicative of Peter's efficiency that he nearly always prepared a detailed timetable of where I was to work. Peter also required a weekly timetable in advance of where I would be working on the mathematical ideas and with which groups.

Peter's 'timetabling' of me is a good example of his thoroughness. Occasionally, as this afternoon, he hasn't sorted out my timetable. This is not particularly difficult because I can easily find my way around the school and find myself something to do. But it concerns Peter very much that he should have left me to my own devices; he doesn't like to leave loose ends and does like to know what's going on.

(Fieldnote)

As at St Mary's, Stonehill and Court Farm two groups of teachers were readily identifiable at the outset of the initiative. Those groups could be defined by whether they came to the initiative 'intent to protect' or 'intent to learn'. At the outset only Ellen and Lindsay appeared to come to the initiative intent to learn. Their interest was in the approach as much as in the mathematical ideas. After working with Lindsay I interviewed her about her role as deputy in the school. She said that her interest in the initiative was in the change approach.

"I listened to what you were saying about the problem with change being implied criticism (in the initial presentations) carefully. That's one thing I probably have tried to avoid more than anything else, implied criticism, because my view of it is that there would be enough implied criticisms in the changes that are going on without my adding to it. So that's something I have consciously attempted to avoid for quite a long time so I'll be interested to see how you approach it."

(Interview)

For Ellen interest in the approach was as important as interest in the mathematical ideas.

Ellen asked me how Do Talk and Record might apply to the place value work she was going to do with her children. "I'm really pleased you've come - we need a breath of fresh air" she comments.

(Fieldnote of Conversation)

Denial

By and large other teachers' reactions to the change indicated that they had come to the initiative 'intent to protect'. As I have argued before, those 'intent to protect' are required to go through the phases of 'denial' and 'resistance' before reaching a phase of exploration which is the entry point of those 'intent to learn'. This appeared to be the case at Weston. However it was noticeable that denial and resistance continued further into the initiative than had been the case at the other schools. Initially I had some difficulty in obtaining feedback. Teachers 'intent to protect' did however eventually bring their problems and reservations about the need to change to the surface.

"You've got to see the need to change and to be frank - I haven't seen anything yet that's made me feel that."
(Fieldnote of Conversation)

"What's in it for me. A lot of hard work I can do without."
(Fieldnote of Conversation)

As at Stonehill and Court Farm, the strategy I adopted during this phase of the initiative was not to respond to such comments but to provide a clear and practical picture of the change and what it might mean to participants. However at Weston it was a long time before teachers were willing to comment on the initiative.

Thus, despite working with Juliet for three mornings on the mathematics and helping in class, the conversation we had at the end of this period indicated she was still at the phase of denial.

I show Juliet the work I'd done with the children. "It's very useful you doing this because I'd never get the time to do it myself", she comments. The statement implies that Juliet is both aware of the ideas and finds them impractical in class. I've now worked with her for a week and hoped she would have opened up more. I feel at this stage it is inappropriate to challenge this perception. I am also uneasy that Juliet is just saying something positive about the ideas because she feels obliged to. I know from previous conversations that she equates using the apparatus with playing."
(Fieldnote)

Similarly, the adoption on my part of high risk, high trust and inquiry orientated behaviours did not result in Marion bringing her problems and reservations to the surface. Thus, after I had been at the school for three weeks and worked for an hour a day over two weeks alongside her, her comments indicated she still denied the need for change.

I didn't really see any (work you did with the children) because I've got other things on my mind in class, so I can't comment. One thing I did notice was that (a boy) was being silly - send him to me if he plays you up next time.
(Fieldnote)

I mentioned my concerns to Lindsay. She felt that there were factors within the school that slowed down the progress of the initiative.

"You could have made a dramatic entry or you could have made a quiet and unassuming one and it would have probably had a similar effect on people because they were already in that very guarded stance. They had retreated behind the barricade already, so it wouldn't have made a lot of odds."
(Fieldnote of Conversation)

Resistance

The second distinguishable phase for 'protectors' was that of resistance. During this phase the argument is that teachers will characteristically be sceptical about the change and misunderstand its implications. This appeared to be the case at Weston.

"It's the preparation that I couldn't cope with. I mean you'd have to prepare for each child for each step of the way. I mean you've got to be realistic. Do you really think people are prepared to invest that amount of time in it?"

(Fieldnote of Conversation)

"The trouble is that it won't work with a whole class. I can't spend half an hour with a group. They all need my attention all the time."

(Interview)

The strategy I adopted during this phase was to continue to model high risk, high trust and inquiry orientated behaviours and to empathise with teachers' scepticism. As at Court Farm, for some staff at Weston these behaviours were interpreted as uncertainty and were a source of frustration.

"After the children leave I show Jean the work I've done on difference and the sentences I've asked the children to write out. Jean expresses surprise that I would expect the children to provide written accounts. I say that I'm not sure about the use of language myself and that drawing pictures alone might aid the children. This lack of certainty appears to frustrate Jean 'I mean I know you're anxious for us to make our own decisions and I appreciate that but there does come a time when you need direction otherwise we're just going to go round and round in circles'."

(Fieldnote of Conversation)

However, in interviews conducted at the end of the intervention at Weston, my high risk, high trust, inquiry orientated behaviours were seen as a successful strategy in overcoming resistance.

"I think you always had this attitude that you were never too wonderful in yourself to actually get something back out of the people you were working with and you managed to do that well."

(Interview)

"It came from within rather than was imposed which is good."

(Interview)

Alongside a scepticism about the change at Weston, the resistant phase was also characterised by a nostalgia for previous practice.

"David's saying I'm a sort of mathematical magician teaching the children tricks - like seals, but if the children can do the sums straight off why go back to the apparatus?"
(Fieldnote of Conversation)

The end point of the demonstration and communication phase at Weston was reached with a growing concern about the initiative. By this time, at the other schools a generally positive climate had built up around the initiative. Although some teachers remained intent to protect, they were taken along by the positive response of others and would have felt uncomfortable if they had continued to resist trying out the ideas. However at Weston the fact that some continued to resist implied that I had been unsuccessful in creating a positive climate around the ideas. Those teachers 'intent to protect' were still at the resistant phase. They also continued to react to the initiative with displays of low trust, low risk and status orientated behaviour.

In retrospect it might have been better to continue to work in teachers' classes before asking them to try out the ideas. The timetable of the change experiment dictated that after working in each teacher's classroom for an hour a day over a period of two weeks, they would be expected to try out the ideas. However it was apparent in the meeting used to illustrate Do Talk and Record with children from Marion's class that resistance was considerable.

"Alison comes in late to the meeting and says that Maureen's not coming. 'I think she feels she's got more important things to do.' Alison comments. As I run through the video of the work I've done with Marion's children it's obvious that others feel they could be spending the time more profitably. Thus Jean rather laboriously looks at her watch!"
(Fieldnote)

Exploration

The remainder of the initiative at Weston can be seen on two levels. Some individual teachers were willing to embark on a phase of exploration. At a whole school level, however, there appeared increasing resistance to the project. I shall first deal with my relationship with individual teachers in their own classrooms.

The findings of the research at Stonehill and Court Farm was that the project mushroomed as teachers tried out the ideas in class. Individual teachers and the teacher group in general tried to find solutions to problems that came up when the ideas were tried out.

One aspect of this mushrooming involvement was a change in the pattern of interaction between teachers and myself. In all the schools, teachers had found it difficult to talk to me within class because the children distracted them. However, when I was engaged in supporting teachers as they tried out the ideas, I characteristically sat immersed in conversation with them,

seeking a solution to pitfalls that had emerged in practice. The children sat surrounded by the trappings of abandoned lessons, largely unnoticed by the teachers.

This characteristic display of a deepening involvement of teachers also occurred at Weston.

Juliet thought that she hadn't provided enough of a framework to allow the children to see any pattern in their manipulations. She proceeded to draw up a draft framework which the children might use to overcome the problem. The search for a solution appeared to totally involve her. As we emerged from the conversation she turned to the group we had been working with - "Well we didn't get far with that did we ... you have been good. We'll do something exciting this afternoon."

