

collections on *Teacher Re-powered School* (Hargreaves) and *School Improvement* (Joyce *et al.*) of 'classroom research by teachers' have referred to them in the most appropriate chapter.

CHAPTER 2

Classroom research in action

Often the phrase classroom research brings to mind images of white-coated (or grey-suited!) educational researchers undertaking research in a sample of schools or classrooms and using as subjects the teachers and students who live out their educational lives within them. Often this image is correct. This book, however, is about another kind of research in which teachers look critically at their own classrooms primarily for the purpose of improving their teaching and the quality of education in their schools. But even the phrase 'classroom research by teachers' can sound a little daunting. It might be useful therefore to begin with some examples of teachers who have engaged in systematic self-conscious enquiry with the purpose of understanding and improving their practice.

The first four cases were all written by the teachers who were themselves involved in the classroom research. The first two were prepared by teachers with whom I worked in British Columbia. They contrast well with each other: the first is an exploratory case study undertaken by a beginning teacher; the second is more focused, and reflects the confidence of a teacher experienced in classroom research. The second pair of examples were written by teachers involved in the University of Cambridge Institute of Education and Bedfordshire Education Service 'Developing Successful Learning' Project. Besides describing different methodologies, they also illustrate the benefits of using partnerships in classroom research.

The third pair of examples reflect the focus in this third edition of the book on teaching and learning and school improvement. The first by John Beresford, the research officer on the IQEA project, describes how he collaborates with schools in providing data on teaching and learning styles to assist in defining the focus of their improvement strategies. The second is by David Jackson who, at the time of writing the cameo, was Head of a longstanding IQEA School, Sharnbrook Upper School and Community

College in Bedfordshire. (David is now Head of Research at the National College for School Leadership.) This vignette describes how the school improvement focus on teaching and learning is organized at Sharnbrook, and how students are involved in the process.

The final example is different from the others in a number of ways; in particular, it illustrates the use of 'quantitative' as opposed to the more usual 'qualitative' methods in teacher-based classroom research. It was also written by Lawrence Stenhouse.

In each of these cases, the teachers are engaging in classroom research for the express purpose of improving the quality of educational life in their classroom. This is no deficit model of improvement, however; the teachers involved are genuinely interested in understanding the dynamics of their own teaching style. They believe that you do not have to be ill to get better. The motivation for doing so may be varied – a research degree, natural curiosity, a stimulating article or talk – but the process and its implications are essentially the same. Taken together, these cases illustrate the range and benefits of doing research in your own classroom and provide examples of the reflective professional in practice.

The first example is a case study by Sandra Meister, when she was a first year teacher in Prince George, British Columbia.

The purpose of this research project is to become familiar with educational research within the classroom, to analyse and improve one aspect of my teaching style. But I have had some difficulty in pinpointing which aspect of my teaching I wished to focus on. As a harried first year teacher, I really had not given much time to actually thinking about the way I taught; rather, I tended to worry about keeping things peaceful until the three o'clock bell rang. I decided, however, to look at the types of questions I asked, the order in which I asked them, and to whom the questions were directed. This sequence appears to be the key to training a child to think independently. In order to become more aware of my own teaching style, I decided to obtain data from myself as teacher, from my class and from an outside observer who was previously unknown to myself and my students.

Social studies was an area I find particularly dull at this level. The entire primary curriculum centres around 'myself and my family in our community', 'components of our community' and, finally, 'the interaction of communities'. The lessons I had taught were rather scattered and poorly sequenced. As a final unit, I decided to divide the class into three groups and have one group research communities

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of the past, one look at Prince George as it is today and one group design a community for the future. Most of the knowledge came from group lessons and discussions where, through various questions and brainstorming techniques, I hoped to direct the student to some logical conclusions as to the necessary requirements for community life.

The lesson used as the basis for the research was on different modes of communication. I taught the lesson while the observer recorded the types of questions asked (i.e. fact, critical thinking, explanation, yes/no, etc.), which students responded and the teacher reaction to the response. The data were gathered by the observer using a checklist. The lesson was also audio-taped, which enabled both the teacher and the observer to review the data afterwards.

The results were really quite an eye opener. The majority of my questions required critical thinking or an opinion, whereas the remainder were questions for the purpose of gathering facts. Most of the questions required one- or two-word answers. The following is an analysis of my questioning techniques.

Types of questions asked: on the positive side, most of the questions required critical thinking, i.e. 'How would you feel . . .?', 'What would you do if . . .?' Many questions required students to express an opinion; I avoided Yes/No questions, which is something I was pleased to note. On the negative side, I seemed to avoid asking any questions which required any type of explanation. This is an important area which I have overlooked.

Sequence of questions asked: the order in which the questions were asked seemed logical and new information was built on previous answers. The weakest area here seemed to be in moving from one topic to the next. I'll need to work on having a few key questions as pivot points for my lesson.

To whom questions were directed: on the positive side, I would often ask one question, such as 'Who do you talk to on the phone?', and randomly choose many students for a one-word answer which keeps them all involved and interested. On the negative side, whenever I asked an open question, I seemed to respond to one of three students regardless of who may have had their hands up. These particular students are those with whom I try to avoid confrontations.

Teacher responses to answers: this is the area which I feel this project has identified as something for me to question. As I looked at the data, I realized that I rarely praised the students verbally. The majority of teacher responses were repeating what the child said and nodding to affirm their stance. The next frequent teacher response was no reaction. The students, however, seemed satisfied with the

way their opinions were accepted without much comment and didn't appear to act differently when verbal praise was given. I also appeared to accept an answer regardless of whether hands were up or not.

