others. The others may be internal or external to the school. Here are a few fictional examples of ways in which case studies and case records can be used.

Example 1: Internal

A teacher used his case study as a basis for discussing his classroom practice with colleagues at a departmental meeting.

Example 2: Internal

A co-ordinator of an action-research team was asked by the senior management of a school to report on an issue it was concerned about and believed to be well documented in the team's case studies. The co-ordinator subsequently examined the case studies and records in the light of this issue and produced a report which was then discussed with the senior management.

Example 3: External

The governing body requested a report on 'classroom issues' from the school for its next meeting. The headteacher asked the classroom action-research team in the school to produce it. They compared and contrasted each other's case studies and case records and extracted 'general issues'. Then each member of the team produced a short 'general account' of an issue, and the resulting accounts were put together by the co-ordinator for presentation to the governing body.

Example 4: External

A parent–teacher association (PTA) had expressed reservations about the teaching of basics in the school. The result was the initiation of an action-research project on the subject. The team involved produced a 'general issues' report after comparing and contrasting their case studies. The report was discussed at the annual general meeting of the PTA.

Such uses of case studies and case records could foster a greater integration of accountability and professional development activities. Not only would the products of action research contribute to accountability, but the discussion stimulated by their use would also feed back into the reflection taking place 'where the action is'.

Wk	Activity	Monitoring	Duration	Comments
15				
16	VACATION:			
17		Write case study (3,000 words maximum + case record) for team meeting in week 1 next term		
Cycle 2 18				
19				
20				
21				
22				
23				
24				
25				

same pupils, then decisions should be a group responsibility. But, if the group consists of teachers working with different classes (although they share a common problem), then the decisions should be individual ones. However, there will be courses of action individuals can undertake together, and it is important therefore, that they keep roughly in step with each other. This will also enable a profitable sharing of insights and research strategies to take place. A group working in different, but similar, classroom situations should have a co-ordinator who:

(a) Convenes approximately three team meetings per cycle, e.g. at the beginning, middle and end of a term.

(b) Keeps a record of any agreed general plan which emerges.

(c) Co-ordinates negotiations between individual team-members and the headteacher, other staff, external consultants, etc.

(d) Helps individuals to share insights and research strategies.

(e) Co-ordinates the writing up of research reports and papers.

The initial meeting in a cycle should be to clarify the problem situation, perhaps by discussing case studies on the previous cycle of activities. What reconnaissance needs to be done in order to understand the situation in greater depth should also be discussed. The middle meeting should discuss (or finalize) the general plan(s), and the end-of-cycle meeting should study analytic memos on 'implementation problems and effects'.

Reporting action research

Case studies are a way of publicly reporting action research to date. Ideally case-study reports should be based on analytic memos. At least one full report

should be written at the point where one decides to end a particular spiral of action and research and switch to a quite different issue or problem.

A case-study report of action research should adopt a historical format, telling the story as it has unfolded over time. It should include (but not necessarily in separate sections) accounts of:

- How one's 'general idea' evolved over time.
- How one's understanding of the problem situation evolved over time.
- What action steps were undertaken in the light of one's changing understanding of the situation.
- The extent to which proposed actions were implemented, and how one coped with the implementation problems.
- Any problems which arose in negotiating action steps with others, or in negotiating the time, resources and co-operation one wanted during the course of the action research.
- The intended and unintended effects of one's actions, and explanations for why they occurred.
- The techniques one selected to gather information about (a) the problem situation and its causes, and (b) the actions one undertook and their effects.
- The problems one encountered in using certain techniques and how one resolved them.
- Any ethical problems which arose in negotiating access to, and release of, information, and how one tried to resolve them.

This checklist is a revised version of one proposed by Kemmis et al. (1981).

Stenhouse (1978) has made a useful distinction between case study, case record and case data. In the context of action research the case data will consist of all the evidence one collects, e.g. in the form of recordings, transcripts, diaries, notes, photographs, etc. The case record will consist of an ordered selection of evidence from the case data, which is organized in terms of its relevance to the issues addressed in the case study. The case study is essentially an analysis of one's experience to date. At points one should cross-reference the analysis to the evidence on which it is based: the 'primary sources'.

After the case study is written, this evidence can be ordered into the case record. The existence of the latter enables the reader to check the interpretations and explanations contained in the case study against their primary sources.

Making use of case studies and case records

Action research enables schools to reconcile self-evaluation for accountability purposes with self-evaluation for professional development. The case studies and case records generated through action research can provide the basis on which accounts of educational practice are constructed for discussion with

How long should one take to complete 'a cycle'?

One can give no firm answer to this. There is a danger of forcing the process through when the situation requires one to sustain an activity for perhaps a longer period than originally anticipated. For example, implementation efforts are often abandoned on the basis of a very superficial analysis of the problems. The analysis is confined to the quite inadequate amount of time estimated for implementing the course of action.

However, one has to anticipate roughly how long an activity or cycle will take to complete satisfactorily. One can then readjust one's original timetable in the light of experience.