(Fieldnote)

However during this phase there also appeared to be a growing constraint on the impact of the initiative which related to the way in which it was seen by the 'teacher group'. At Stonehill, Court Farm and St Mary's there had been an identifiable group of key opinion holders who participated to a greater extent than other members of staff in the initiative. These key opinion holders had been a major driving force for change. Presumably this was because they wished the school to be engaged in the sort of mutual collaboration that the initiative represented, or because they wished to develop mathematics. This group had then very much taken on a 'hands on' role within initiative. Initially I merely noticed the absence of networking and the spirit of collective inquiry that had characterised Court Farm and Stonehill. Latterly I came to the conclusion that the function of the teacher group was to increase resentment toward Do Talk and Record.

One aspect of this resistance to the project involved the planning sheets that were given out prior to the 'try outs'. At the other schools the teachers felt that preparing a draft proposal for discussion prior to trying out the idea was useful. At Weston, two teachers didn't fill in the sheets and commented that Do Talk and Record expected too much from them.

"I haven't done the sheets said (a teacher), I just haven't had time. I didn't understand what you wanted anyway. We can talk about it now I suppose. But I haven't got much time. I hope (trying out the ideas) doesn't mean just more work because if it does I'm not doing it."

(Fieldnote)

Another way in which resistance to the change manifested itself was in the reluctance of one teacher to work with her class while I was there.

(The teacher) had laid out the apparatus and sheets in the corridor for her to work with them while I took the rest of the class. I commented that it might be better if I could watch what she was doing, so that we could discuss any

pitfalls afterwards. Eventually she moved the things she had set out back inside the classroom, although it was obvious she was not pleased to have to do so.
(Fieldnote)

The influence of the teacher group on individuals' unwillingness to co-operate became apparent.

I worked with one teacher supporting her trying out difference in class. She seemed surprised at the success of the worksheets. After the lesson she commented to two other teachers in the staff room about how it had gone. 'You said yesterday you weren't going to do it' they said, and laughed.
(Fieldnote)

The earlier part of the study was concerned with an analysis of my own behaviour as a change agent. Because of this I was very aware of the possibility of misinterpreting teachers' reactions as evidence of them being defensive or resentful, when in fact their reactions were aimed at providing useful information about the initiative.

However, it seemed unlikely that, in the light of the experience of the other schools, the initiative was unattractive to teachers. I saw no reason why teachers at Weston should react differently. Neither did I feel that my behaviour as a change agent was different in any way at Weston. On balance it seemed likely that I would have successfully improved my strategy after each initiative.

Moreover at Weston the reactions of Lindsay and Ellen corresponded to the reactions of teachers at the other schools. They were stimulated to become actively involved, manipulating the ideas into a form into which they could work with them. It was in the whole school arena that Do Talk and Record seemed unable to take off. For much of the time I was conducting seven different initiatives with individual teachers. My attempts to move the initiative on to a whole school basis appeared unsuccessful.

One strategy by which I attempted to introduce high risk, high trust and inquiry orientated behaviour into the arena of the staffroom was by publicly bringing up doubts about the initiative that had been raised privately. I felt that the only threat this presented was to my own status. However at Weston this strategy produced an adverse reaction.

I talk to Ellen about Alison taking the sheets home to work on and comment how she seems to have become interested in the initiative. I don't think it's interest alone she comments. I know she's not happy about having her weakness brought up publicly by you.
(Fieldnote of Conversation)

I had a similar lack of success in engaging the group in mutual problem solving. To try to facilitate networking I put it to individuals that the problems they were encountering were similar to those found by other members of staff. There was a small

amount of collaborative problem solving. Both Jean and Maureen raised problems and reservations about the long windedness of language and adapted Do Tell and Record so as to use only pictures. However, there was little sign of the group searching for a solution in the way characteristic of the other schools.

The extent to which the initiative was a side show to issues of more concern was apparent in the final staff meeting concerning what teachers might wish to do to build on the initiative. The meeting was in fact highjacked by teachers to focus on the question of text books within the school.

The final staff meeting at Weston was one in which I made explicit the way in which a strategy for change attempted to create a climate of collaborative inquiry within the school. At St Mary's and Stonehill (this climate, I argued, already existed at Court Farm) this meeting had been underpinned by the feeling that desirable behaviours had been created during the initiative and that the strategy for change adopted had provided a mechanism to move the school from where it was to where members of staff wanted it to be. The underlying feeling at Weston was that this climate had not been created or and it was difficult to anchor the presentation onto events that had taken place at the school.

Commitment

The end point of the change journey was intended to be the phase of commitment. As at Court Farm and Stonehill, I considered that at Weston teachers' commitment to the ideas would result in them working to adopt and manipulate Do Talk and Record and make it their own. Some of the comments given in interviews conducted immediately after the initiative revealed that this was the case.

"It's a bit early to say yet but I'll give it a try."
(Interview)

"A change in intention isn't the same as a change in practice so I'll reserve judgement for now."
(Interview)

But the evidence was also that the initiative had not secured the commitment of the majority of staff members. In response to the question - what are you doing now as a teacher that you weren't doing before the project? - I received the following responses:

'Not a lot!'
(Interview)

'Nothing much.'
(Interview)

'Very little.'
(Interview)

Attitude Survey

One of the issues it was intended to examine at each school was the extent to which the change model facilitated teachers' journey to change. The argument in this study is that during the

period of demonstration and communication the change agent stimulates this journey by adopting inquiry orientated, high risk and high trust behaviours with individual teachers. Section Four of the attitude scale set out to measure the extent to which a climate of inquiry was created around Do, Talk and Record.

There was a range of responses to Section Four. Maureen and Juliet's responses are perhaps explained by their initial reaction to the post test attitude survey. They were both reluctant to complete any section of the survey, feeling that it was an imposition on their time. When they did actually agree to do it, the survey was completed in a very short space of time and returned almost immediately. The behaviours which participants considered to have appeared least were:

Teachers feeling completely free to provide feedback, even if it is negative and confronts the initiative. (Item 4.7)

Individuals not being defensive about their ideas but open to candid criticism of them. (Item 4.8)

Individuals seeking and giving advice in the presence of the whole staff group. (Item 4.9)

A large part of the learning of teachers taking place by them feeding back their problems and reservations. (Item 4.10)

But within these items there was a range of responses. Jean, Alison, Marion and Ellen felt these behaviours had been involved in the initiative 'something' whereas Peter, Julie and Lindsay considered the behaviours to have been involved a 'fair amount' or a 'great deal'.

In view of the results of the attitude survey and of the above account of events at Weston it does not appear that the change model was successful in moving teachers along the path to change. I shall discuss circumstances at Weston that contributed to this lack of success below. That discussion follows an analysis of the extent to which events at Weston provided confirming evidence of the study's research hypothesis.

The Research Hypothesis Post Weston

Thus far discussion has focused on the change journey undertaken by participants. In this section the research hypothesis is examined as a result of the experience of the intervention at Weston.

Section One of the survey focused on teachers' attitudes toward the helpfulness of the behaviours. Section One was distributed to participants at the end of the initiative and six weeks after it. The raw scores when attitudes were surveyed immediately post test (Table 10.1B) are set out in Appendix 10.1.

The scores immediately and six weeks post test show little in the way of a range of response between items or between participants' attitudes to the open behaviours. Both immediately post test and six weeks after the initiative all participants considered the behaviours to help curriculum development a great deal or a

considerable amount. Comparing the pre and post test results there was little in the way of a change in response. At each of the schools in which I had worked this had been the case. Overall the initiative had not changed attitudes as to the helpfulness of the behaviours. The pre test average for Section One was 46.6. The immediate post test average was 45.6 and the six week post test average 46.2. Both before and after the initiative the behaviours were seen as helpful. At Stonehill and Weston the behaviours were seen as helpful at the level of aspiration before the initiative. After the initiative they were seen as helpful as a result of participants experiencing them.

Section Two of the attitude survey asked teachers to indicate how attainable they considered the behaviours to be in practice. Section Two was administered to participants immediately and six weeks after the initiative. Appendix 10.1 sets out the immediate post test results (Table 10.2B) and six weeks post test results (Table 10.2C). For Section Two, Table 10.2A sets out the raw scores for this section pre test.

The immediate post test scores indicate a positive response to this section. Comparing the immediate post test with the pre test results indicates that there was a shift in attitudes following the initiative. The largest change in attitudes came from Marion and Lindsay, with a change of ten points between the pre test and post test totals. There was also a significant change in attitude across the items.