There are three areas where there are possibilities for improvement. The first is to accept answers and request answers from all students rather than a select few. An obvious way to improve this is to limit the size of the group to whom the lesson is being taught. Perhaps using a phrase such as 'let's let someone else have a turn' would help. The changes need not be large and I'm glad this was brought to my attention - imagine some poor child spending a year in my class and never being asked a question!

The second area for change is in making a smooth transition from one topic to the next within a lesson. I feel this can be accomplished by noting beforehand a comparison phrase or question and recording differences or similarities between the two topics.

Finally, I must learn to allow the children an opportunity to give detailed explanations. This is an ideal opportunity for improving verbal lucidity and compositional skills.

The next time I conduct or participate in a research project, I will use the 'triangulation approach'. The insight of an outside observer will be invaluable and will allow the students to offer some feedback. I would also like to participate in a project where the observer would be the director (adviser) and have more than one classroom involved. By playing a small role in a larger-scale project, I feel I would gain more first-hand knowledge and become confident in being a teacher researcher.

The second case study is by Ann Waldo, an experienced teacher who had previously been involved in classroom research.

Bruce Joyce and Beverly Showers (1984) maintain that when given adequate training conditions, teachers are consistently able to fine-tune existing skills and learn new ones. However, they point out that learning a new skill does not guarantee being able to transfer a skill vertically to higher-order, more complex tasks. Early-task learning has been found to maximize transfer if the tasks are relevant to the acquisition of a teaching model.

My school district has been encouraging teachers to use cognitive models of teaching. Bloom's Taxonomy and the Renzuli Triad Model have specifically been suggested as the models to be used to provide an enriched curriculum. Last year, teachers had in-service training on

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these approaches and this included theory and demonstration with adults. The demonstration teams were young, enthusiastic and well-prepared fellow teachers. The teachers went back to their classrooms ready to implement higher-order thinking. Despite using devices such as specific question words to elicit different levels of responses, most teachers found it very difficult to do this.

After watching a videotape of myself teaching and failing to allow students think-time before responding, I wondered if this inability in an early task could have caused some of the difficulties I experienced in using Bloom's Taxonomy and Renzuli's Triad Model, as both models are dependent on students' ability to articulate their thoughts. Verbalizing high-level thinking demands that time is spent formulating the response. The other two primary teachers in my school had only moderate success in implementing the new models.

I decided that for this piece of research I would ask these teachers consciously to extend think-time to the recommended 3-5 seconds. I hypothesized that this would lead to lengthier student responses and higher-order questions from the teacher. Hopefully, the teachers would also begin to internalize this early-task learning and be better equipped to implement other models of teaching that are dependent on student response.

The subjects were a grade 1 teacher (S1) who has taught for 27 years and a grade 2 teacher (S2) who has taught for 14 years. Both agreed to audiotape a session of directed reading to provide baseline data. They were informed that they would be asked to alter one aspect of their teaching which, in turn, was expected to cause a change to occur. It was decided that allowing the teachers to audiotape themselves would disturb students and teachers less than an observer or a videotape. S2 taped a group with low academic ability; S1 taped a group with average ability.

The baseline tapes were interpreted by myself. Think-time between each teacher question and response was recorded. If a response came less than 1 second after the question, it was designated 0 seconds. The number of words in each student response was counted. Each question was related to level 1, 2, 3, 4, 5 or 6 responses according to Bloom's Taxonomy. The hierarchy in Bloom's Taxonomy is: 1, knowledge; 2, comprehension; 3, application; 4, analysis; 5, synthesis; 6, evaluation. As S1 had taped only 13 questions and responses, I decided to use the first 10 questions on each tape, provided they were not repetitions or rephrasings.

These data were discussed with the teachers on the following day except for the hierarchical rating of the questions. This was not mentioned. They were asked to read an excerpt from 'Extending think-time for better reading instruction' by Linda Gambrell (1981). In

this excerpt, the author stresses that the teacher must be prepared for leaden silences and resist the temptation to fill them. The student must also be prepared by the teacher to accept the think-time for thinking instead of unproductive hand-waving in the belief that responding is a speed competition. Lastly, she stresses that it takes time for teachers and students to slow down. There was no mention of higher levels of questions or responses.

The teachers, therefore, were set to extend think-time in the hope of lengthening student responses. They were asked to tape themselves three more times with the same reading groups, but it was explained that these tapes would be used for self-monitoring rather than as data. They were encouraged to extend think-time whenever appropriate in the classroom in order to get more practice.

Six school days after the baseline data had been collected, the teachers were again asked to tape their guided reading in order to provide data for the research. They were reminded to use the same reading groups as for the baseline data. The data from these tapes were used in exactly the same manner as the baseline tapes.

For both teachers, there was an increase in the length of student response when think-time was increased (see Table 2.1). There was also a small increase in the hierarchical level of questions posed to the students by the teachers. These results cannot be said to be statistically significant because of the size of sample, but they do replicate other findings. The results would seem to indicate that teachers automatically ask more stimulating questions when they are consciously trying to increase student input into discussions.

One of the problems in the research design was that it did not allow for differences in conceptual ability. A teacher automatically adjusts level of questions according to the ability of the group. S2 could not change her level of questions too much because of the conceptual level of the group. S1 had an average group and could, therefore, hope to have higher-level responses even though the children were younger.

Table 2.1 Relationship between model of teaching and learning skills

	Teacher	Think-time ^a (seconds)	Responses ^a (words)	Level ^a
Baseline	S1	0.1	2.4	1.2
	S2	1.0	3.5	1.4
Post-test	S1	2.5	4.6	1.5
	S2	3.2	6.3	1.5

^a Average over ten questions.