In the UK the fact that school terms are usually interspersed by fairly long vacations suggests that this is at least a natural organizational unit of time in which to complete a 'cycle' of classroom action-research activity. Given a fourteen-week term, 'a cycle' might be timetabled as in Table 6.3.

How long should one continue the spiral before terminating heavy monitoring, and perhaps shifting the focus of the research on to another problem area?

Again one cannot legislate for this, but I would normally feel it necessary to complete at least three, and perhaps four, cycles before one ought to be sufficiently satisfied with the improvements effected. In the context of classroom action research this could well mean a commitment of at least a year.

One may, however, discover after one or two cycles that further improvements cannot be made without the co-operation and intervention of others outside the research team. For example, in a classroom context, one may decide that something needs to be done about the organizational context of classroom practice. Perhaps changes need to be made which are beyond one's powers to make, e.g. the syllabus, or in timetabling arrangements, or in the ways pupils are grouped. In such cases the research team in the school should move into a period of negotiation with the relevant persons, committees, etc., who control what needs changing. Usually these changes cannot be made overnight and negotiations need to proceed sufficiently in advance, in school normally during the Easter Term.

While these external negotiations are going on, the spiral of action research should focus on them directly, and away from classroom action. But one should use the evidence collected on classroom action as the basis for the negotiations which are now to be monitored.

Should the general plan and decisions about monitoring be an individual or team effort?

This will depend on whether the group engaged in the research is working in the *same* or a *similar* situation. For example, if the group is 'team teaching' the

Table 6.3   Sample timetable for an action-research cycle

Cycle	Wk	Activity	Monitoring	Duration	Comments
Cycle 1	1	Clarifying general idea			Team meeting
	2		Class 4T: keep diary for all lessons. Tape-record in one lesson per week, and collect samples of written work and assignment cards for these lessons	One lesson per week (with exception of keeping diary)	
	3 } 4 }	Reconnaissance			
	5 } 6 }	General plan	Diary (4T)		Write an analytic memo and begin to formulate plan
	7	HALF TERM BREAK			Write first draft of general plan
	8	General plan	Diary (4T)		Discuss general plan at team meeting
	9 } 10 }	Develop action steps 1	Diary (4T)		Write timetable for monitoring in weeks 11–14
	11 } 12 }	Implementing action steps 1	Diary (4T) (+ techniques selected at weeks 9–10)	Two lessons per week	Study evidence collected. Write analytic memo to share at team meeting
	13 } 14 }			One lesson per week	

The accounts may be elicited through interviews, the submission of written reports, photographs, etc.

In comparing different accounts, the points where they *differ*, *agree* and *disagree* should be noted. In cases of disagreement one can check against evidence contained in recordings and transcripts. It is also desirable to mount discussions on points of disagreement between the various parties involved; preferably under the chairmanship of a 'neutral' party.

Triangulation of evidence is an excellent preliminary to the production of an analytic memo.

Analytic memos

Analytic memos contain one's systematic thinking about the evidence one has collected and should be produced periodically, normally at the end of a period of monitoring or reconnaissance. These memos may record such things as:

- New ways of conceptualizing the situation under investigation which have emerged.
- Hypotheses which have emerged and which one would perhaps like to test further.
- Citations of the kind of evidence you need to collect in the future, in order to 'ground' emergent concepts and hypotheses more fully.
- Statements about emerging problems and issues within one's field of action.

The analyses contained in these memos, which may be as short as one or two pages, should be cross-referenced to the relevant evidence on which they are based, e.g. to certain entries in the diary, or to sections of transcribed tape/video recordings.

Finding time for gathering evidence

In selecting techniques for gathering evidence one needs to consider how much time one can realistically set aside for it. Here it is useful to think in terms of what Len Almond at Loughborough University calls 'containable time' (see James 1982).

For example, with respect to classroom action research a teacher should decide exactly when, and how much, time can be set aside for monitoring his next action step(s) and its effects. It is no good collecting more evidence than one can afford to process and reflect about. And it is no good deciding to transcribe all recordings when one knows one hasn't the time to do it. So how many lessons are monitored and which techniques are selected should all be matched to a realistic estimate of available time. The 'matching' process is helped by the working out of a timetable. Kemmis et al. (1981) suggest the format in Table 6.2.

Table 6.2 Timetable format suggested by Kemmis et al. (1981)

Stage	Beginning/ closing date	Monitoring	Duration	Comments
Finalizing General Plan	24.4.81–1.5.81			Availability of tape-recorder to be finalized. X to agree to swap rooms
First action step	4.5.81–15.5.81	Tape record 20 minutes of Year 1CB Science in the two single periods each week. Write impressions in spare period which follows (diary) Interview students (three to begin with) for impressions	Two weeks, four lessons	Allow two periods on Friday 1 p.m. to edit tape. (Just write out questions and answers.) Collate with impressions (mine and students.)
Evaluation	After vacation	Verbal report to impressions	One week	Verbal report to science faculty first Friday after vacation: 5.6.81

Organizing and reporting action research in schools

In describing the action-research cycle 1 have largely illustrated the activities involved and the research techniques available with examples from classroom action research. But the activities and techniques described apply to any research undertaken by people with a view to improving their own actions in social situations. Even in the context of educational institutions action research has applications beyond the study of classrooms. For example, it can be used to improve the management of schools, the pastoral care system, teacher-parent communication, etc. However, since my interest in writing this chapter is mainly to provide a framework for school-based classroom research, I shall confine the remarks which follow to this context. They will consist of a series of answers to questions 1 believe to be important when organizing action research in schools.

freedom to digress and raise their own topics as the interview progresses (not 'tacked on' at the end), is probably better than a rigidly structured approach.

