Guide to Action Research

Erika Löfström

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Compiled by Erika Löfström

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Introduction

This guide has been written to support students, teachers and supervisors engaging in action research.

The aims of this guide are

- that the reader has an understanding of what action research is, including the process, research methods and data collection
- that the reader interested in action research has a basic understanding of how start building an action research plan, and
- that supervisors have an understanding of the central elements in an action research plan so that they can supervise their students through the process.

This is a brief guide, and both students and superivors are strongly advised to consult the methodological literature on action research in order to build a solid framework. Readers are referred to various sources and literture tips are provided in this booklet.

What is action research?

Action research has been defined as the study of social situations carried out by practitioners with the aim to improve quality of action, activities or praxis (cf. Kemmis & McTaggert, 1988; Carr & Kemmis 1986; Hopkins, 1993). Action research is academic inquiry, just like any other approach adopted in research. The same principles of being systematic and rigorous that apply to academic inquiry in general also apply to action research as well. The distinguishing features of action research can be coined in the foolowing four points:

- Action research arises from practical questions and is aimed at improving practice
- Action research is cyclical in nature
- Action research requires engagement in reflective practice
- Action research is participative and community-focused

(cf. Kember, 2000).

What sets it apart from other types of approaches is it immidiate connection to practical application. Whereas s reserachers in general are concerned with applications after the research findings and outcomes are known, for the practitioner researcher the application is in a way an outcome. The effects and influences of the application will need to be evaluated and decisions redarding further development will build on the experiences from the application. The practitioner researchers

"motto" could be coined quoting Lewin (1946, 34): "Research that produces nothing but books will not suffice".

In addition to the concerns with application, another aspect that distinguishes action research from other approaches of educational research is the researcher role. In action research, the researcher is first and foremost a *practitioner researcher*. A practitioner researcher is someone who…

- develops the body of professional knowledge to raise the level of professionalism in teaching
- acquires authority in one's own work
- seeks legitimation and authorisation for their activities
- focuses on the context of the teacher's own school / classroom / subject
- focuses on the immidiate / local practice, and
- engages in constant reflection

  (Ryhammar 1989).

This is a different role and requires a different approach compared to the educational researcher, who first and foremost critically scrutinizes taken-for-granted facts, and questions own and others' claims, designs strategies for finding answers to key questions and collects and analyses data. Acquiring authority in one's work or raising the level of professionalism in one's field are generally not the key foci of the research. Whereas the educational researcher studies other's teaching, practice and methods, the practitioner researcher is most often studying own and colleagues practices. Educational researchers are focused on improving practice in a larger community (research community, schools and school teachers more generally), but the practitioner researcher often operates at a micro or meso level, meaning that focus is on own practice, own school or own disciplinary are (field) (cf. Norton 2009). Educational researchers are often primarily methodologists and theoreticians employed at research institutes. This means that he or she is in many cases removed or detached from the context he or she investigates. This will never be the case with practitioner researchers who are very much engaged with the practices they intend to research and develop. The close connection may not always be unproblematic, but the benefits are definitely good knowledge of the local culture and a perspective of the local practitioner's every-day work and its problems (Ryhammar 1989). The key differences between educational research and action research are summarised in Table 1.

Table 1: The key differences between educational research and action research

Educational research	Practitioner research
Studies other's teaching, practice and methods	Studies own teaching and practice
Focuses on improving practice in a larger community	Focuses on a specific community
Guided first and foremost by the research design	Guided by implementation
Often primarily a methodologist and theoretician, and employed at a research institute	Primarily a practitioner (school teacher)
Often removed from the context, consequently lacks knowledge of the local culture and a perspective of the local practitioner's every-day work and its problems	Insight into local culture and every-day work and its problem, consequently may be too close to recognise what is familiar

The practitioner researcher is a reflective practitioner

Educational researchers are guided by various forms of knowledge, such as meta-knowledge about learning, theoretical discipline-specific and pedagogical knowledge, and the social and moral code of teacher profession (Niemi & Jakku-Sihvonen, 2006). These apply to the practitioner researcher as well, who in addition utilises **reflection** as an important source of knowledge. Reflection is a personal process of purposive thinking about one's own beliefs and behavior (cf. Schön, 1983). Reflection is a systematic and disciplined way of 'thinking about thinking'. At its best reflection results in change in two domains: an attitudinal domain, and in the practice of daily teaching.