Pre test, each behaviour had been considered to be only attainable to an extent by at least one participant. Immediately post test almost every behaviour was considered to be completely attainable by participants. The only exceptions to this were items 2.7. 'Teachers feeling completely free to provide feedback even if it is negative and confronts the initiative' and item 2.8 'individuals not being defensive about their ideas but open to candid criticism'. Post test items 2.7 and 2.8 also had more uncertain responses than the other items and were still considered to be only attainable to an extent by one respondent. Comparing the immediate post test scores for Weston with those for Stonehill also reveals uncertainty about these items at Weston. The immediate post test results at Stonehill indicated participants considered these items to be completely attainable or more or less attainable. I had been less successful in convincing participants at Weston that these behaviours were attainable than I had at Stonehill. Across the board there was a less positive immediate post test result than had been the case at Stonehill and a wider range of responses. The total scores post test at Stonehill had ranged between 41 and 47. At Weston they ranged between 32 and 45.

When Section Two of the survey was distributed six weeks after the initiative at Weston the total scores indicated less confidence in the extent to which the behaviours were seen as attainable in practice. This was particularly the case with regard to items 2.3, 2.7 and 2.8. Almost all participants at Weston now considered these behaviours to be only attainable to an extent or were uncertain about them. Attitudes toward the attainability of a situation in which 'individuals were not defensive about the ideas but open to candid criticisms of them'

and in which 'teachers felt completely free to provide feedback even if it was negative and confronted the initiative' also appeared to revert back to the situation at the outset of the initiative. This pattern of a positive response immediately post test followed by more negative attitudes six weeks post test can be seen by looking at the average scores for Section Two. The pre test average scores were 29.4; the immediate post test average scores 40.1; and like the six week post test scores 32.3.

Section Three of the survey asked participants to indicate the extent to which they considered the behaviours to form the practice of curriculum development at their school. The raw scores when Section Three was distributed six weeks after the initiative are set out in Appendix 10.1. Table 10.3C sets out the post test raw scores for this section.

Comparing the pre and post test results overall there is an indication of a change in climate. Although attitudes remained toward the negative end of the scale, this can be seen by looking at the pre and post test average scores. The pre test average score was 23.2. The six week post test average score was 29.0. These average scores mask considerable differences in Peter and Lindsay's pre and post test attitudes. Peter's 'uncertain' responses were accompanied by a note that "I can't speak for the behaviour of others." The implication was that Peter was adopting high risk, high trust and inquiry orientated behaviours himself. Pre test Peter considered open behaviours to be practised rarely or was uncertain about them. Six weeks after the initiative he considered them to be practised some of the time. Lindsay similarly appeared to be adopting high risk, high trust and inquiry orientated behaviours. There was a slight but discernible shift in attitude amongst other members of staff, although again this still placed most individual totals below the mid-point of 30. Removing Lindsay and Peter from the average total scores gives a pre test average of 22.6 for the remainder of the staff and a post test average of 26.2. These post test scores indicate, despite a discernible change, that six weeks after the initiative most members of staff considered closed behaviours to continue in the school.

Discussion

It is apparent from the account of events at Weston thus far that the intervention was not successful and there was little confirming evidence of the research hypothesis. This discussion attempts to explain this lack of success.

I discussed in previous chapters the presence of 'killer talk' about the initiative. At Weston 'killer talk' appeared to permeate the general reaction to Do Talk and Record. The extent to which the initiative was talked down amongst the staff was due, I suggest, to the time scale I placed on the initiative. I argued above that teachers were still at the phases of denial or resistance when I asked them to try out the ideas. Moreover teachers' comments suggest that they were still operating according to low risk and low trust behaviours. The time scale I imposed was not an appropriate one for Weston.

At other schools there had been teachers who still were at the phase of resistance when asked to try out the ideas. However their resistance was diluted by the generally positive reaction to the initiative within the teacher group. At Weston few teachers were at a point where they were signalling interest when I was trying to network the ideas. This created a consensus view that the requirement I placed on teachers was an imposition. This consensus stalked the initiative and diluted my effectiveness with individuals. Thus a teacher who showed interest when working with me individually was reminded by the group that her 'public' reaction to the initiative should be to refuse to try out a topic for me.

This negative consensus view of Do Talk and Record appeared to derive from the background of conflict within the school between Peter and some members of staff. This had an obviously negative effect on Do Talk and Record which was seen as something brought in by Peter to prove he was right about there being no need to rely on textbooks. Teachers' frustration over this issue was then vented on the initiative and it was seen as something to resist.

But the background of conflict had further effects on the initiative. The argument of this study has been that a feeling of vulnerability tends to make individuals adopt closed, status orientated, low risk and low trust behaviours. The vulnerability that Peter's changes had created resulted in closed behaviour being deeply embedded in the school. Some teachers appeared to have been unable to abandon closed behaviours during the initiative and reacted to it throughout in a status orientated way. This was commented on by the Deputy Head and by another member of staff.

"I think it depends on how self confident you are in yourself as to how you deal with ideas (like Do Talk and Record). If you feel threatened by them you won't do them and that's why some people on the staff didn't want to join in because rather than see it as a way of developing themselves, they see it that they are being criticised or they will fight against it. But I think that's the same with everything. It's just if you sort of feel that it's always a criticism against you, oh well, I must be doing everything wrong then. I think it's just a way of looking at things in a way of how you are in yourself if you feel not threatened by whatever it is that's being suggested to you.

But the problem is that there is a lot of that here, I think I'm always willing to try things that people suggest to me, because if you don't try them you don't know, so my idea is that you try them then you can say I have tried it, but I don't agree with it. So if it doesn't work then we can say it doesn't work and we don't want to do it anymore. But like I said may people don't take it like that here."
(Interview with Deputy Head)

"I'm the sort of person that if I've got to do something then I think right I'll try it out. But if you tend to view everything as 'oh that won't work' then eventually you give up trying. And things have been like that here you know - ideas that have been unworkable."
(Interview)

The difficulty of changing from one set of behaviours to another was seen as 'switching rails' by one teacher interviewed.

"I think that while there was conflict not much change would occur anyway, so that (Do Talk and Record) was bound to meet with fairly entrenched views. I think this conflict stops the process of reflection and development of teachers and that's happened here for quite a long time, so the general feeling left is that there would not be any co-producers in (any initiative that was put forward for teachers). I think it's hard to switch someone running along one set of rails onto another set of rails. That's a difficult change to make - a change in response like that."
(Interview)

For other teachers the closed behaviours embedded in the school contrasted with those during the change approach.

"I think with regard to the maths that you've been doing - yes, we have been (open). We've not been afraid to come up with constructive criticisms if you like. But as for sitting down in a full staff meeting and chewing over the concept of an individualised curriculum I don't think many would say we didn't like it even if we didn't."
(Interview)

The initiative highlighted for some members of staff the need for them to be 'co-producers' in the school's development.

"I think people's commitment (to Peter's changes) would be different if they felt at the end of the day that part of them was invested in it. That they could see their contribution or their ideas in play."
(Interview)

"I think the way to go about curriculum development is to have I suppose I mean cordial relations between all the people involved. You want to be working together and not feel that if you are going to tackle the curriculum it is because someone isn't living up to expectations. I think if you can get an atmosphere where people can do that and take it on mutually then you're actually going to make changes which is what you've been about."
(Interview)

When I returned to the school six weeks after the initiative the most significant interview response was from Peter.

"The school really since May has taken on a new sort of phase which in one sense coincided with you coming but in another sense is part of you coming. We have had to have things more cut and dried than I would have liked because

the staff wanted it and felt more secure, as I said, but also because I felt they had to go through that sort of stage before they were ready to take decisions for themselves about the curriculum. But this last term we have worked away from that and I think so did a lot of the staff. And so that led to problems latterly because our staff were developing beyond that sort of approach. They are beginning to think for themselves, which was the objective of the exercise."

(Interview)

The change in intention that Peter expressed in this interview and his responses to the attitude scale were not reciprocated by others. The interviews conducted with staff six weeks after the initiative confirmed the presence of status orientated, low trust and low risk behaviours to be still prevalent.