The running commentary

There are periods in most practical situations where a participant can pause to observe what is going on. This provides an opportunity for producing a running commentary on events. In teaching situations one useful application of this technique is when observing a pupil or group of pupils working at a task.

Observation should continue for at least five minutes. Do not intervene in the task the pupil is (or pupils are) engaged on. Sit as near as possible but try to angle your line of vision at a different angle to that of the pupil(s), e.g. avoid sitting face to face. Avoid any posture or position which highlights the fact that a pupil is (or pupils are) being watched. Try to write down as literally and concretely as possible everything that is said and done. Note things like tone, gesture, etc. Keep the commentary as descriptive as possible, avoiding judgements and high-level interpretations from which it is difficult to tell what was actually happening (e.g. 'they worked well').

The shadow study

Here a participant is 'shadowed' for a period of time, and a continuous running commentary made on his or her actions and reactions.

In classroom situations the person shadowed could be a teacher or a pupil (as he or she moves through a series of lessons). The observer doing the shadowing may be an external consultant or on-site colleague. The observations could even be shared between members of the action-research team. Each member would take turns to shadow the subject at different points. Later the team could meet to put their observations together.

Observers should be briefed on the kinds of things to look for, and their reports made available to the action researchers (if the latter have commissioned outsiders to do them).

Checklists, questionnaires, inventories

Checklists are basically sets of questions one answers oneself. They structure observations by indicating the kinds of information needed to answer the questions. An exclusive reliance on checklists can blinker one to unanticipated effects of actions, and factors in their context which may explain these effects.

Checklists should always be used in conjunction with more open and less structured techniques of monitoring, e.g. recordings, free observation, running commentaries, unstructured interviews.

This recommendation also applies to questionnaires and inventories. Both are ways of eliciting other people's observations and interpretations of

situations and events, as well as their attitudes towards them. But again others may have important observations, interpretations, etc, to make which one hasn't anticipated in designing these instruments.

A questionnaire is basically a list of questions one wants to ask other people. It is one way of checking whether other participants in the situation would give the same answers to the kind of questions one has asked oneself on a checklist.

An inventory is a list of statements about a situation which others may agree with or not. Responses can consist of a tick placed in one of the following categories: Strongly agree – agree – uncertain – disagree – strongly disagree. An inventory is quite a good way of discovering the extent to which others agree or disagree with one's observations and interpretations.

Questionnaires and inventories allow one to quantify people's observations, interpretations and attitudes. They should be used as follow-up techniques to more qualitative ones. For example, I once interviewed a small sample of parents at a school on what they valued about schools. In these unstructured interviews I discovered to my surprise that more than half the parents placed such considerations as 'concerned about children's personal and social as well as their academic development', 'children are happy there', 'teachers care about individuals', way above my anticipated responses, namely, 'good exam results', 'good discipline' and 'uniform'. If I had started with a questionnaire or inventory I would probably have missed out some of the former considerations. But, having elicited these considerations through unstructured interviews, I then incorporated them into an inventory which was circulated to a larger, more representative, sample. This enabled me to assess how widely the particular values cited in interviews were shared by other parents of the school in question.

In my view inventories, scaled in the way indicated, are better than questionnaires as techniques for gathering data which complements that collected through unstructured or semi-structured interviews. As Winter (1982) has pointed out, the latter enable people to express ambivalent views, and so can inventories to some extent. But questionnaires tend to force people to present their views as if they were quite unambivalently held.

Triangulation

Triangulation (see Elliott and Partington 1975, for an example) is not so much a technique for monitoring, as a more general method for bringing different kinds of evidence into some relationship with each other so that they can be compared and contrasted.

The basic principle underlying the idea of triangulation is that of collecting observations/accounts of a situation (or some aspects of it) from a variety of angles or perspectives, and then comparing and contrasting them. For example, as a teacher one can compare and contrast accounts of teaching activity in the classroom from one's own, the pupils' and an observer's point of view.

- Pupils working on classroom tasks.
- What is going on 'behind the teacher's back'.
- The physical lay-out of the classroom.
- The pattern of social organization in the classroom, e.g. whether pupils are working in groups, or spatially isolated, or sitting in rows facing the teacher.
- The teacher's physical posture and position when talking to children, e.g. sitting down at their level, standing above them.