It is common in qualitative research initiatives that researchers document their observations and experiences while engaging in the research process. For instance, ethnographers frequently keep a field diary. Similarly, it is advisable that the practitioner researcher keeps some form of on-going documentation throughout the process. For this purpose we recommend a reflecti0on journal.

The reflection journal is a tool that helps the writer to identify and express own conceptions of and thoughts about teaching and learning. This writing tool helps its writer to structure, clarify, and conceptualise one's own thinking. At t he same time it is a way of documenting the research process.

Reflective writing means describing your experiences, observations, and recognising and analysing things that take place around you in your research environment. The following are examples of items that may be documented in the action research reflection journal (Kember 2000):

- Initial reflections on the topic concerned
- Plans made
- Record of actions taken
- Observations of the effects of actions
- Reflections on and personal opinions about actions and reactions
- Results obtained through other forms of observation techniques
- Questions, examples, cases, areas of practical application, interpretations (with caution)
- References for and notes on relevant literature and supporting documents discovered.

It is perfectly acceptable to document feelings, emotional responses and reactions in the reflection journal, as these are part of our experiences and are connected to our beliefs and identities as teachers (and researchers).

The following are some ideas to help you in writing the action research reflection journal (cf. Boice, 1990; Lonka & Lonka, 1996). Writing takes time, but it does not have to take up a substantial part of your routines. Nevertheless, it is useful to set aside regular time slots, for instance 5-10 minutes at the end of a teaching session, for writing observations and experiences in the reflection journal. Writing regularly will help you keep up the routine of writing, and will be of great help to you when you are reporting the procedures and events of the intervention in your actual research report.

Writing spontaneously means that one pretty much writes down the thoughts as they appear in mind. At this point, aiming for structure and perfect lines might have an impairing effect on the writing. Remember that the purpose is to document the research process including your thoughts, insights and questions so that you yourself can develop an ongoing and personal relationship to your research, as well as accurately describe the research and its process to your audience. Focus on the process.

Writing whole sentences means writing whole ideas. Key words may be a helpful way to document insights or instant thoughts, but it can be difficult to later recall what they actual context was in that these key words pertained to. However, sometimes purposefully leaving open ends may make it easier to continue writing the next time you pick up your reflection journal. Leaving open ends means that you end your writing at a point from which you know that it will be easy to continue your thinking again.

As we have pointed out, action research is collaborative in nature. You may want to try shared writing with others who are engaged in the project. This means that you have a shared reflection journal in which you and your colleagues document your observations and thoughts, and also have access to each others' thinking. Collaboration means sharing the process with each other. Even if you use a shared reflection journal, you can still keep a personal version for yourself in which you document observations and thoughts that are for your personal use only.

Keeping a personal touch throughout the writing is likely to make the writing more interesting and motivating for you.

The cyclical nature of action research

Action research is cyclical in nature. It includes the phases of planning, acting, observing and reflecting (cf. Kemmis & McTaggert, 1988; Carr & Kemmis 1986; Hopkins 1993). This means that first a problem is identified, and working hypotheses about the situation are formulated. The understanding of the phenomenon at this point is very much based on the practitioner's "practical theory", and it is important to identify what kind of often implicit and unspoken "theories" people use to explain things with. In order to understand the current situation it is usually necessary to collect data about it. We accept that people may have different understandings about the current situation, and rather than mapping out an objective truth, we are interested in different perspectives and views that people may hold. This information is necessary in order for us to design the action and develop a realistic action plan.

Once the phenomenon and the current understandings and assumptions about it are mapped out, the next step is to plan the action to be taken. Actions can be observed and data collected during the implementation of the action, or immediately afterwards depending on the nature of the action. We might be interested in the effects of a teaching intervention, in which case we may gather data about the pupils' performance before and after the intervention, or we might be interested in the experiences thinking of the pupils during a school-based project pertaining to, say, sustainable development., in which case we are interested in the process and thus need to collect data while the intervention takes place.

Based on data collection and analysis we can say something about the effects or influences of the intervention, and we are likely to make suggestions of good practice for other who work in similar contexts or deal with similar issues. An essential part of the cycle is the practitioner reflecting on what does the experience mean, what can be learned from it, and how can it be used to develop practices, for instance in teaching, further. This phase can lead to the development of a new action plan and its implementation. The phases of the action research cycle have been summarized in Table 2.