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Responses ^a (words)	Level ^a
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.6	1.5
.3	1.5

If I had had more time, I would have analysed far more data for each teacher and increased the number of teachers and done another piece of research to discover if there was any transfer effect using an information-processing model of teaching.

The third case describes how three teachers used a process of mutual support and observation to change teaching and learning experiences in their classrooms. Two of them, Sheelagh Sullivan and Liz Satherly, were teachers working in Samuel Whitbread Upper School. The third member of the group, Jackie Markham, had worked with teachers in the school as part of her role with the Special Education Support Service.

The partnership between Liz and Sheelagh developed because Sheelagh, as a learning support teacher, had worked in the classroom with Liz, a teacher of Humanities. Liz was a relatively new entrant to the profession and keen to develop more successful learning in her classroom. Sheelagh and Jackie were both keen to look at support for learning as a way of meeting individual needs.

Sheelagh and Liz had an informal meeting to discuss those aspects of their practice that they hoped to explore. Liz wanted to look at her classroom management and Sheelagh was concerned with effective group work. We also organized suitable times, lessons and classes for observation. It was difficult to fit in all of the desired observations, so Jackie offered to assist by taking on three of the observations. We spent some time discussing suitable observation techniques and decided that, to look at group work, we needed to use a video.

We wanted the opportunity to include some feedback from the students and so a last minute decision was made to use a brief questionnaire. A published questionnaire was used, but on reflection it would have been better to have constructed our own.

The observations took place over a period of two weeks. Four of Liz's lessons were observed, two by Sheelagh and two by Jackie. Three of Sheelagh's were observed, one by Jackie and two by Liz using a video for the final observation. The observations went well, the only difficulty being the lack of time for immediate feedback at the end of the lesson. The subsequent review meeting took longer than we had expected. It should have been obvious that a video of a one-hour lesson would take the same amount of time to watch!

In both cases, a descriptive feedback of the lesson was given. We avoided judgemental comments, although this sometimes felt impersonal. Both classroom teachers felt the need to hear about

successful aspects of the lesson. They were able to identify specific areas of their practice where change could lead to more successful student learning.

Three roles developed during the course of these meetings: teacher, observer and 'critical friend'. These roles were interchangeable, but the critical friend tended to be the person who was able to ask leading questions that enabled the teacher to clarify her thinking and make decisions about the action she would take. Liz decided that she would give written instructions at the start of the lesson but would also provide supportive oral reinforcement at planned intervals. Sheelagh decided to remove barriers to communication by reorganizing seating arrangements and reducing group size. At this stage, it would have been useful to look at the questionnaires, but there had not been enough time to tabulate the results.

Liz and Sheelagh agreed to one further observation of each other's lessons; which would be followed by a meeting to reflect upon what had been achieved. Sheelagh managed to observe the lesson as planned, but practical obstacles made it impossible for Liz to reciprocate. However, we met as intended. It proved a very positive meeting. Sheelagh gave feedback to Liz and provided a self-evaluation of her own lesson. Many of the comments made at this stage were judgemental, but because of the level of trust and confidence that had been established, we didn't find this threatening. Also, because the discussion was so open, Jackie's role as critical friend disappeared.

Generally, we felt pleased with what had been achieved. Liz was convinced that the quality of coursework assignments produced by the group observed had improved. Further observations would be difficult to arrange, but it was felt that partnerships had been established through which an open discussion of teaching and learning experiences in our classrooms would be possible.

The fourth case was prepared by Pamela Hughes, a teacher of English and Sharnbrook Upper School's Individual Needs Co-ordinator.

During our initial 'chats', we decided that we would like to involve our students as much as possible; we were all learners. We were nervous about how the students would react to this approach, especially one class which contained some very 'strong characters', but we felt that it was important for us to involve them.

During the lesson prior to the observation, the students were asked to make lists of all the things that (a) helped and (b) hindered their

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understanding and learning in school, not just the class they were in for that lesson. There was a short class brainstorm before dividing into groups of four. The students, without exception, were animated and very enthusiastic and did not use this as an opportunity to be vindictive. The results gave us a useful insight into the students' perceptions of their learning as well as forming a 'learning bond' between us.

The observation

My lesson to be observed was a Year 9 English class of 30 students, who would be working in groups carrying out tasks associated with beginnings of stories. I arrived to find no class, a sixth-former who had come to support without my prior knowledge, the furniture completely rearranged, a lack of chairs and my partner ready to observe my lesson! Once these minor setbacks had been overcome, I was ready to begin. I felt very conscious of another person in the very small claustrophobic room and I found myself being very careful about what I said and how I said it, but within a few minutes I had forgotten that I was being observed.

Christine wrote down a 'description' of my lesson, using words and diagrams, a mirror image, that we would use together for the Review. Immediately after the lesson, Christine thanked me for letting her observe my lesson and I felt relaxed and reassured. We confirmed our time for the Review.

The review

We decided to meet after school in Christine's classroom where we knew that we would not be disturbed. We reflected on my lesson and I did not feel threatened by the discussion. I began by giving my view of the lesson and then gradually we drew out areas that I could develop. I had challenged the able pupils by questioning, but the weaker students may have benefited from key ideas and words being put on the board to enable them to contribute more easily to their group discussions. Christine had noticed that one pair seemed 'inadequate' until the second task when they joined with another pair, and even then the four were not as creative or perceptive as the other groups. She also noticed an individual student on the fringes of his group discussion.

The action phase

I decided to review and develop two aspects of my teaching: my use of the board as a learning resource (not only within group work) and the management of groups within the class. My aim was to

enable all students to participate fully when doing cooperative group tasks. To help evaluate whether these areas of development would be effective, we decided that I would give a questionnaire to the students as soon as possible and again during the second half of the term. I would monitor the progress of the three students mentioned by Christine. Also, a further observation would take place.