Some of this evidence can only be secured with the help of an observer, but there is quite a lot the teacher can collect by him or herself.

Photographic evidence can provide a basis for discussion with other members of an action research team or with other participants in the situation under investigation.

Tape/video recordings and transcripts

In the context of classroom action research tape or video can be used to record lessons in whole or in part. Unless video is used by an observer, its use has limitations. Used by the teacher (or pupils), it can be very distracting, although this may diminish as the user becomes more skilful. If the cameras are fixed, they may not be able to pick up certain things which are relevant and important, e.g. the verbal exchanges between the teacher and a particular pupil during a non class-teaching episode.

Portable tape-recorders with built-in microphones are probably less distracting for the teacher to carry around the classroom.

A teacher will probably get more out of a recording if he or she listens to (or looks at) it, *and then* transcribes interesting and relevant episodes. This enables him or her to move backwards and forwards through an episode more quickly and easily than constantly playing the recorder backwards and forwards. However, transcribing by hand is immensely time consuming. Teachers I have worked with testify to the fact that it is well worth the effort. It concentrates the mind on what is happening to a greater degree than simply listening and watching. But restrictions on available time will limit the extent to which transcription is possible.

Using an outside observer

This technique can be useful if the outsider is well briefed by the insider, so that he or she knows the sort of information which will be of use to the latter. In the context of classroom action research the outsider can collect information and convey it to the teacher in the following ways:

- Taking photographs and then passing them over (perhaps with comments attached).
- Making a video-recording and showing the teacher excerpts he or she feels to be significant.

- Making detailed notes as he or she observes, and using them as the basis of a short report for the teacher to read.
- Allowing the teacher to interview him or her; the former using a tape recorder or taking notes.

The outsider may be a fellow member of the action-research team but operating outside one's immediate field of action; a colleague who is not involved in the research; or an external person who visits the school (or site) as a consultant.

Interviewing

Interviewing is a good way of finding out what the situation looks like from other points of view. I have already mentioned interviewing an observer. But it is also important to interview those one normally interacts with in the situation.

In the context of classroom action research a sample of pupils should be interviewed frequently. Eliciting 'authentic' accounts from them is not easy initially, given a teacher's authority position. One way to overcome this is to ask an external consultant to do some initial interviews. He or she, *with the pupils' permission*, can hand over a recorded interview to the teacher who listens to it and subsequently discusses the issues it raises with the pupils. If, in this discussion, the teacher demonstrates a capacity for open-mindedness and impartiality, pupils will be increasingly willing to talk openly with him or her directly. The external intermediary can eventually be dispensed with. An alternative to using an external consultant is to train pupils to interview each other, and for the pupil interviewer to get his peers' permission to hand recordings over to the teacher.

Interviews can be *structured, semi-structured, unstructured*. In the structured interview the questions are preset by the interviewer. In the unstructured interview the initiative for raising the relevant topics and issues is left to the interviewee. Once the latter has raised a topic or issue, the interviewer can then ask him or her to expand, explain or clarify points. A useful device for helping the interviewee to raise issues and topics is for the interviewer to play a recording of the situation which the former then stops at points where he or she would like to talk about something. A similar device would be to use some other kind of evidence as a basis for helping an interviewee to raise topics and issues, e.g. a collection of photographs, a document, etc.

During the initial stages of action research, when one wishes to remain as open as possible on the question of what information is relevant, an unstructured interview format is probably best. Later, when one is clearer about the sort of information which will be relevant, one can shift towards a more structured approach. But even here the interviewer should leave room for the interviewees to raise their own topics and issues. A semi-structured approach where the interviewer asks certain preset questions but allows interviewee

As the action researcher shifts from simply monitoring the implementation and effects of an action step into a period of reconnaissance, he or she may need to select a wider range of monitoring techniques from the battery outlined later in this chapter. Multi-techniques will help to secure a more penetrating grasp of the situation. This is an important time for producing analytic memos (see page 83), and also for rethinking the reconnaissance undertaken. When the need for an amended plan of action begins to emerge from the reconnaissance undertaken, the writing of a case-study report (see Chapter 7) can help to generate ideas about future possibilities for action at the next cycle.

Techniques and methods for gathering evidence

Here is a list of techniques and methods which can be used to gather evidence in the reconnaissance and monitoring phases of action research.

Diaries

It is useful to keep a diary on a continuous basis. It should contain personal accounts of 'observations, feelings, reactions, interpretations, reflections, hunches, hypotheses, and explanations' (see Kemmis *et al.* 1981). Accounts should not merely report the 'bald facts' of the situation, but convey a feeling of what it was like to be there participating in it. Anecdotes; near-verbatim accounts of conversations and verbal exchanges; introspective accounts of one's feelings, attitudes, motives, understandings in reacting to things, events, circumstances; these all help one to reconstruct what it was like at the time.