Table 2: The stages of the action research process

Research design	Data collection and analysis	Action	Data collection	Data analysis	Reporting
Initiating a study	Mapping out current state	Creating and implementing the action plan	Gathering information on the action in practice	Identifying key issues and experiences	Written and oral to various stakeholders
-Focusing and framing -Selecting Participants -Literature review -Identifying the sources of information -Identifying ethical issues	-Interviewing -Observing -Reviewing documents, records, materials -Statistics -Reviewing literature, prior research	-Solving problem -Curriculum design -Syllabi and lesson plans -parent and Community links -School plans -etc.	-Interviewing -Observing -Reviewing documents, records, materials -Statistics	-Analysing key experiences -Categorising, coding -Statistical analyses - Conceptualising, synthesising	-Formal reports -Narrative accounts -Joint accounts -Presentations

Getting started

The observation an event, a frustrating encounter, a puzzling incident, the recognition of and unsatisfactory outcome, the experiencing of the lack of knowledge for solving a problem or a desire to understand more about asituation generally constitute the starting point of action research. The observation or event, and the wish to somehow improve or develop the situation through formal inquiry are usually accompanied by a set of other questions, such as

- Why is the inquiry important to me?
- How does relevant literature support the inquiry?
- How will inquiry impact the pupils in my class?
- How will the inquiry impact my colleagues, school, grade level...?
- How will the inquiry impact pupils' parents?
- How can the inquiry help develop the profession?

It is important to recognize and answer these questions, as they will form the **rationale** for the research. Answering these questions will allow you to identify the key concepts of your study, and the various perspectives (you as a teacher, your pupils, your colleagues, the pupils' parents, school leaders and so on). At this point the context of your research should be clear to you. You are also likely to have some expectations as to what you hope to achieve as an outcome of the study, that is, how will conducting the study help to develop practice.

Learning task: First step

- Identify the issue: Think about a challenge / problem / event / you have observed in a classroom or experienced yourself as a teacher
- Write down, in your own words, a short description about the challenge or the problem.
- State the issue as a one-sentence problem. For example: ”Some pupils are always silent in class” or “There have been events in the past that appear to be cases of bullying”

The thesis or dissertation is an individual demonstration of skills and understanding towards an academic degree. Nevertheless, as action research is participative and community-focused in nature, and may involve pupils and colleagues in the school community more broadly, there are benefits in working collaboratively. An individual can only work effectively to solve those issues, problems or dilemmas over which he or she has power to change. Collectively the power is greater (Woolhouse 2005). It is a good idea to involve colleagues in the project as early as possible. Before getting started with data collection, it may be useful to check with school staff how they perceive your research initiative as they might have important insights that will allow you to broaden your perspective or narrow down your focus. You may also need help in data collection and implementation of action plans, and it is good if you can involve your colleagues in the making of decisions, which might affect them, or require their help and support in later stages.

Overall, you will need to map out what resources you are going to need and the availability of those resources during various stages of the action research project. With resources is here meant, for instance, input from colleagues, working hours and time, technical equipment and support, and administrative support. At this point you will also need to look up professional/academic literature that will help you to identify what is already known about the phenomenon you are about to investigate.

The path from defining the issue to framing the research questions and stating the objectives can be summarized in the four key tasks (Stringer 2008):

- **Issue – define the issue causing concern**
    - For example, pupils are consistently failing to complete their reading homework, and they show disinterested in reading in class.
- **Problem – state the issue as a problem**
    - For example: The pupils do not come prepared to class and do not appear to be interested in the reading assignments. This affects their learning negatively.

- **Question - reframe the problem as a question**
    - For example: How do pupils experience reading? What obstacles do pupils have in preparing for the class assignments? What kind of reading tasks do pupils find motivating?
- **Objective – what do you hope to achieve?**
    - For example: To understand what the experience of reading means to pupils, and to be able to develop reading assignments so that they better serve the purpose of the pupils' learning.

Asking the right questions is a tricky task. Let us have a look at the kind of questions that can be addressed through action research. Action research tends in general to answer questions that in one of the following five categories (Anttila 1998):

1. Manifestation of the phenomenon

This means that we ask questions about the features or characteristics of a phenomenon, or we may try to find out the most important or typical ways in which a phenomenon occurs. Mapping at ways in which school bullying takes place would be an example of a question that pertains the manifestation of a phenomenon. We may also be interested in the meaning of the phenomenon. In our example of school bullying we might ask: How do the pupils feel that bullying affects everyday life in the school?