I consider an analogy for the intervention at Weston is that of throwing a pebble into a lake. This conveys the sense that the project created a small splash in something deep within the school. The ripples of the intervention influenced teachers enthusiastic post test responses regarding the attainability of the behaviours. However six weeks after the initiative the ripples appeared to have subsided and the school returned to its former state. On the positive side there did appear to be a shift in intention on Peter's part and this was evident in his immediate post test attitude scale responses and in interview. However, overall it must be said that the initiative was unable to overcome status orientated, low trust and low risk behaviours that lay deeply embedded within the school. These closed behaviours and the uncertainty, conflict and frustration they created formed a background to the intervention and resulted in it having different purposes for different participants. Some teachers felt the mathematical background to the project could be used to support them in the battle with Peter over textbooks. Some teachers used the initiative as a vehicle for their frustration over imposed methods they considered impractical. Others felt the approach was a panacea, an approach to curriculum development that was the opposite to Peter's style and therefore bound to be successful. Against this background, and without a group of key opinion makers who were able to 'talk up' the initiative, it had little impact in moving the climate of interaction from low trust, low risk and status orientated behaviour to high risk, high trust and inquiry orientated ones.

Having tested the change model and research hypothesis in the three schools I now wish to examine them both in the light of experience, it is to this issue I turn in the concluding chapter.

Appendix 10.1

Section One: How much do you consider curriculum development is helped by the following (i.e. ideally rather than at this school)?

Table 10.1A - Pre Test

		Respondents							
		PE	LI	JE	AL	MA	EI	ME	JU
Item	1.1	4	5	5	4	5	5	5	3
	1.2	4	5	5	4	5	5	5	3
	1.3	4	4	5	5	4	4	5	4
	1.4	3	4	5	5	4	4	5	4
	1.5	4	5	5	5	5	4	5	5
	1.6	4	5	5	5	4	4	4	5
	1.7	5	3	5	5	4	5	5	5
	1.8	5	4	5	5	4	5	5	5
	1.9	5	4	5	4	4	5	5	5
	1.10	5	4	5	5	5	5	4	5
	Totals	43	43	50	47	44	46	48	44

Key : Pe = Peter Ma = Marion Al = Alison Je = Jean
 Li = Lindsay Ei = Eileen Ju = Juliet Me = Maureen

Table 10.1B - Post Test

		Respondents							
		PE	LI	JE	AL	MA	EI	ME	JU
Item	1.1	5	4	5	5	4	4	5	4
	1.2	5	4	5	5	5	4	5	4
	1.3	5	5	5	5	5	4	5	4
	1.4	5	5	5	4	5	4	5	5
	1.5	4	5	5	4	4	4	5	5
	1.6	4	5	5	4	4	5	4	5
	1.7	5	4	5	4	5	4	5	4
	1.8	5	4	5	5	4	5	5	4
	1.9	5	5	4	5	4	5	4	4
	1.10	4	5	4	5	4	5	4	4
	Totals	47	46	48	46	44	44	47	43

Table 10.1C

		Respondents							
		PE	LI	JE	AL	MA	EI	ME	JU
Item	1.1	4	5	5	5	5	5	4	5
	1.2	4	5	5	5	5	5	4	5
	1.3	5	5	5	4	4	4	5	5
	1.4	5	5	4	4	4	4	5	4
	1.5	4	5	4	5	5	5	4	4
	1.6	5	4	5	4	5	5	4	5
	1.7	5	4	5	4	5	5	5	5
	1.8	5	5	4	5	5	4	4	4
	1.9	5	5	4	5	5	4	4	4
	1.10	5	5	5	5	5	4	4	4
	Totals	47	48	46	46	48	45	44	46

NB: The reader will recall that the wording for each item was set out in the appendices to Chapter Seven on Pages 101-105.

Section Two: How attainable in practice (i.e. realistic) do you consider the following description to be?

Table 10.2A - Pre Test

Item		Respondents							
		PE	LI	JE	AL	MA	EI	ME	JU
	2.1	5	4	4	4	5	4	4	5
	2.2	5	4	4	4	4	4	4	4
	2.3	2	3	2	2	2	2	2	2
	2.4	2	3	4	4	4	5	4	4
	2.5	4	4	4	5	4	5	4	4
	2.6	4	3	4	2	4	2	2	4
	2.7	2	3	2	2	2	1	2	2
	2.8	2	3	1	2	2	1	2	2
	2.9	2	3	2	2	2	2	2	2
	2.10	2	3	2	2	2	2	2	2
	Totals	30	32	30	29	31	28	27	31

Table 10.2B - Post Test

Item		Respondents							
		PE	LE	JE	AL	MA	EI	ME	JU
	2.1	5	4	4	3	4	4	4	4
	2.2	5	4	4	3	5	4	4	4
	2.3	4	5	4	4	3	2	4	4
	2.4	4	5	4	4	5	2	4	4
	2.5	4	5	5	5	5	4	4	4
	2.6	4	5	4	4	4	4	4	4
	2.7	4	4	4	3	4	2	3	4
	2.8	4	4	4	3	4	2	3	4
	2.9	4	4	5	4	5	4	4	4
	2.10	4	4	4	5	5	4	4	4
	Totals	42	44	42	38	45	32	38	40

Table 10.2C - Post Test + 6 Weeks

Item		Respondents							
		PE	LE	JE	AL	MA	EI	ME	JU
	2.1	4	4	4	4	4	4	4	4
	2.2	4	4	4	4	4	4	4	4
	2.3	2	3	2	3	2	2	3	2
	2.4	4	4	3	3	4	2	3	4
	2.5	3	4	5	33	4	4	4	4
	2.6	3	3	4	4	4	4	4	4
	2.7	3	2	2	3	2	2	2	3
	2.8	3	2	2	3	2	2	2	2
	2.9	4	4	3	3	2	2	3	3
	2.10	4	4	3	3	2	2	3	3
	Totals	34	34	34	33	32	29	32	33

Section Three: How well do you feel the statements describe the practice of curriculum development at your school?

Table 10.3.A - Pre Test

Item	Respondents							
	PE	LI	JE	AL	MA	EI	ME	JU
3.1	3	4	3	2	4	4	2	4
3.2	3	3	3	2	4	4	2	4
3.3	2	2	2	1	2	2	2	2
3.4	2	4	2	1	2	2	2	2
3.5	3	3	4	2	4	2	2	4
3.6	3	2	4	2	2	4	2	4
3.7	2	2	2	1	1	2	2	2
3.8	2	2	2	2	1	2	2	1
3.9	2	2	2	1	1	2	2	1
3.10	2	2	2	1	2	2	2	2
Totals	24	26	26	15	23	26	20	26

Table 10.3B - Post Test + 6 Weeks

Item	Respondents							
	PE	LI	JE	AL	MA	EL	ME	JU
3.1	4	4	4	2	3	4	2	4
3.2	4	4	4	2	3	4	2	4
3.3	4	4	2	1	2	2	1	2
3.4	3	4	3	2	4	2	2	3
3.5	5	4	4	4	4	4	4	4
3.6	4	3	4	4	4	2	2	4
3.7	3	4	2	2	1	2	2	2
3.8	4	4	2	1	2	2	2	2
3.9	3	3	2	2	4	2	2	2
3.10	3	4	2	2	4	2	1	2
Totals	37	38	29	22	31	26	20	29

NB: The reader will recall from Appendix 7.2 that Section 3 of the survey was not distributed immediately post test.

Appendix 10.2

Section Four: How much do you consider the following behaviours were involved in the Do Talk and Record initiative?

Post Test Responses

Item	Respondents								
	PE	LI	JE	AL	MA	EI	ME	JU	
4.1	4	4	4	3	4	4	4	4	
4.2	4	4	4	3	4	5	4	4	
4.3	5	5	4	2	3	4	4	4	
4.4	5	3	2	2	3	2	4	4	
4.5	4	4	3	2	2	4	4	4	
4.6	4	4	4	4	2	4	4	4	
4.7	4	3	2	4	3	2	4	4	
4.8	4	5	2	2	3	2	4	4	
4.9	4	5	2	2	2	2	4	4	
4.10	5	5	2	2	2	2	4	4	
Totals	43	42	29	26	28	31	40	40	

Chapter Eleven : Evaluation and Discussion

One of the main investigative strands of this study has been the effectiveness of the change model proposed here. The other has been the strength of the hypothesis that "an initiative premised on a strategy for change acts to dismantle low risk, low trust and inquiry orientated behaviours and replace them with high risk, high trust and inquiry orientated ones." This final chapter evaluates these two central strands and looks at the research findings in the current context of primary education.