In the Ford Teaching Project (see Elliott and Adelman 1976) we also suggested to teachers, undertaking their own classroom action research, that pupils should keep diaries. As Kemmis and others (1981) argue, this enables a teacher to compare his or her experience of the situation with that of the pupils. However, it is important to remember that keeping a diary is necessarily a personal and private matter, and that the disclosure of its contents should be under the control of its author. There should be no compulsory collecting in of diaries at the end of lessons. One way of ensuring pupil control is for the teacher and pupils to hold periodic 'evaluation sessions' after each party has read back through the diaries. During the evaluation session each party draws on 'diary evidence' to support the views expressed. But its 'disclosure' remains under the control of the authors. However, there is no reason why diaries could not be 'exchanged' if both parties agree.

Finally, the contents of diaries should be properly dated. In the context of classroom action research, details like form, time, subject, should be cited at the beginning of an entry. Entries may vary in length and amount of detail. They should probably be fullest at those points where the heaviest monitoring and reconnaissance is planned.

Profiles

A profile provides a view of a situation or person over time. In a teaching situation one can produce profiles of lessons, or of the performance of certain pupils. Walker and Adelman's *Guide to Classroom Observation* (1975) gives some excellent examples of lesson profiles. One basic format they suggest can be seen in Table 6.1.

Document analysis

Documents can provide information which is relevant to the issues and problems under investigation. For example, in the context of classroom action research, relevant documents could include:

- Syllabuses and schemes of work.
- 'Curriculum' reports of school working parties and committees.
- Examination papers and tests used.
- Minutes of departmental meetings.
- Work cards and assignment sheets.
- Sections used from textbooks.
- Samples of children's written work.

Photographic evidence

Photographs can capture the visual aspects of a situation. For example, in the context of classroom action research they can visually capture:

Table 6.1 An example of a lesson profile (Walker and Adelman 1975) which can be inserted into diary entries at relevant points

Time	10 minutes	20 minutes	30 minutes	10 minutes
Teacher Activity	Settling in; giving out books	Introduces experiment; gives directions: asks questions	Moves round helping small groups working on experiments	Clearing up
Pupil activity	Finishing work from last lesson	Listening to teacher's directions; answering questions	Working on experiments	Write up results of experiments
Resources	Text books; pens; exercise books		Bunsen burners; tongs; foodstuffs; balances	Exercise books; pens

suggests, for example, that an alternative strategy would be to make one's expectations of how pupils are to use the information one introduces much clearer to them.

3 Constructing the general plan

The general plan of action should contain:

1 A revised statement of the general idea, which by now is likely to have changed, or at least been clarified further.

2 A statement of the factors one is going to change or modify in order to improve the situation, and the actions one will undertake in this direction, e.g. 'I will modify the way I introduce factual information to pupils by clearly explaining what they are to do with it.'

Although Lewin's model suggests one action step per cycle should be taken, my own experience tells me that it is often necessary to undertake a cluster of steps every cycle.

3 A statement of negotiations one has had, or will have to conduct with others before undertaking the proposed course of action.

A teacher may need to negotiate some of the actions he or she proposes with colleagues, or a superior, whose capacity to do their job properly could be influenced by the effects of the proposed changes, or perhaps they will 'carry the can for them', or even intervene unconstructively if not consulted. For example, a proposed change of syllabus might need to be negotiated with the relevant head of department, departmental colleagues, the head-teacher, or even pupils and their parents.

As a general principle the initial action steps proposed should lie within areas where the action researchers have the maximum freedom of decision.

Later, if it becomes clear that the only solution to the situation lies in 'negotiated action', then the planning should involve the relevant people. However, it is worth noting on the initial general plan what negotiations will have to occur later if certain actions are to be undertaken.

4 A statement of the resources one will need in order to undertake the proposed courses of action, e.g. materials, rooms, equipment, etc.

5 A statement of the ethical framework which will govern access to and release of information.

One must ask the question: can the information I gather about other people's activities and views be misused by me and those I disseminate it to (and whom could such misuse harm?)? If the answer is 'yes', then one should try to give people a measure of control over one's access to their activities and views, and over the extent to which the information one gathers should be released to others. The key concepts here are *confidentiality*, *negotiation* and *control*. One should pledge to keep the information confidential to the person concerned until one knows whether one wants to release it. One should then pledge to negotiate release with that person, with the proviso that, if disagreement over the 'release question' persists, they have the final say.

It may not be only those immediately involved in the field of action who should have a say in these matters. Others only indirectly involved may nevertheless be harmed by the misuse of information. For example, a headteacher may have to reap some of the consequences of information released about classroom practices in his or her school. One may therefore need to state clearly what his or her rights over the release of information about the school are.

The general plan therefore should include a description of an ethical framework which has been discussed and agreed with the relevant persons.

4 Developing the next action steps

Here one decides exactly which of the courses of action outlined in the general plan one is going to implement next, and how both the process of implementation and its effects are going to be monitored. It is important to remember the following:

(a) One needs to use monitoring techniques which provide evidence of how well the course of action is being implemented.

(b) One needs to use techniques which provide evidence of *unintended* as well as intended effects.

(c) One needs to use a range of techniques which will enable one to look at what is going on from a variety of angles or points of view.