2. Time-related connection of the phenomenon

Another time of questions are related to chronological aspects, for example, what has the phenomenon been like in the past, or what will it be like in the future? We may be interested in comparing past experiences with the situation today. Comparing learning results in past testing schemes to the learning results in a renewed examination system might be an example of where we are interested in the time-related aspects of a phenomenon.

3. Questions related to the amount of the phenomenon

This means that we are interested in the frequency of a phenomenon, or "how much"/"how often" something takes place. Such questions allow us to obtain knowledge about how prevailing a phenomenon is. In the case of our school bullying example, we might be interested in asking "how many pupils have a) seen, b) experienced bullying in the school. We may also be interested in combining this type of frequency questions with the type of questions asked in category 2 (Time-related connection of the phenomenon). For instance, how has the frequency of bullying incidents changed over the past five years?

4. Impressions concerning the phenomenon

The fourth type of questions typically addressed through action research focuses on what people think about the phenomenon. We may ask about people's subjective experiences and their reactions to the phenomenon, for instance, how does it make the pupils feel when they see someone beeing

bullied? How do the pupils react or what do they do when they see or hear that someone is being bullied?

5. Questions related to the comparison of the phenomenon and the factors affecting it

We may also be interested in comparing the phenomenon, or seeking connections or relationships. For instance, we know that school bullying can be physical in nature (pushing), but it may also be of a more psychological kind (calling names). Now, we might want to find out if these two forms of bullying take place separately or do they tend to be connected so that pupils who use physical forms are also the ones who engage in psychological abuse. We may also be interested in the factors that contribute to why some pupils engage in bullying, (What factors affect the phenomenon?) or in the differences in forms of bullying based on age group (What kind of variations are there inside the phenomenon?)

Learning task: Asking the right questions

- In the first "Learning task" you were asked to identify the issue, write it down in your own words together with a short description about the problem, and state the issue as a one-sentence problem.
- The next step is to think of the kind of questions one can ask, and decide what exactly it is that you want to know about the phenomenon. Note that you may have more than one question, and these can represent different types.
- Once you have decided on the types of questions, try to reframe the problem that you identified as a question / a set of questions. Note that the research questions tend not to be ready in one go. Typically researchers put a lot of effort on formulating the questions so that they are clear, understandable, measurable or somehow possible to evaluate, and unambiguous enough to avoid multiple interpretations of the question. This means going back and forth between the different parts of a research design, i.e. objectives of the research, methods, theory, and research questions.

We also need to decide on the aims of the action research project and the indicators used to evaluate how well we achieve our aims. The following is an example (based on Altrichter & al., 2008) of how we want to end bullying and improve the school climate:

- **Aim:** We strive for a school climate in which teachers and pupils feel comfortable and are stimulated to high performance.
- **Realization, i.e. what would this aim mean in practice**: People in the school (teachers, pupils, other staff) respect each other, rules are jointly developed and committed to, mistakes are viewed as learning opportunities rather than something to be punished for.

- **Success indicators**: teachers and pupils demonstrate respect of one another by being courteous, behaving friendly and showing that they care for each other, guidelines for conflict resolution are developed together, rules are negotiated democratically and applied to all indiscriminately, pupils respond to teachers' feedback.
- **Instruments:** survey on school climate, interviews with teachers, pupils, observations and classroom visits.

Learning task: Where do you want to go with your research?

- Once you have initial research questions, write down the aim that you hope can be achieved through your project.
- Try to envisage what a school or class in which this aim id reality would like (realization).
- Then think about what kind of indicators there could be that informs you about whether your vision has actually become a reality.
- Now we are getting closer to deciding on the methodological aspects of the project. Think of what kind of instruments or tools you will need to gather information with. Keep in mind your aim, and what it is that you ultimately want to achieve by this research initiative.

Practical preparations

Preparing for the action research it may be necessary to seek permission from school authorities and school boards. Once permission is granted, the pupils and their parents/guardians are informed about the research that concerns them. When doing research on children (under 15 years of age) parents/guardians are generally informed about the research, and permission to use their children's data. This means that informed consent needs to be obtained bo0th from the children and their parents/guardians.