Evaluating the Change Model

The argument proposed in this study has been that teachers approach change proposals from the perspective of being 'intent to protect' or 'intent to learn'. For those 'intent to protect' the path to change involves them initially moving through the phases of denial and resistance. They then join those 'intent to learn' at a phase of exploration. The end of the change journey for each group is the point of commitment. The further argument of this study is that the change model proposed supports teachers moving along the path to change by two distinct forms of intervention on the part of the change agent - demonstration and communication, and facilitation and support.

During the demonstration and communication phase of the model the change agent acts according to open inquiry orientated, high risk and high trust behaviours. Teachers' reciprocate those behaviours and in doing so those 'intent to protect' move through the phases of denial and resistance to a phase of exploration. During the facilitation and support phases of the model the change agent acts to cushion teachers in the exploration phase against being overwhelmed by the practical difficulties of implementation. In doing so teachers move to a point at which they can digest the proposals and the decision to become committed to them, or reject the model more on the basis of free and informed choice. Below the strength of the argument that teachers come to change proposals either 'intent to protect' or 'intent to learn' is examined in the light of the case studies presented in this thesis. The argument that teachers initial reactions imply different starting points along a journey to change involving denial, resistance, exploration and commitment is also examined.

The reflective stage of the research set out to establish the extent to which the categorisation of teachers into those 'intent to protect' and those 'intent to learn' proposed in the analytic phase was more widely applicable. At each of the schools in which the research was conducted teachers' initial reactions to the change could be classified as 'intent to protect' or 'intent to learn'. After working alongside individual teachers for a short period it was possible to determine whether the change journey they would undertake started at a point of denial or exploration. Their initial response could then be classified as 'intent to protect' or 'intent to learn'.

The reflective stage of the study also involved establishing how much the phases of denial, resistance, exploration and commitment were distinctive stages along the change journey undertaken by

teachers. Throughout the research the initial reaction of those participants who came to the initiative 'intent to protect' was to deny the need for change. Characteristic comments during this phase were - "It isn't feasible to expect teachers to prepare for an hour for a lesson with a small group of children." "I've been teaching for a long time and the way I'm doing it now works for me." "This sort of approach is fine with a group but with a class never." Based on the case studies presented here, it seems that a successful strategy for change agents to adopt in reacting to participants within a denial phase is not to respond to these comments but rather to provide a clear practical picture about the change and what it might mean for participants.

The second distinguishable phase for teachers who entered the change 'intent to protect' was that of resistance. During this phase teachers were characteristically sceptical about the change and misunderstood its implications. Typical comments were "the children were confused by it". "It's really just a trick." "I'm doing it or I think I am." There was also some mourning for the security of a teacher's current practice. "I may be just a purveyor of tricks, but every child left my class knowing their tables." "I may not be a maths specialist but I've never short changed the children." A successful strategy for a change agent during this phase is to adopt inquiry orientated, high risk and high trust behaviours.

At the next stage the change agent moves from demonstration and communication to facilitation and support activities as teachers embark upon 'exploration'. Those who were 'intent to learn' started the change journey at this point. For them classroom modelling was a short preliminary to putting the ideas to the test of practice. Thus, during the demonstration and communication phase of the project, teachers 'intent to learn' were actively searching for evidence of the effect of Do Talk and Record. Those 'intent to learn' also appeared to be less entrenched in their viewpoints than those 'intent to protect' and to ask questions and be open to suggestions. Typical comments were: "It seems to me that you won't get first years to write Stories". "Based on what I've seen, I'm not convinced about the value of writing." Although some exploration took place during the demonstration and communication phase largely Do Talk and Record acquired significant meaning only when teachers tried it out. The exploration phase involved those who were 'intent to protect' as well as those 'intent to learn'. The key element in this phase was the signalling of interest. Characteristic comments were - "What if next time I structure the children's movement of the apparatus?" "Gosh it's five to twelve children - you've been ever so good." "Can you tell me more about it." In the light of the case studies it seems that a useful strategy for change agents at this point is to provide immediate and extensive feedback, to set short term goals and to act to enlist the help of key supporters.

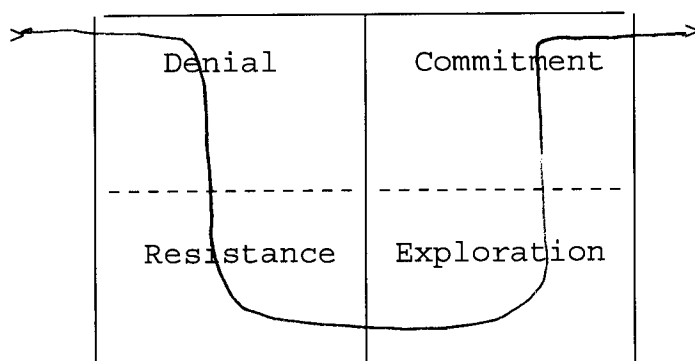
The final phase of the journey was that of commitment. I had originally looked for evidence of commitment in a change in practice. There was evidence of this at each school. However what appeared more significant was the way in which teachers engaged in self sustained manipulation of the project's ideas.

Characteristic comments were "I'm still wrestling with it", "It's a bit early to say what its effect is - as a change in my intention isn't the same as a change in practice."

There was then substantive evidence of teachers moving along a path from denial to commitment within the reflective phase of the study. At Stonehill the three teachers who at the outset of the intervention had been 'intent to protect' came to a stage of commitment. At Court Farm the one teacher who initially denied the need to change similarly moved to a point of commitment. At Weston two of the four who had initially denied the need for change also journeyed to a stage of commitment. However, it is not adequate to say that teachers progressed incrementally along the path to change, influenced only by my actions or strategies. A wider dialogue about the initiative was also influential. This dialogue took place largely in my absence between those who supported the initiative and those who talked it down. This dialogue was influential in the formation of a 'consensus' view within each school about the value of the initiative. This consensus view had a school wide influence and either pushed the initiative along or pulled it down. Thus at Weston a consensus view that the initiative was an imposition stalked and undermined it. This resulted in teachers initially intent to learn wavering in their interest and becoming inhibited about supporting the initiative in the staffroom. Classifying teachers into those intent to learn and those intent to protect enabled me to influence the outcome of this dialogue about the value of Do Talk and Record. I was able to focus on those 'intent to protect' and muffle the effect their emotional opposition had on their associates.

The change journey discussed above can be represented diagrammatically. Table 11.1 plots out the path to change undertaken by participants.

Table 11.1



Having established that a path to change was apparent in each school within the reflective stage of the research, I now wish to examine the relationship between the change model and the journey to change which participants underwent. As a result of the experience of the analytical phase of the research I argued (P70) that there was a close relationship between the behaviour adopted by the change agent and teachers' participation and involvement. The argument is that during the demonstration and communication phase of the model, the change agent adopts inquiry orientated, high risk and high trust behaviours. The effect of this is to

move teachers from a stage of denial to a stage of exploration. In the reflective phase of the research attitude surveys and interviews were used to establish the strength of this link more firmly.

Section Four of the attitude survey asked teachers to indicate the extent to which they considered a climate of inquiry to have been created around the Do Talk and Record initiative. Participants at each school indicated that the initiative had involved them 'feeling free to provide feedback' and myself 'open to criticism'. In interview the link between the creation of a climate of inquiry around the initiative was made by participants. The evidence of the case studies suggests that securing a climate of inquiry around the initiative moves participants to the stage of exploration.

The second phase of the model involves facilitation and support. The intention during the reflective phase was to provide an opportunity for teachers to experience and judge the ideas and to cushion them from being overwhelmed by the practical difficulties that trying out Do Talk and Record in the classroom might pose. In interview participants indicated that at times they might have abandoned the initiative without such support. Helping teachers plan the initiative, giving them hands on experience in simulated and the real classroom settings and providing immediate feedback on their attempts to try out the ideas were all seen as positively affecting the success of the initiative by participants. The evidence of this study was that without such support the initiative would have floundered as it had at Templewood. My contention has been that the model moves teachers along the journey to change. The evidence of this study appears to support this contention.

Evaluating the Change Model

On page 10 of the study the change model was set out in an initial form (Table 1.1) that reflected my experience of implementing change at Templewood School. This initial model contained three sections: preparing for change; implementing change; and responding to change. The section 'preparing for change' reflected my feeling that the change agent's response to teachers' disagreement over priorities was not to rely on incremental decisions and plan passively. Rather the change agent was to take an active role, identifying driving and constraining factors before carrying out the change. The change itself then involved increasing the driving factors and reducing the constraining factors. The section of the model 'Implementing Change' envisaged the change agent offering the two support phases of Demonstration and Communication, and Facilitation and Support. The section 'unblocking communication' listed a series of desirable participant behaviours that were to run alongside the change process throughout the initiative.