5 Implementing the next action step(s)

It may take some time to succeed at implementing a course of action. It usually implies changes in all the participants' behaviour. For example, a teacher cannot change his or her role (or some aspect of it) without correspondin[g] changes being made in pupils' roles in the classroom. And this may take time if the proposed action(s) involve a fairly radical shift of teaching role. The length of time necessary to secure implementation may depend on the frequency of contact the teacher has with the group of pupils involved. Or it may depend on the extent to which he or she is able to analyse the cause of the implementation problem. In other words, he or she may have to shift away from simply monitoring the extent to which the action is implemented and undertake some reconnaissance into the underlying causes of the difficulties experienced. As a result the general idea of what the problem is, and what needs to be done about it, may have to be modified or changed.

Even if the action step is implemented with relative ease, it may create troublesome side-effects which require a shift into reconnaissance in order to understand how these arise. And this in turn may require some modification and changes to the general idea and the general plan of action.

improved. Thus pupils' dissatisfaction with the way they are assessed may merely be a symptom of a much deeper problem, which may 'come to light' during the course of action research. In this case a teacher would want to undertake subsequent actions which tackle that deeper problem rather than merely treat the symptom. The original general idea may need to be constantly revised during the process of action research. This is why I have allowed for this possibility in every cycle of the spiral, rather than 'fixing' the focus for the research at its beginning.

2 Reconnaissance

This activity can be sub-divided into:

(a) Describing the facts of the situation

One needs to describe as fully as possible the nature of the situation one wants changed or improved on. For example, if the problem is 'pupils wasting time in class' one will want to know things like:

● Which pupils are wasting time?
● What are they doing when they are wasting time?
● Are they wasting time doing similar or different things?
● What should they be doing when they are wasting time?
● What are they doing when they are not wasting time?
● Is there a particular point in the lesson, or time of day, or set of topics, where pupils waste time the most?
● What are the different forms in which 'wasting time' manifests itself?

All these facts help to clarify the nature of the problem. The collection of this information can provide a basis for classifying the relevant facts, e.g. generating categories for classifying the different kinds of time-wasting which go on.

It can also tend to some fairly radical changes in one's understanding of the original idea. E.g., one may decide in the light of this exercise that many of the things one thought to be time wasting are not, and that many of the things one thought not to be now appear to be 'time wasting'.

(b) Explaining the facts of the situation

Having collected and described the relevant facts one needs to explain them. How do they arise? What are the relevant contingencies, or critical factors, which have a bearing on the state of affairs described?

In asking these questions one moves from a *description* of the facts to a *critical analysis* of the context in which they arise. This involves:

(i) *'Brainstorming'* generating explanation-hypotheses.
(ii) *Hypothesis testing.*

An hypothesis may 'cite a relationship between the facts of the problem situation and some other factor(s) operating in its context.

For example, the following hypotheses about the problems of helping pupils to 'reason independently' in classrooms were generated by researchers and teachers involved in the Ford Teaching Project (see Elliott and Adelman 1976).

Positive reinforcers

Hypothesis: Utterances like 'good', 'interesting', 'right', in response to ideas expressed by pupils can prevent the discussion of alternative ideas, since pupils tend to interpret them as attempts to legitimate the development of some ideas rather than others.

Introducing factual information

Hypothesis: When teachers introduce factual information in person, either in written or verbal form, pupils may be prevented from evaluating it, since they will tend to interpret such interventions as attempts to get them to accept its truth.

Each of the above hypotheses has three ingredients. The first is a description of certain contextual factors, e.g. the teacher's use of terms like 'good', 'interesting', 'right'. The second is a description of either an improvement desired – 'the discussion of alternatives ideas' – or a situation which needs to be changed – pupils not evaluating the information available to them. The third aspect is an explanation for the relationship which is cited in the hypothesesls.

Having, through brainstorming around a problem, generated some hypotheses, one can then proceed to gather information which is relevant to testing them. For example, evidence can be gathered about the extent to which one uses terms like 'good', 'interesting', 'right'; their effects on pupils' classroom responses; and the ways pupils interpret their use. The gathering of this evidence may also suggest further explanations of the problem situation, which in turn leads to more gathering of information etc.