Because of the nature of action research, it is advisable to plan a sufficient time span for the project. In a master's thesis project a suitable timeframe is three semesters. In a doctoral dissertation project the time span is obviously likely to be longer and involve additional "action cycles". Observing changes, for instance in learning outcomes, may require a long enough intervention, and typically these last for approximately one semester. Of course, shorter or longer interventions are also possible. Table 3 provides an example of the kind of activities to be undertaken during a three-semester timeframe:

Table 3: Time plan and suggested activities

Semester	Activities
Spring	• Planning the intervention • Making research plan, including research questions and methodological choices • Keeping a reflection journal • Seeking permissions (school board)
Fall	• Obtaining informed consent (pupils, parents/guardians, colleagues) • Data collection: mapping out starting point • Implementing action/ intervention • Post-intervention data collection • Initial data analysis • Keeping a reflection journal • Thesis writing
Spring	• Data analyses continues • Thesis writing • Drawing conclusions and making suggestions for further development

The action research plan

At the end of the first semester or before starting data collection, the action research plan should be ready. The following are items that need to be addressed in the action research plan. Consequently, these are also the elements that should be addressed in the report (thesis or dissertation).

- Description of the background

  In this part the researcher describes the topic and explains why it is important to conduct research on it. The focus of the research is explained and justified. In this part the researcher also explains the aim of his or her project and its importance in the context in which the project is carried through. The expected outcomes are also envisioned as part of the justification for why this project is carried through in the first place. In brief, the issue causing concern, the problem, and the objectives (what one hopes to achieve through the project) are explained to the reader. This part may also contain description of the context (i.e. school context), which may be elaborated further in a specific chapter/section (for instance in connection to the description of the intervention) devoted to the description of the contextual factors.

- Theoretical frame of the research and prior research on the topic

  Although action research is mainly concerned with improving practice, it is still not a-theoretical in nature. In fact, two types of theoretical frameworks pertain to action research:

one related to object of study, and the other related to the research approach. This means that just like any research, also action research focuses on a specific topic on which we are likely to find prior theoretical models and research on. For instance, continuing with our example of school bullying, there is plenty of research on this topic that have contributed to theory development in the field. The researcher will need to familiarize him or herself with this body of literature.

The second theoretical framework pertains to action research as an approach to conducting research. The idea of action research relies on three premises; that learning takes place through reflection (cf. Schön), that learning is situated (cf. Lave & Wenger), and that learning takes place in a community of practice (Wenger). These premises lead us to specific theoretical perspectives that it is advisable to familiarize oneself with, particularly in the case of doctoral dissertation work, in which the researcher needs to consider the theoretical groundings of the approach taken. The researcher may also identify other premises that constitute a theoretical justification and grounding for action research, and it is in fact advisable that the researcher explores the works of different authors representing different perspectives in order to find a framework that suits the proposed study.

The parts on the theoretical framework and prior research on the topic develop throughout the project, and do by no means have to be ready in the research plan. In the research plan the researcher provides an idea of the kind of framework that is suitable and shows that he or she is familiar with some of the prior research in the field and is able to utilize existing knowledge when designing the own research project.

- Description of the action/intervention be explained carefully in the plan to indicate that the researcher has planned the activities in sufficient detail. A plan does not mean that things cannot be changed. As pointed out, action research strongly departs from the practical needs and is guided by these throughout the project. Nevertheless, a proper research plan including a carefully thought-out action plan will help to maintain academic rigor and quality.

- Ethical considerations

  All research involves questions that are ethical in nature, and these questions are different depending on the approach adopted and the methods chosen. There are, however, certain common questions that the researcher in all cases will need to consider, and these include the voluntary nature of research participation and need for participants to be sufficiently informed before consenting to research, the protection of the identities of the research participants, and the confidentiality of research data. Ethical concerns typical for action research are addressed below.

- Research questions

  The research questions tie together the theoretical and the empirical parts of the research. In action research it additionally ties the intervention to the research scheme. The research questions are thus a central element in the plan, and its importance should not be overlooked. Carefully formulated research questions are a significant asset for the

researcher. Different types of research questions typically addressed through action research have been described above. A general rule, regardless of the types of questions addressed is that one should avoid simple yes/no –questions. We want to make sure that our research questions address the phenomenon in a way that does not reduce the complexity of the phenomenon to very simple or naïve interpretations.