The reflection

Since our initial observations, Christine and I often discuss aspects of our lessons, not only those of our Action Plan, sharing success as well as conferring when needing support. We are at the stage of evaluating our initial Action Plans and feel confident that we will continue our partnership as we feel that we have learnt from each other and the students.

Christine's thoughts

I had worked in an Australian system where peer assessment was used in conjunction with appraisal by the senior management, in order to be re-licensed or promoted. This also involved a great deal of paperwork at first; therefore, I was apprehensive about forming a partnership with Pamela.

In fact, it has been like an 'ego-massage'! As teachers, we seldom have the opportunity of hearing another teacher's view of our classroom, or of observing another class ourselves. It has been a wonderful opportunity to recall success and discuss 'failures'. It has made us find time to listen and support each other; unless you make time there isn't any.

Our department is very open and people other than teachers and class members are often in the classroom, but this was different – it was for us. We were able to look at our teaching and the students in a different light. I was aware of a temptation to 'play to the new adult audience', but this disappeared quickly. The most singular thing to me is how memorable that lesson was; I feel that heightening my awareness at the time has helped memory of it to remain vivid.

When I went into Pamela's lesson I was a little apprehensive. I knew that I could walk into any of her lessons, but this was different as I felt that I was watching for something – looking for some area to define and not being certain what it was. This proved to be an unfounded concern. I mirrored the lesson as I saw it and we had plenty to review and debate.

We learnt from each other, opening up many possibilities. The lessons I observed and those I was observed in, are imprinted on my mind.

In this vignette IQEA project providing and defining the

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In this vignette, John Beresford, the research officer on the IQEA project, describes how he collaborates with schools in providing data on styles teaching and learning to assist in defining the focus of their improvement strategies.

There is already an extensive literature on the component parts of effective teaching (see, for example, Chapter 10) but less on the process of matching teaching strategies to students' learning styles. Much of the matching of teaching and learning styles has been extremely speculative, based upon the premise that if a sufficient variety of strategies are employed, then a catch-all effect will apply.

The need for some form of dialogue between teachers and students about teaching and learning methods in the classroom has increasingly been recognized by a number of the schools in the IQEA project. These schools have shown themselves willing to discuss with students their views about what constitutes effective teaching. It is also clear that they regard some acknowledgement of student learning preferences, in the teaching which takes place within their classrooms, as an element of effective teaching in its own right. They have also called for an easy-to-administer research instrument that can both help them match what goes on in classrooms more closely to the preferences of their students and provide clues about where to develop the teaching repertoire of their teachers and the learning repertoire of their students.

In order to undertake an audit of the teaching strategies used in its classrooms, and a survey of students' views on those strategies, we developed instruments based on the work of David Kolb. Kolb's (1984) seminal work, *Experiential Learning*, effectively reconceptualizes Piaget's work on developmental learning into four distinct and authentic learning styles, with no implicit hierarchical structure. These four learning styles can be represented as quadrants in a grid where the two dimensions of perceiving and processing information have been juxtaposed, and Kolb also gives useful descriptors of each learning style.

Our colleagues have further identified a range of classroom activities and strategies associated with each of the four learning styles (see Fielding 1994) and from this have produced an observation schedule which can be used to record the incidence of these various activities in a lesson (Beresford 1998). Each activity is coded according to the learning style for which it caters. As each activity occurs in the lesson, its incidence is noted. No assessment is attempted regarding the effectiveness of the various strategies within the context of the lesson. At the end of the period of observation the different number of strategies and learning activities employed by the

teacher is totted up and recorded, in the boxes provided, against the appropriate learning style. Hence the lesson can be said to have a particular profile corresponding to the combination of numbers in the boxes. These can be converted into percentages of the total number of strategies and activities used.

In order to assess students' preferences for these characteristics teaching activities, we drew up a similar schedule on which students were asked to indicate which of the activities they preferred. The schedule consists of a list of classroom activities directly related to the teaching strategies listed in the observation schedule. By scoring 'Don't Like' responses as 0, 'Don't Mind' as 1 and 'Like' as 2 and adding the total for each of the learning style categories, a profile similar to that derived from lesson observations can be derived for each student. By adding the totals of all students in a particular group, a group profile can be obtained. These profiles indicate individual and group learning style preferences (see Beresford 1998, 1999).

The schedule is versatile inasmuch as it can be used to gauge individual's learning preferences as well as group ones. Students' preferences in individual subjects can be assessed as well as their general learning preferences. Some schools have used the schedules to find out which strategies the students feel are most effective in the teaching of an individual subject, but most have felt that their students lack the necessary analytical skills to arrive at such a judgement. The schedule can also be used to assess any gender differences or differences between year groups.

In this example, David Jackson who, at the time of writing the cameo, was Head of Sharnbrook Upper School and Community College in Bedfordshire, describes how the school improvement focus on teaching and learning is organized at Sharnbrook, and how students are involved in the process.