Even when one has tested hypotheses and found them to apply, they should retain the status of 'hypotheses' rather than 'conclusions', since one can always encounter instances where they do not apply, and which will prompt a search for more comprehensive explanations. The process of analysis is an endless one, but in action research it must be interrupted for the sake of action. And the point of interruption should be when one has sufficient confidence in the hypotheses to allow them to guide action. Explanations do not tell one what to do, but they do suggest possibilities for action. Thus the 'introducing factual information' hypothesis does not tell one not to introduce factual information in person, and instead to give pupils independent access to it, e.g. looking it up in the library or resource centre. But it does provide some guidance. It
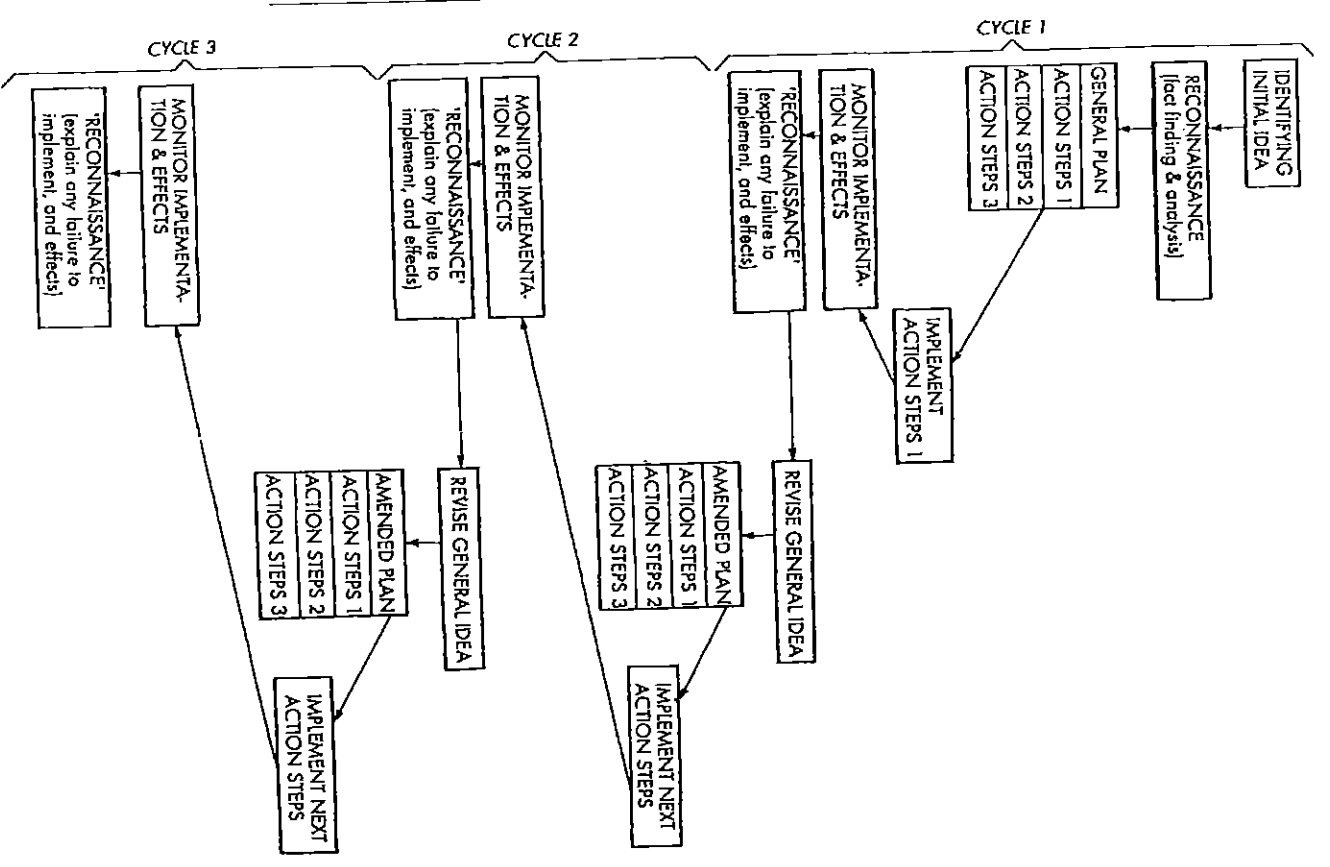
The activities of action research

What follows are descriptions of the activities involved in the action-research cycle. They are similar in many respects to those contained in the Deakin University *Action Research Planner* (see Kemmis *et al.* 1981). However, I have primarily written them in the light of my own experience of trying to help teachers do action-research.

1 Identifying and clarifying the general idea

The 'general idea' is essentially a statement which links an idea to action. Kemmis and others (1981) provide the following examples:

- Students are dissatisfied with the methods by which they are assessed. How can we collaborate to improve student assessment?
- Students seem to waste a lot of time in class. How can I increase the time students spend 'on task'?
- Parents are fairly keen to help the school with the supervision of students' homework. How can we make their help more productive?

In other words the 'general idea' refers to a state of affairs or situation one wishes to change or improve on.

Kemmis and his co-workers warn one to avoid 'issues which you can do nothing about'. They argue that 'Questions like the relationship between socio-economic status and achievement, between ability and a tendency to ask questions in class, may be *interesting* but they have tenuous links with action.' I don't accept this advice entirely. There are certainly ideas which cannot easily be linked with one's actions and should be avoided, even though one may find them theoretically interesting.

However, there are states of affairs which one can link with actions but remain unsure about the extent to which something can be done about them. For example, if pupils are dissatisfied with the way they are assessed this obviously affects a teacher's capacity to help them learn. But he or she may feel that the mode of assessment which prevails is something little can be done about. Nevertheless it is worth the teachers suspending judgement for a time in order to explore whether there is some action he or she could take which would ameliorate the worst effects of the system he or she is constrained to operate with.