The case studies conducted in the analytical phase of the research suggested that securing the desirable behaviours listed in the 'unblocking communication' section was dependent on the change agent modelling high risk, high trust and inquiry orientated behaviours. At the end of the analytical phase the model was refined (Table 5.1 on page 70) to reflect this finding.

During the course of the reflective phase of the study I came to see that securing desirable behaviours in teachers and moving them along the path to change was closely interlinked. This close relationship can be seen by transposing the demonstration and communication, and facilitation and support phases of the models over the path to change set out in Table 11.1. Table 11.2 portrays this relationship.

Table 11.2

<p>Demonstration & Communication</p> <p>1. Initial meeting in which the practicality and benefit of the change is outlined.</p> <p>2. Change agent presents a clear picture of what the change will look like in the classroom.</p> <hr style="border-top: 1px dashed black;"/> <p>3. Change agent unblocks communication through modelling high risk, high trust and inquiry orientated behaviours.</p>	<p>6. Teachers presented with free informed choice about what is being offered.</p> <hr style="border-top: 1px dashed black;"/> <p>5. Modifications and adaptations supported.</p> <p>4. Participants try out ideas in simulated and real classroom settings. Short term goals set and extensive feedback provided.</p> <p>Facilitation & Support</p>
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As a result of this finding it appeared that a further revision of the model was required. The close link between the process of change and participants' behaviour was not conveyed in the separation of the model into the sections of 'unblocking communication' and 'implementing change'. Because of this the section 'unblocking communication' was absorbed into the 'implementing change' section. The model in its final form is set out in Table 11.3 and reflects this amendment.

Table 11.3

A Strategy For Change

1. Planning for Change

- 1.1 Identify the basic problems or opportunity.
- 1.2 Focus on the driving and restraining forces before implementing change.
- 1.3 Decide who is likely to be affected by the change and the reasons that might lead them to resist it.

2. Implementing Change

Increase the driving forces and reduce the restraining forces through demonstration and communication and then facilitation and support.

Demonstration and Communication

- 2.1 Initial meeting in which the practicality and benefit of the change is outlined.
- 2.2 Change agent presents a clear picture of what the change will look like in the classroom.
- 2.3 Change agent unblocks communication through modelling high risk, high trust and inquiry orientated behaviours.

Facilitation and Support

- 2.4 Participants try out ideas in simulated and real classroom settings. Short term goals set and extensive feedback provided.
- 2.5 Modifications and adaptations supported.
- 2.6 Teachers presented with free informed choice about what is being offered.

Current Research into Change

The central tenets and concerns of the model proposed here relate closely to recent studies of change. Thus the model is a plan that 'acknowledges that it will be departed from' (Fullan 1987). The intention is to gain consensus about what mathematics teaching might become, to plan strategies for getting there and support teachers in carrying out incremental exploration which harnesses their creativity to the change effort. In Louis & Miles' (1990) terms, "leadership dominated early planning shifts to shared control with others. The control base expands as evolutionary planning unfolds." (1990, p239).

The model also aims to overcome the difficulties with most inservice training. That is firstly, that "in service training is not designed to provide ongoing, interactive, cumulative learning necessary to develop new conceptions, skills and behaviour." (Fullan 1991, p85). Secondly, that there is a failure to realise the need for inservice work during implementation (McLaughlin & Marsh 1978, Huberman 1983, Joyce & Showers 1980, Bradley 1991). Thus, during the demonstration and communication phase of the model a clear picture of what the change might look like in the classroom was modelled. During the facilitation and support phase, teachers' attempts to ease the ideas into their classrooms were cushioned against practical constraints.

During the course of the study it became apparent that the long term support the model offered overcame a further difficulty with inservice training. In coming face to face with something new and different, Bradley (1991) suggests that teachers respond either with a Damascus Road Conversion or by rejecting what is offered - "I don't know what sort of ivory tower he lives in but it wouldn't work in our school." The long term classroom support offered within this model avoids the problem of immediate rejection. Creating a climate of inquiry around the initiative encourages teachers to raise problems and reservations and these come to form a large part of their learning. The learning that took place within the study was neither one shot 'Damascus Road Conversion' nor rejection. Rather it became extended through interaction between the change agent and teachers. Mistaken assumptions about what was being offered were corrected and learning became enriched by interaction.

Fullan (1991) draws on an analysis of change to list a number of 'do' and 'don't' assumptions about change. Below I set out Fullan's assumptions and relate them to those underpinning the model. Fullan suggests:

1. "Do not assume that your version of what the change should be is the one what should or could be implemented." One of the main purposes of implementation during research was to share my perception of change with others.
2. "Assume that any significant innovation requires individual implementers to work out their own meaning. Clarification is likely to come through practice." The second phase of the model involved supporting teachers trying out the ideas in simulated and then real classroom settings.

3. "Assume that people need pressure to change but that it will be effective under conditions that allow them to react to it, to form their own position and to interact with other implementers." My model moved from interaction between myself and individual teachers to the point where I was endeavouring to support the development of networking in the teacher group.
4. "Do not assume that the reason for a lack of implementation is outright resistance." Central to my model is the requirement for the change agent to take feedback at face value rather than as evidence of defensiveness.
5. Fullan concludes by suggesting that we should "assume that changing the culture of institutions is the real agenda not implementing single innovations." It is this issue which underlines my research hypothesis. It is to the strength of this hypothesis I turn in the following section.

Evaluating the Research Hypothesis

The hypothesis of this study has been that an initiative premised on a strategy for change acts to dismantle low risk, low trust and status orientated behaviours and replace them with high risk, high trust and inquiry orientated ones. During the analytic phase of the research a mechanism was proposed by which this might take place. During the reflective phase of the research it was intended to test the hypothesis. In this section I wish to review the process hypothesised against the evidence of the research. This review is informed by Table 11.3 which sets out the pre test, post test and six week post test average scores for each section of the attitude scales administered at Stonehill, Court Farm and Weston.

Table 11.3 - Pre Test (A), Post Test (B) and Post Test + 6 Week (C) Average Scores For Each Section of The Survey

	Stonehill	Court Farm	Weston
Desirable	8.1A 43.7	9.1A 46.8	10.1A 46.6
<i>Section One</i>	8.1B 46.0	9.1B 44.7	10.1B 45.6
	8.1C 45.9	9.1C 45.8	10.1C 46.2
Attainable	8.2A 34.2	9.2A 44.6	10.2A 29.4
<i>Section Two</i>	8.2B 44.2	9.2B 44.2	10.2B 40.1
	8.2C 39.3	9.2C 45.3	10.2C 32.3
Practised	8.3A 24.0	9.3A 46.1	10.3A 23.2
<i>Section Three</i>	8.3C 37.4	9.3C 45.1	10.3B 29.0

The argument in this study has been that schools are prone to low trust, low risk and status orientated behaviours because of vulnerabilities implicit in teaching accentuated by teachers' professional isolation. These behaviours were apparent when the attitudes of teachers at Stonehill and Weston were surveyed pre test. Average scores indicating whether teachers felt open behaviours to be desirable were 43.7 at Stonehill and 46.6 at Weston. However teachers at these schools felt much less

positive about whether open behaviours could be achieved in practice (34.2 average score at Stonehill and 29.4 at Weston). The average scores also indicated that closed behaviours were practised at these schools (24.0 and 23.2 respectively). Interviews conducted and fieldnotes taken at Countess Anne, St Mary's, Stonehill and Weston also indicated the presence of low risk, low trust and status orientated behaviours. Thus in four out of the five schools I studied, closed behaviours dictated the pattern of staff interaction.

The argument is that these behaviours can be dismantled by a change agent demonstrating open high risk, high trust and inquiry orientated behaviours.

The adoption of open behaviours by the change agent has the consequence of reducing defensiveness between those proposing and those receiving the ideas. Participants bring to the surface problems and reservations they hold about the ideas. Thus at all the schools in which the intervention took place teachers indicated on the attitude surveys that they felt free to 'provide feedback even if it is negative and confronts the initiative' during the intervention. Teachers also indicated on the survey the initiative involved 'individuals putting forward ideas, inviting others to confront and even alter them' a 'great deal' or a 'fair amount'. In interviews conducted after the initiative teachers referred to the initiative as an 'experiment' in which 'other views were valued.'