Sharnbrook Upper School and Community College was established as a 13-19 upper school in 1975 to provide comprehensive education for 32 villages situated in rural mid-England. Sharnbrook's school improvement model is now a continuous, whole-school initiative deeply embedded into our work. At its heart is a fluid group (cadre) of staff committed to working in partnerships and together around areas of mutually agreed enquiry. During the eight years of involvement with IQEA we have had almost as many different modes of operation for the school improvement group, but certain characteristics remain consistent. Some of these are that:

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- The school improvement group is led by two staff operating in a co-leadership model.
- The school improvement group breaks down into trios of staff, each engaged in a separate enquiry designed to generate knowledge and understanding about the school's work and to indicate directions for improvement.
- Each of these partnerships undertakes a sustained process of enquiry within the school, drawing also from the knowledge-base within the field and from good practice elsewhere, and, as an outcome of this data-gathering, suggests improvement to the school's practice, supports the implementation of improvements and then enquires further into their effect upon student learning or the wider school community.
- Each partnership tries to ensure that all those who contribute towards their research are involved, too, in the process of making meaning from the data and, where feasible, in the implementation of outcomes.
- Each partnership also commits to connect with the wider constituency of staff, students, parents and governors in order that all who need to do so can share the emergent journey.
- The school facilitates opportunities for each partnership to lock into consultation and decision-making structures, as appropriate, so that findings from the enquiry will be implemented.
- The entire school improvement group commits to monitoring the value of their own work and to critique each other's practice.

It goes without saying that staff at all levels of the school are involved, including newly qualified teachers, support staff and, more recently, students. Each partnership is entirely free of status positions within the more formal organizational structure of the school and offers leadership opportunities to a variety of staff. Some partnerships might be involved with significant whole-school issues (for example, assessment strategies to improve student achievement) whilst others may be engaged in focused classroom research activity (questioning technique, or cooperative groupwork). The scale of the intended impact is less significant than the quality of the knowledge deriving from the enquiry. A piece of classroom research, for example, can have equally powerful whole-school impact if the knowledge (about seating arrangements, starts and finishes of lessons – or whatever) is sufficiently significant and widely owned.

By 1997 we had incorporated into the model a group of students who were empowered to operate their own 'school improvement group' complementing and mirroring the style of the wider group. As the student voice dimension of our work evolved, we wanted more

authentic and active involvement than 'passive voice'. Between a third and half the staff were, at this stage, involved any one year, focusing exclusively on enquiry and improvement issues.

The 1999/2000 model retains the concept of trios, but reverts to a focus specifically upon teaching and learning. Following a workshop with the whole staff, six areas of classroom practice were identified, and each of the trios has adopted one of these areas mandated by the whole staff. The first 'enquiry' task for each of the partnerships is to develop a powerful theoretical understanding of their particular teaching and learning focus – by researching the knowledge-base, observing classrooms, visiting other schools, or whatever. The trio will then practice and develop their skills in the classroom, providing in-house coaching for one another. The next phase will be to engage in action research with students to seek to validate the impact of this approach upon learning. Throughout this process the remainder of the staff (all staff not involved in one of the partnerships) will choose one of the areas, creating associate groups of about 15 staff for each partnership, who will follow the course of events, engage in workshops and generally become immersed and prepared. When (or if) the action research process validates the impact of the model, the associate staff will be asked to adopt the approach in their own classrooms and to be coached by the trio engaged in the original work.

This is a huge over-simplification of the model, but even described at this level it gives indications of the infrastructural and cultural changes that have evolved through the work of the various models. These would include:

- The opening up of classrooms and classroom practice and the legitimization of in-class coaching.
- The creation of a language to talk about teaching and school improvement.
- The integration of enquiry and professional development approaches.
- The value and authenticity of the student voice and the significance given to their perceptions as learners.
- The willingness of all staff to embrace the value of the development work emanating from the school improvement group.
- The ownership by the whole staff of the school improvement approach.
- The power of a sustained school improvement journey to win over those initially sceptical or even cynical.
- The expansion of leadership capacity.

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The final example is taken from a paper by Lawrence Stenhouse (1979: 71-77) (reprinted by permission of Universitetsforlaget AS). He describes, in the first person singular, the fictionalized predicament of a teacher who turns to the research literature for advice on which teaching strategy to use.

I teach social studies in the form of a human issues programme covering such topics as the family, poverty, people and work, law and order, war and society, relations between the sexes. I wonder whether I should include race relations. A complicating factor is my style of teaching controversial issues to adolescent students. I set up discussions and use evidence such as newspapers, stories, pamphlets, photographs and films. I act as neutral chairman in those discussions, in order to encourage critical attitudes without taking sides. In short, I have been influenced by and am in the tradition of the English Humanities Curriculum Project (Stenhouse 1970).

I am very concerned that my teaching should contribute positively to race relations in my multiracial society, if that is possible. I wonder whether I should teach about race relations at all. If so, I wonder whether it is appropriate in this case to take the role of neutral chairman, even though this is a teaching convention and not a position professing personal neutrality. So I turn to a research report on 'Problems and Effects of Teaching about Race Relations' for enlightenment (Stenhouse *et al.* 1982, cited in Rudduck and Hopkins 1985).

Here I find that the project has monitored on a pre-test, post-test basis two different strategies of teaching about race relations, one in which the teacher is neutral (called strategy A), the other in which the teacher feels free to express, whenever he feels it appropriate, his committed stance against racism (called strategy B). Strategy A was conducted in 14 schools and strategy B in 16 schools. The samples are not true random samples because of problems of accessibility of schools and students, but I know something about this from my study of education at college (Campbell and Stanley 1963). Control groups have been gathered in the same schools as the experimental groups whenever this was possible, though this was not possible in all cases. I came across this table (see Table 2.2) of results on a scale purporting to measure general racism.

This seems to help me a good deal at first sight. My neutral strategy is strategy A. Attitudes in the strategy A group seem to improve and, though the improvement does not quite reach even the 0.05 level of significance, the control groups, left to general

Table 2.2 Scores on the General Racism Scale of the Bagley-Verma Test^a

Teaching style	Experimental sample			Control sample		
	Pre-test mean (S.D.)	Post-test mean (S.D.)	Direction of shift and t-value for difference of means	Pre-test mean (S.D.)	Post-test mean (S.D.)	Direction of shift and t-value for difference of means
<i>Strategy A</i>						
Experimental (n = 258)	17.24 (10.05)	16.51 (10.25)	1.71	16.06 (9.66)	17.61 (10.49)	2.11*
Control (n = 124)						2.83**
<i>Strategy B</i>						
Experimental (n = 359)	17.25 (9.61)	16.17 (9.78)	2.27	17.42 (9.93)	17.87 (10.58)	0.72
Control (n = 180)						1.91

^a A decrease in score represents a decrease in racism.
 * P < 0.05; ** P < 0.01.