- Intervention

  This part is generally lacking from other types of research projects. The action plan should be as concrete as possible including descriptions of what is going to take place, when, where, and who are the ones participating in the various phases of the intervention. A carefully designed timeline of the intervention helps the researcher to keep on track of when each stage of the action research cycle takes place. The action plan is generally descriptive in nature to allow the reader to understand the nature of the intervention and the context in which it takes place.

- Method

  Action research is an approach that may utilize both qualitative and quantitative research data. In the Method section of a research plan the researcher needs to describe with what kind of methods data will be collected, what kind of data is collected, and from whom (i.e. sample). Intended methods of data analysis are described as well. There is a plethora of methodology guides available, and the researcher is advised to consult this literature.

- Literature

  Research plans include a selection of central pieces of literature that the researcher has utilized or will utilize in his or her research. Relevant literature will include national and international sources on theoretical frameworks, prior research on the topic, and methodology.

Research method and data collection in action research

Action research is systematic inquiry that may utilize both qualitative and quantitative research data. Data can be obtained through various methods, of which interview, observation, and questionnaires are commonly used. Interviews are usually semi-structured or open-ended, and they can be done as individual or group interviews. Questionnaires are usually structured, but may also contain open-ended questions. The caution that researchers using quantitative questionnaires must take into account is that sample sizes in action research tend to be small, and statistical analyses may not be robust enough. Observations can be structured, semi-structured or open-ended, depending on the degree to which the researcher has specified what it is to be observed. Student feedback, and web-based discussions in blogs and wikis can also constitute data sources.

In addition, class tasks and assignments, and tests and exams can constitute data for the researcher. In fact, there are numerous data sources , such as student reports, presentations, and essays, in the class that are readily available to the teacher/researcher.

Interviews

Interviews are a common form of collecting data in action research. Interviews essentially provide reconstructions of the individual's reality, with the aim to reach the respondent's experience (see research questions of type 1 and 4 primarily). Focus is on the variety of the individuals' experiences, and the researcher attempts to "grasp the whole spectrum" with the emphasis on different types of experiences/ways of experiencing. The researcher tries to find different themes in an individual's data (vertical analysis), and/or locate all individuals in whose interviews the theme is present (horizontal analysis) (cf. Polkinghorne 1995). When analyzing the interviews, the researcher may pay attention to a variety of aspects, i.e. the content of the talk, the narrative or "story", talk and silence, expressional strategies, and gestures (Kaasila, 2008):

The content of the talk reveals the interviewee's emotions, beliefs, knowledge and motivations that the interviewee is aware of and is willing to tell about. Analysing the narrative or the "story" in the interview means that the researcher identifies the genre and a plot. The way in which the story is told is expected to reveal something about the fundamental characteristics of the interviewees, i.e. their identities. Emphases, repetition, telling through negation, and telling through third voice are the interviewee's ways to signify higher personal relevance or importance of a certain theme or topic. Spontaneous talk, pauses and silence can tell about the interviewee's relationship with the topic, i.e. their willingness to talk about the topic or sensitivity of the topic for the individual. Facial expressions, posture, and tone of voice can express emotions in the interview situation and emotions associated with the theme or the topic of the interview (Kaasila 2008). Interviews are generally audio taped and transcribed to aid analysis.

The active interview

Active interview (Holstein & Gubrium 1995; cf. Burnaford & al. 2001) is a special interviewing technique sometimes used in action research. The active interview is a form of dialogue, in which meaning is actively constructed and emerges as a result of the interview. These interviews are relatively open in nature. However, guiding questions can be used, but their purpose is merely to set the agenda, not to control the content. The interviewer may even ask the interviewee what kind of questions he or she would like the reviewer to ask. In the active interview the interviewer may express viewpoints and perspectives, which generally is not the case in traditional interviewing. The interviewer shares thoughts on what he or she finds is important data or what he or she has so far been learned from the research. The active interview is a relatively demanding form of data collection, and needs practice.

Storytelling

Storytelling (Mattingly, 1991) is a data collection technique developed with teachers to capture formal and informal ”everyday stories”. Storytelling is the construction of a narrative explaining what happened, why it happened, what was expected to happen, what it meant to the narrator (the interviewee), and how it could have influenced future teaching. This form of data collection helps the interviewee to make sense of an experience and thus facilitates reflection. Action research can encourage reflective practice in both the researcher and the research participants.