The argument is also that open behaviours will in turn have a consequence for the type of staff development that takes place within the wider school. Learning is no longer confined to the individual's perspective but contributed to by feedback. Ideas will not be seen as correct and incorrect but as intelligent assumptions worthy of discussion and of putting to the test of practice. Thus my views on the effectiveness of the approach to change were modified as a result of feedback provided by teachers from each of the schools I worked in. Teachers also learnt from feedback. In each school I sat with individual teachers discussing the problems that had arisen in trying out Do, Talk and Record. Teachers' involvement in this dialogue was so intense that characteristically they became unaware of the presence of the children. At St Mary's, Court Farm and Stonehill there was also a mushrooming of the project at this point. Solutions devised by some teachers were used to assist the learning of others. After the initiative all the participating teachers indicated on the attitude survey that they considered the initiative had involved 'a large part of teacher's learning taking place by the feeding back of their problems and reservations' either a 'great deal' or a 'fair amount'. In interview teachers felt that the change "came from within rather than was imposed."

The further argument of this study is that the adoption of co-operative, open behaviours also acts to dismantle the predominant status orientated, low risk and low trust ones. In engaging in curriculum inquiry, participants will discover that high risk and high trust behaviours are possible for themselves and for the whole staff. They will also experience that it is possible for mistaken assumptions not to be errors which pose a

threat to the individual but rather a means of learning. Thus at both Stonehill and Weston, a comparison of pre and post test responses indicated that teachers considered open behaviours to be more attainable post test than they had done pre test. The pre test averages indicating whether participants thought open behaviours to be attainable were 24.0 at Stonehill and 23.2 at Weston. The post test averages for these schools however were 44.2 and 40.1. Although the six week post test averages indicated that teachers at these schools then felt less positively about the attainability of open behaviours, the averages were still markedly above pre test averages (39.3 and 32.3 respectively). Interviews conducted and fieldnotes taken at St Mary's, Stonehill and Weston also suggested a change in patterns of interaction following my initiative. Participants indicated that there was an increase in open behaviours. There was no significant difference in pre test and post test scores at Court Farm. This was because the pre intervention responses indicated open behaviours to be already well established.

One of the driving forces for schools to change to inquiry orientated behaviours appears to be that these behaviours fulfil the needs of participants. For Maslow (1949) and Ball (1989), closed climates frustrate individuals because they are not permitted to achieve their own goals in relation to their needs. Thus interview responses within the five schools expressed specific benefits deriving from the increased collegiality that the initiative had encouraged. Teachers enjoyed 'working as a team', 'people pulling together' and 'working together to discuss, experiment and share ideas'. 'Shared ideas', 'more discussion' and 'the opportunity to feel we're all in it together'.

To this extent, then, the change model did appear to dismantle closed behaviours and replace them with open ones. However, the evidence is that other factors were of key importance in determining whether these behaviours came to be achieved only around the initiative, or came to take root in the wider climate of the school.

One issue apparent in the study was the diminishing belief in the attainability of open behaviours six weeks after the initiative. Teachers at Weston and Stonehill both felt less positively about the attainability of open behaviours six weeks after the initiative than they had immediately post test. At Stonehill the six week post test average score for Section Two was 4.9 below the immediate post test average. However at Weston the six week post test average was 7.8 below the immediate post test score. An explanation for these figures can be found in events that followed the Do Talk and Record initiative at the various schools in the study. At Stonehill (as at St Mary's) the initiative was followed by another in which open behaviours were modelled. At Court Farm open behaviours, I shall argue below, were modelled through the mechanism of appraisals and weekly meetings. At Weston there was no follow up initiative nor was there any other mechanism by which open behaviours might be modelled. It appeared that open behaviours had to be continuously modelled if they were to take root in the school and closed behaviours not become re-established.

Parallels can be drawn between the discussion in this study of closed and open climates and a survey conducted by Rosenholtz (1989). Rosenholtz described 13 schools she surveyed as learning enriched and the remaining 68 as learning impoverished. In learning impoverished schools teachers worked in isolation and a sink or swim attitude prevailed. Only a small number of teachers in these schools expressed a sustained view of their own learning. The majority said that "you could learn to teach in less than three years". By contrast, at learning enriched schools teachers were more likely to "trust, value and legitimise sharing expertise, seeking advice and giving help both inside and outside the school" (p88). They were then more likely to become better and better teachers on the job. In these collaborative schools teachers saw their own learning as cumulative and developmental and that "learning to teach is a life long pursuit." (p82). Rosenholtz concludes by suggesting that whether a school was learning enriched or learning impoverished was a key factor in the teaching and learning that took place.

For Fullan (1991) change involves learning to do something new and interaction is the primary basis for social learning. New meanings, new behaviours, new skills and new beliefs depend strongly on whether teachers are working as isolated individuals or are exchanging ideas, support and positive feelings about their work. The quality of working relationships among teachers are then strongly related to implementation. The argument of this study is that structures within schools result in there being a tendency for teachers to adopt status orientated behaviours. My suggestion is that the creation of high risk, high trust and inquiry orientated behaviours is the basis for a learning enriched climate.

The Findings of this Study in the Context of Current Research into Primary Schools

At the outset of this thesis the bulk of research evidence suggested that my experience of difficulty with whole school approaches was exceptional. At that time a range of authors was advocating collegiality (e.g. Campbell 1985 and 1989, DES 1980, 1982 and 1984b) and school review and development (e.g. McMahon et al 1984) as a means of bringing about the curriculum continuity which DES reports (e.g. DES 1978, 1980, 1982, 1985a, 1985b and 1987) sought to nudge primary schools toward. I considered that the potential for co-operation amongst teachers that these authors claimed to exist was based on a view of schools as we would like them to be - not how they were. The reality was that 'rules' that encouraged individualism, self-reliance and curricular autonomy in primary schools (Nias 1989a) made collaboration an alien concept to many primary teachers.

During the time that has elapsed between setting out on and concluding this thesis the National Curriculum has brought whole school planning to the centre of attention. Within the research community there has been an increasing focus on the ability of teachers to work together. Below I set out the ways in which the issues raised within this thesis are of current relevance.

The first concerns the National Curriculum. This has placed an obligation on primary schools to plan for curriculum continuity and progression. Reports urging whole school planning have been replaced by a requirement to do so. Against this background the usefulness of methods for implementing continuity is increasingly at the forefront of attention. The notion of whole school development has an increasing currency as a means of implementation of an all through school approach. Indeed the phrase is in danger of becoming a slogan (e.g. DES 1989a). For Nias (1992) whole school approaches are often a synonym for collegiality. As with collegiality whole school approaches often seem to be advocated by those outside schools and based on prescription rather than description (Ainscow and Muncey 1989, Abbott et al 1989). Campbell and Southworth (1990) showed that teachers were not particularly conscious of the whole school in which they worked.

Alongside the call for whole school approaches as a means to develop continuity and progression are schemes for school based review and development (e.g. Abbott et al 1989, 1989a). Abbott et al put forward the notion of the developing school which 'encourages staff to work together and is therefore the collaborative school; uses evaluation to mobilise and sustain the extent of development and is therefore the learning school' (Abbott et al 1989).

My concern about notions such as 'whole school approaches' and the 'developing school' echo those I held at the outset of this study about collegiality and school based review. That is that it seems easier to call for these processes than to create the conditions in school for them to be realised. Nias et al (1992) suggest that there is a lack of published material to help schools develop a collegial approach. I consider that the absence of any discussion as to the challenges which collaborative approaches may present to schools leaves us with the assumption that collegiality is easy.

For example more than half of Abbott et al's (1989a) check-list of a school's readiness to take on GRIDS relates to the presence of a supportive climate. Whereas Steadman (1989) has reservations about new headteachers using GRIDS because 'the mutual trust and openness it requires takes time to grow', the finding of this study is that the tendency is for vulnerabilities implicit in teaching to stifle such behaviours.