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Experimental ($n = 559$)	17.25 (9.61)	16.17 (9.78)	2.27	17.42 (9.93)	17.87 (10.58)	0.72	1.91
Control ($n = 180$)							

^a A decrease in score represents a decrease in racism.
* $P < 0.05$; ** $P < 0.01$.

influences, deteriorate in attitude significantly and the comparison of experimental and control shows at least by one criterion a 0.01 level discrimination in favour of teaching about race relations by strategy A. Strategy B does not look markedly superior to strategy A, so I don't seem to need to change my teaching style. So it seems that research has helped me by enabling me to decide the right style in which to teach about race relations.

But, oh dear, here's a problem. On a later page the same data are presented in a different form to show the situation in individual schools and this seems to complicate the issue as shown in Table 2.3. Now, looking at this table, I personally feel that, given comment codes A, B or C, I certainly ought to proceed, given comment codes D and possibly E, I should proceed with great care, and given codes F and G, I might be better to give a lot more thought to the matter. In seven out of 12 schools, the result seems encouraging, in four schools results seem doubtful and in one of the 12 rather alarming. How do I know what category my school will fall into? This is really rather disturbing for my decision. Perhaps I should shift to strategy B. Let's look at the strategy B table (see Table 2.4).

Oh dear! This is no better. Here eight out of 15 schools are reassuring, three are doubtful and three are alarming. Strategy B seems no refuge.

Can it be that statistically significant discriminations between two treatments when presented through means and standard deviations can mask such a range of within-sample variance as this? It can indeed. In the psychostatistical research paradigm, the effects are not 'other things being equal'; they are 'by and large' or 'for the most part'. So doing one thing is only sometimes better than doing the other! This, apparently, depends on your school context or school environment or perhaps yourself or your pupils.

What I have to find out now is whether teaching about race relations by strategy A is good for my pupils in my school. However, that reminds me that I haven't looked at pupils as individuals, only as means and standard deviations. Suppose I took these data and looked at them in a way that depicted the fate of individuals. How about a histogram of change scores. There are, of course, problems with such scores but, bearing them in mind, I'll give it a go (see Figs 2.1 and 2.2).

My goodness, it looks as if the same teaching style and the same subject matter make some people worse as they make other people better. One man's meat is another man's poison. If I teach about race relations, some people get worse. But if I refuse to teach about race relations, even more people get worse. I suppose I should have

Table 2.3 Differences between pre- and post-test school means for the experimental and control groups on the General Racism (GR), Anti-Asian (AA) and Anti-Black (AB) Scales of the Bagley-Verma Test: Strategy A

1 School code	2 Experimental GR	3 Experimental AA	4 Experimental AB	5 Control GR	6 Control AA	7 Control AB	8 Comment code
03	-1.83	-0.35	-1.22	-	-	-	C
07**	1.58	0.54	0.31	-0.86	0.21	-0.71	G
09	-0.22	0.55	-0.90	2.11	1.45	1.09	A
10*	-0.63	-0.18	-1.54	-	-	-	C
13	-0.85	0.37	-1.29	-0.89	-0.56	-0.67	D
17	-2.50	-1.17	-1.78	-	-	-	C
18	1.70	2.40	0.90	6.63	4.38	3.75	B
19	0.37	-0.04	0.62	-	-	-	D
29	-3.42	-1.75	-1.67	2.0	0.87	-0.25	A
31**	-0.12	0.77	0.65	0.34	0.50	-1.16	D
32**	-1.61	-0.70	-0.83	-0.07	-0.77	-0.38	A
39*	1.20	-0.50	1.05	-	-	-	D
Mean of strategy A controls (individuals)				(1.30)	(0.83)	(0.49)	

* 5-25% non-white; ** over 25% non-white.

Table 2.4 Differences between pre- and post-test school means for the experimental and control groups on the General Racism (GR), Anti-Asian (AA) and Anti-Black (AB) Scales of the Bagley-Verma Test: Strategy B

1 School code	2 Experimental GR	3 Experimental AA	4 Experimental AB	5 Control GR	6 Control AA	7 Control AB	8 Comment code
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Mean of strategy A controls (individuals)

(1.30) (0.83) (0.49)

* 5-25% non-white; ** over 25% non-white.

Table 2.4 Differences between pre- and post-test school means for the experimental and control groups on the General Racism (GR), Anti-Asian (AA) and Anti-Black (AB) Scales of the Bagley-Verma Test: Strategy B

1 School code	2 Experimental GR	3 Experimental AA	4 Experimental AB	5 Control GR	6 Control AA	7 Control AB	8 Comment code
01	-3.51	-1.60	-2.57	-1.75	1.43	-1.34	A
02	0.00	-0.67	-0.10	2.43	1.22	1.43	A
04*	1.04	0.10	0.24	-	-	-	E
05	-2.27	-0.34	-0.97	-	-	-	C
06*	-2.00	1.29	-1.30	0.55	0.34	-0.52	D
08	1.09	0.30	0.07	-5.40	-1.20	-2.33	G
09	-2.89	-0.22	-1.97	2.11	1.45	1.09	A
11	-1.58	-0.48	-0.53	-	-	-	C
14**	-0.33	0.39	0.91	-	-	-	D
15	-2.25	0.17	-1.42	-	-	-	C
20	-0.39	0.05	-0.22	-	-	-	F
21	-1.77	-1.32	-1.19	-1.15	0.86	-1.43	A
24*	0.19	0.37	0.60	1.59	1.04	0.59	B
30*	3.79	1.27	2.16	4.93	1.07	1.65	E
33	1.00	0.43	0.38	-0.83	0.83	-0.08	G
Mean of strategy B controls (individuals)				0.90	0.71	0.30	

* 5-25% non-white; ** over 25% non-white.