The important criteria for selecting a 'general idea' are whether the situation it refers to (a) impinges on one's field of action and (b) is something one would like to change or improve on. The extent to which one is able to change or improve on it is a question which action research should address, rather than assume an answer to.

Another thing to take into account in selecting a general idea as a focus is that one may have misunderstood the nature of the problem, or what needs to be

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Figure 6.2 A revised version of Lewin's model of action research.

IDENTIFYING INITIAL IDEA

RECONNAISSANCE (fact finding & analysis)

CYCLE 1

GENERAL PLAN
ACTION STEPS 1
ACTION STEPS 2
ACTION STEPS 3

MONITOR IMPLEMENTATION & EFFECTS

IMPLEMENT ACTION STEPS 1

'RECONNAISSANCE' (explain any failure to implement, and effects)

REVISE GENERAL IDEA

CYCLE 2

AMENDED PLAN
ACTION STEPS 1
ACTION STEPS 2
ACTION STEPS 3

MONITOR IMPLEMENTATION & EFFECTS

IMPLEMENT NEXT ACTION STEPS

'RECONNAISSANCE' (explain any failure to implement, and effects)

REVISE GENERAL IDEA

CYCLE 3

AMENDED PLAN
ACTION STEPS 1
ACTION STEPS 2
ACTION STEPS 3

MONITOR IMPLEMENTATION & EFFECTS

IMPLEMENT NEXT ACTION STEPS

'RECONNAISSANCE' (explain any failure to implement, and effects)

6

A practical guide to action research

A model of the action-research process is outlined, followed by a list of methods and techniques for gathering and analysing data. The final sections of the chapter look at the problem of managing time for action research in schools and the uses to which case reports can be put in fostering school development and accountability.

Action-research might be defined as *'the Study of a social situation with a view to improving the quality of action within it.'* It aims to feed practical judgement in concrete situations, and the validity of the 'theories' or hypotheses it generates depends not so much on 'scientific' tests of truth, as on their usefulness in helping people to act more intelligently and skilfully (see Appendix 2 for examples). In action-research 'theories' are not validated independently and then applied to practice. They are validated through practice.

Lewin's model of action research

The term 'action research' was first coined by the social psychologist Kurt Lewin (see Kemmis 1980). Lewin's model involves a 'spiral of cycles'. Kemmis represents the spiral as shown in Fig. 6.1.

The basic cycle of activities is IDENTIFYING A GENERAL IDEA, RECONNAISSANCE, GENERAL PLANNING, DEVELOPING THE FIRST ACTION STEP, IMPLEMENTING THE FIRST ACTION STEP, EVALUATION, REVISING THE GENERAL PLAN. From this basic cycle the researchers then spiral into DEVELOPING THE SECOND ACTION STEP, IMPLEMENTATION, EVALUATION, REVISING GENERAL PLAN, DEVELOPING THE THIRD ACTION STEP, IMPLEMENTATION, EVALUATION and so on.

A revised model

Although I think Lewin's model is an excellent basis for starting to think about what action research involves, it can, as set out above, allow those who use it to assume that 'the general idea' can be fixed in advance, that 'reconnaissance' is merely fact-finding, and that 'implementation' is a fairly straightforward process. But I would argue that:

- The general idea should be allowed to shift.
- Reconnaissance should involve analysis as well as fact-finding and should constantly recur in the spiral of activities, rather than occur only at the beginning.
- Implementation of an action step is not always easy, and one should not proceed to evaluate the effects of an action until one has monitored the extent to which it has been implemented.

In the light of these criticisms I would elaborate the spiral of activities as shown in Fig. 6.2.
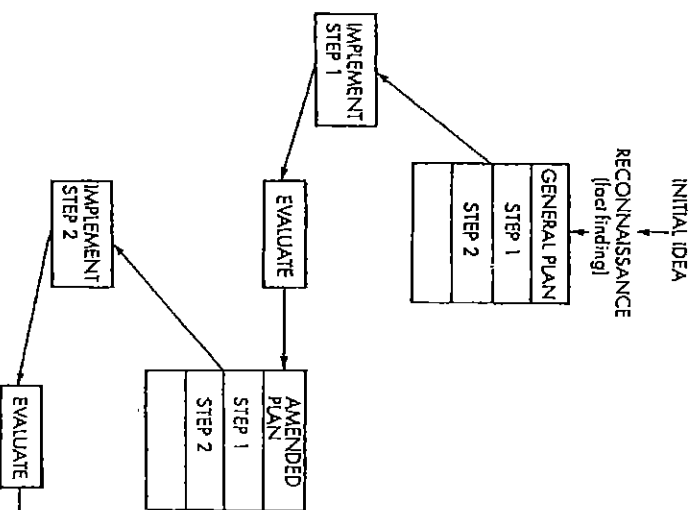

Figure 6.1   Kurt Lewin's model of action research as interpreted by Kemmis (1980).