The second way in which the issues examined in this thesis are of current relevance concerns the research community. Recent studies of school culture endorse the portrait of primary schools painted in this thesis. They show that the conditions I consider to create low trust, low risk and status orientated behaviours exist widely in schools (Lieberman and Miller 1992, Rosenholtz 1989, Little 1990). For Lieberman and Miller (1992), teachers function independently and their autonomy seems to be exercised in isolation rather than in the context of rich, professional dialogue. Little (1990) suggests that teachers' uncertainty and threats to self esteem are recurring themes in teaching. Within Rosenholtz's (1989) 'learning impoverished' schools there was little attention to school wide goals, isolation among teachers, limited teacher learning on the job and

uncertainty about what and how to teach. In these schools Rosenholtz found teachers were more concerned with their own identity and importance than with a sense of shared commitment.

Recent influential studies by Nias and her colleagues (1989, 1992) suggest that the issues on which this thesis has focused are more widely applicable to primary schools. The Nias studies have involved descriptions of what collegiality (Nias, Southworth and Yeomans 1989) and Whole School Curriculum Development (Nias, Southworth, and Campbell 1992) might look like in practice. The Primary School Staff Relationships (PSSR) Project (Nias et al 1989) and the Whole School Curriculum Development in the Primary School Project (WSCD) are studies that have both been undertaken since this study commenced. The studies link in with issues and findings identified here. In conclusion I want to suggest that there are very clear parallels between the findings of this study and of the recent work of Nias and her colleagues.

The first way in which the studies interlink is that all three grew out of a concern that collegiality suffers from weak definitions and is advocated largely by those outside school. A starting point for this study was the difficulty experienced in securing the collaboration of teachers at Templewood Primary School (Morton 1986). This experience appeared exceptional in the face of literature suggesting that schools were places in which collaboration and co-operation happened as a matter of course (Hopkins 1985a, 1985b, Hopkins and Holly 1986). The starting point for the PSSR and WSCD studies was similarly that collegiality was being advocated by those outside schools. The authors were concerned that despite the succession of reports (DES 1978, 1980, 1982, 1984a, 1984b, 1987, House of Commons 1985) referring to the value of a collegial approach, collaborative planning and shared decision making, the only British research which described collegiality was a single study of effective junior schools and departments by Mortimore et al (1988).

The second connection is in regard to the range of schools on which the research focused. The focus of the Primary School Staff Relationships (PSSR) study was on schools in which 'working together was going well' (Nias et al 1989). The Whole School Curriculum Development (WSCD) study examined schools in which "Staffs were working together to develop and implement whole school policies" (Nias et al 1992). This study looks at the other end of the spectrum. Its focus is on schools in which inter-relationships were stifled by the presence of status orientated, low risk and low trust behaviours. Taken together then the PSSR, WSCD and this current study, represent schools on a continuum from teacher independence to teacher inter-dependence.

A third way in which there are clear connections between the two studies concern findings about the cultures of primary schools. Nias et al (1992) stress that the collaborative schools in which the WSCD study was conducted were other than the norm and consider that there is an absence of collaboration in most schools. They endorse the arguments of this current study when they suggest that this lack of collaboration is because 'the territorial instincts of primary school teachers are strong and this makes them reluctant to accept responsibility beyond their

own classroom, unready to work with others and undisposed to participate with them' (Nias et al 1992 p126). They use terms which echo those of this study when they suggest that teachers' resistance to working with others derives from "barriers such as territoriality and the risks of self disclosure" (Nias et al 1992).

Nias et al (1992) also draw conclusions about collaborative schools. They again echo the findings of this study when they conclude that "the existence of a collaborative culture is a necessary condition for curriculum development because it creates trust, security and openness" (Nias et al 1992). This study extends that conclusion. It has looked at the effect of a curriculum initiative on staff relationships. Its findings suggest that the converse of Nias et al's argument is true: curriculum development can create "security, trust and openness".

The studies link together in a fourth way. That is that parallels can be seen between the behaviours Nias et al (1989) identify with "cultures of collaboration" and those identified with an open climate in this thesis. Nias et al (1989, 1992) argue that within collaborative schools teachers 'value security' and 'value openness'. Strong parallels can be seen between these behaviours and the high trust and high risk behaviours identified in this thesis. In practice the interview data from one study could well support the arguments of the other. For cultures of collaboration are distinguished by teachers 'valuing security'. "I think people feel confident probably because they are able to make a worthwhile and recognised contribution in the eyes of other people with whom they work." (Teacher quoted in Nias, Southworth and Yeomans 1989). "People listen to and respect other's views and thoughts which too often isn't the case." (Teacher quoted in Nias, Southworth and Campbell 1992). "There is certainly respect among the staff... which often you don't get." (Teacher quoted in Nias, Southworth and Campbell 1992).

I have argued that an open climate is distinguished by the presence of 'high trust' behaviour. The interview data concerned with 'valuing security' emerging from the Nias studies supports this argument. In the terms used in this study the teachers quoted above are contrasting the presence of high trust behaviours in collaborative schools with their previous experience of a low trust environment. There are then strong parallels between Nias et al's 'openness' and high risk behaviour identified in this thesis. Conversely this thesis also provides interview data that supports the Nias findings. Thus teachers talking about the attractions of high trust behaviour in this thesis (p89, p127) are, in Nias et al terms, 'valuing security'.

For Nias et al cultures of collaboration are also distinguished by teachers 'valuing openness'. "In other schools I have taught in, you didn't fail. If you did you kept it very quiet. When I came here I began to realise that when you had problems you didn't hide them away, you voiced them." (Nias et al 1989). In the terms used in this study the above interview contrasts the experience of high trust behaviour with the teacher's previous experience of low trust behaviour in other schools. There are then strong parallels between Nias et al's 'security and the high trust behaviour' identified in this thesis. The interview data

used in this study also endorses Nias' argument that teachers in collaborative schools 'value openness'. Thus teachers in this thesis discussing the attractions of engaging in high risk behaviour (p96, 136, 154) are in Nias et al's (1989) terms 'valuing openness'.

The findings of the Nias studies and this thesis support one another in the four ways outlined above. However, that is not to say that this thesis merely confirms Nias et al's findings about the cultures of primary schools and whole school curriculum development. I now wish to suggest a way in which a key difficulty identified by Nias et al (1992) might be overcome.

As I noted above Nias et al's studies were conducted in schools in which 'collaboration was going well' (1989) and in which schools had moved some way toward whole school development (1992). Nias concedes that these schools were other than the norm. She concludes that this leaves an inherent difficulty with Whole School Curriculum Development.

"For headteachers then the question becomes one of the knowing how and when to break into a chicken and egg cycle so that staffs can begin to work together without discomfort and fear and experience the satisfaction of belonging to an educational community". (Nias et al 1992, p247).

In her 1992 study this difficulty resulted in headteachers in collaborative schools moving slowly toward a whole school approach. A characteristic of schools in the 1989 and 1992 studies were that headteachers had been in the post for more than ten years. Nias et al anticipates a greater difficulty in a situation where headteachers were faced with schools in which there was a legacy of self reliance and autonomy. They suggest that this might create a situation that "in forcing collaboration upon a recalcitrant staff or upon individuals with irreconcilable beliefs and values, they may open up divisions which will destroy even a semblance of unity".

The type of school in which Nias et al anticipate this difficulty were like those in which this study was conducted. The problem Nias et al envisage is the one that headteachers faced in some of the schools in this study. Do Talk and Record offered some solution to this difficulty. It created a simulated setting in which teachers could realise that they were a community which shared educational beliefs and which could work together. Individuals could experience the attractions of that community without risking self exposure. During the course of the project individuals shared their strengths and weaknesses with one another and as they gained interpersonal knowledge, they were able to offer, help or show appreciation to their colleagues. In turn they came to feel valued for themselves and for contributing to the learning of others. I would not wish to claim that staff relationships in the project schools were changed overnight by a single initiative. It was rather that staff came to see that high risk, high trust and inquiry orientated behaviour was possible for themselves and others. Do Talk and Record did not so much change schools as kick start the tentative process that Nias et al identify.

Fullan (1991) concludes his discussion of why professional development programmes fail to live up to their promise by suggesting that 'we have not yet made much headway in how to establish collaborative work cultures in schools'. This study has indicated a way in which the creation of such cultures might be started. Its finding has been that schools are prone to status orientated, low risk and low trust behaviour. It has indicated a way in which these closed behaviours might begin to be dismantled and replaced by inquiry orientated, high risk and high trust patterns of interaction.

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