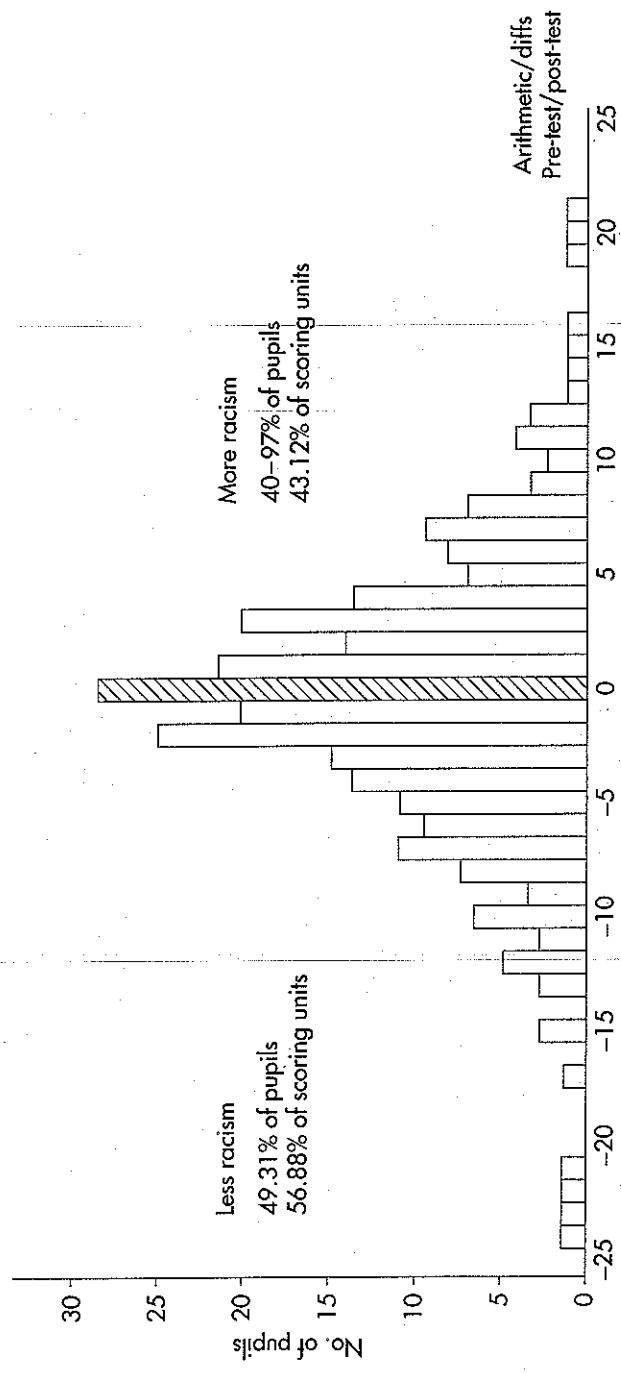


Figure 2.1 Histogram of differences between the pre- and post-test scores on the General Racism Scale of the Bagley-Verma Test: Strategy A experimental (n = 288).

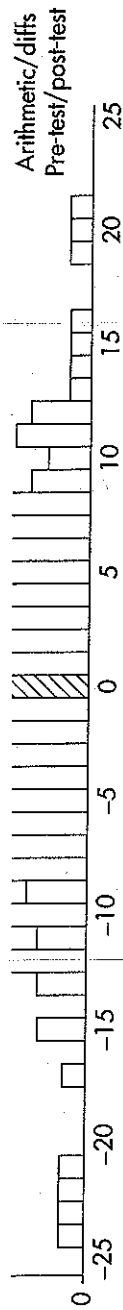


Figure 2.1 Histogram of differences between the pre- and post-test scores on the General Racism Scale of the Bagley-Verma Test: Strategy A experimental ($n = 288$).

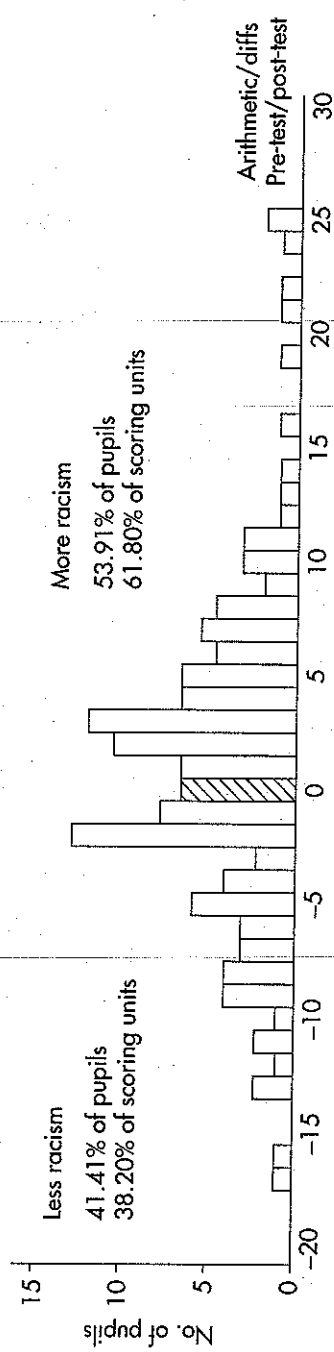


Figure 2.2 Histogram of differences between the pre- and post-test scores on the General Racism Scale of the Bagley-Verma Test: Strategy A control ($n = 128$).

thought of that anyway. I know that when I teach literature some people come not to like it, but I believe that even fewer would enjoy literature if I didn't introduce them to it all.

I need to steady myself. After all, engineers don't always build exactly the same bridge. Nor do chess players always play the same game. There must be ways of fitting action to situation and perhaps even to individuals in that situation.

I've clearly got to think things out for myself. Does this mean that research cannot help me? What was that piece in the paper by Cronbach they gave us in Ed. Psych? Here are my notes. And here it is:

When we give proper weight to local conditions, any generalization is a working hypothesis, not a conclusion.

(Cronbach 1975: 125)

That seems to mean that the results of research need testing in local conditions. What research gives me is most often not findings about all teaching but hypotheses about my teaching.

This is a bit of a shock, but it makes reasonable enough sense. And the hypotheses I've got are already of some use. I must test whether strategy A works well for me in my classroom, whether I can sustain its logic in practice and whether it is giving good results in attitudes. At the same time, I know that even in a good result some individuals may be deteriorating in attitude.

What I am going to do is this. I'm getting a student to come in and pre- and post-test my pupils and a control group in my school. But I'm also going to tape our sessions on race relations on a portable cassette-recorder. To do this, I have to tape other lessons too, so that I don't seem to be concentrating on race. I've started this. I'm explaining to the students that I'm doing a study of my own teaching and that this should help me to teach better. And I'm beginning to get them talking about how well my teaching and their learning goes.

Of course, there's a problem about how to handle the tapes. I played some at home and tried a Flanders Interaction Analysis (Flanders 1970) on them. It did tell me that I talked too much, but not a lot more. Then I tried the Humanities Curriculum Project analysis, which worked quite well because I was involved in discussion teaching. But I want to look at pupil behaviour as well as teacher behaviour. I'm beginning to ask myself whether I can develop a theory of individuals who cause me concern in class. I don't even need paper to do that. I can play cassettes in my car as I drive to and from work.

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FURTHER READING

There are a number by teachers. In *A Teacher's Guide to Classroom Research* a series of descriptive search projects. Ext Michael Armstrong classroom research in an external research complexities of an Urban Classroom. Jean Rudduck 1983; Rudduck 1983; Rudduck search accounts as a 1980s, the Classroom Project, and the Teacher Inquiry (TIQL) project (Ebb published accounts of from the Centre for A More recent collective *Research in Classrooms* on secondary schools *the Primary School*. Two room research as well

The more I come to study my own classroom, and my own school as well, the more I come to understand why the research provides case studies of classrooms. Comparing other people's experiences with my own throws up all sorts of illuminating possibilities – hypotheses, I mean.

At the end of this session, I'm going to try to set up a club in the district for teacher-researchers. They have clubs for people who tinker with motorcycles to get more performance from them, so why not the same for teachers who are tinkering with their teaching?

I'd like to set about testing Piaget. Most of his experiments are a kind of teaching. And I have a feeling that if I work with a small sample, like he did, I'll find out quite a lot for myself. I've got a better laboratory than he had: it's a real classroom!

I'm not sure if I'm doing research. I am testing hypothesis by experiment as systematically as a busy job allows.

The *Shorter Oxford English Dictionary* says that research is: 'Investigation, inquiry into things. Also, habitude of carrying out such investigation.' Well, it is beginning to become a habit.

FURTHER READING

There are a number of sources for further examples of classroom research by teachers. In *A Teacher's Guide to Action Research*, Jon Nixon (1981) presents a series of descriptive accounts by teachers of a variety of classroom research projects. Extended illustrations of teacher research are given by Michael Armstrong (1980) in *Closely Observed Children*. Classic examples of classroom research in this tradition, although involving the participation of an external researcher, are found in Smith and Geoffrey's (1968) *The Complexities of an Urban Classroom* and Stephen Rowland's (1984) *The Enquiring Classroom*. Jean Rudduck and her colleagues (Hull *et al.* 1985; May and Rudduck 1983; Rudduck 1981) have produced collections of teacher research accounts as a result of their funded research projects. During the 1980s, the Classroom Action Research Network (CARN), the Ford Teaching Project, and the Teacher-Pupil Interaction and the Quality of Learning (TIQL) project (Ebbutt and Elliott 1985; Elliott and Ebbutt 1985a,b) all published accounts of their classroom research activities that were available from the Centre for Applied Research in Education, University of East Anglia. More recent collections of teacher research case studies are found in *Action Research in Classrooms and Schools* (Hustler *et al.* 1986), which mainly focuses on secondary schools, and Rosemary Webb's (1990) *Practitioner Research in the Primary School*. Two other books that contain detailed examples of classroom research as well as descriptions of method and philosophical discussions

are *Collaborative Action Research* (Oja and Smulyan 1989) and Richard Winter's (1989) *Learning from Experience*.

Governmental interest in the 'teacher as researcher' concept has recently contributed considerable legitimacy to the movement. As a consequence, the research papers published by the Teacher Training Agency (TTA) now provide a rich and important source of classroom research case studies, as do the articles in *TOPIC* (published by the National Foundation for Educational Research) and *Improving Schools* (published by the Institute of Education, London). Homerton College publishes teachers' research accounts under the aegis of the Homerton - Schools' Research Circle.

CHAPTER

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Lawrence Stenhouse

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**A teacher's guide to
classroom research**

THIRD EDITION

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For
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