Observation

Observation, typically in the classroom setting, is another commonly utilized data collection method in action research. Similarly as the interview, the observation can be an informative method, but the researcher needs to be aware of what are the things that can be analysed in observation data. The researcher can in the classroom setting observe, for instance, emotions, motivation, cognition or social phenomena (Hannula, 2007). Recognition of emotions is an ability that may need practice. The skilled observer can observe facial expressions, positions, proximity and distance, and voice tone. Motivation may be interpreted through the choices that the pupils make, and the emotions that pupils express in different situations. Cognitive aspects can be analysed through the pupils' achievement, and through what and how the pupils communicate about a subject, about self, teacher, parents, and so on. Also facial expressions may reveal something about the cognitive aspects as the pupils engage in solving their assignments. Social phenomena can be observed through the forms of communication used, and through how pupils are placed in the class (by the teacher, and when able to choose for themselves).

Transcription of video data is more laborous than the transcription of audio recordings as the researcher may in addition to the spoken material need to analyse the visual material. The first step is usually a ”rough transcription”, which finds the most significant events or turns etc. Exact transcriptions are sometimes done only of the most important places. It may, however, be necessary for the researcher to transcribe all data in order to determine the significance of the different parts. The researcher is aided by comic strip –type transcription with still pictures and transcriptions of speech. Sometimes also gestures, facial expressions, and body postures may be written down to aid in the analysis. The analysis itself of the video recordings is in principle the same as analysis of interviews, with the researcher having to return to the original recordings every once in a while to check interpretation.

Observations are greatly aided by the use of videotaping. The researcher needs to consider how many video cameras are needed to cover the desired setting. Is the video primarily taping the teacher or the class, or both? Is the picture quality good enough to show distinctions in facial expressions? Observations are often accompanied by interviews, which can, again, be individual or group interview. Another form of a follow-up interview is the videosimulated recall, i.e. the researcher and the interviewee watch the video or parts of it together and go over significant

events. The researcher generally prompts the interview with questions, such as “What were you thinking at that moment…” etc.

Learning task: Deciding on data collection

- What kind of data do you need? Experiences, stories and narratives, feedback, grades, numerical information…?
- From whom? Pupils, colleagues, school leaders, parents…?
- How could data collection be carried out? Through observation, questionnaires, interviews, feedback sheets, graded assignments…?
- Who collects the data? Are you, for instance, going to interview your own pupils, or would it be a better idea to have colleague or someone else assist you who may not be involved with the grading of your pupils?

Reliability of action research

Just like in any research, the researcher needs to critically scrutinize the research once conducted. Typically researchers evaluate their research based on its reliability and validity. Triangulation Triangulation often increases the reliability of action research. This means that the researcher collects different types of data, i.e. interview, observation and questionnaire data, on the same object.

Researchers sometimes aim for generalizability of their findings. The practitioner researcher is more concerned with the **transferability** of his or her findings. The aim is not to generalize, and due to the nature of the research, this is not even possible. The action researcher asks instead, in what contexts are the results transferable or applicable? For a useful discussion on generalizability in action research, the reader is referred to pages 41-42 in *Action learning and action research* by Kember (2000).

In addition, action research is concerned with **credibility,** meaning that the findings/results are plausible from a practical point of view.

Ethical considerations in action research

Ethical questions that researchers need to consider include the voluntary nature of research participation and need for participants to be sufficiently informed before consenting to research, the protection of the identities of the research participants, and the confidentiality of research data. Participation in research is always voluntary.

Participants must have enough information based on which they can make an *informed decision* about research participation. The research participant has to have full capacity and legal status to provide consent. If this is not the case, as for example in many school-based action research projects that involve children as research participants, a parent or guardian needs to provide consent. Of course the child's cooperation and willingness is of vital importance.

The following are suggestions on aspects of the research that the researcher may need to disclose to the participants in order for them to be able to make an informed decision about their participation (or refusal to participate):

- The purpose of the research
- The role of the participant, particularly in case of experiment or trial
- Methods and procedures
    - Who will interact with the research participant
    - When and where, possible follow-ups
    - Time needed for interviews, or answering questionnaires
- Possible benefits, discomforts, harms and risks

It is also a good idea to let the participants know that the researcher offers to answer any questions that the participants (or their parents/guardians) might have about the research. The researcher also needs to make it known to the participants that they have the right to withdraw from the research at any time without penalty or sanctions.

The research participant must have an idea of what the research is about, what the possible outcomes and consequences could be, and what risks and harms may be associated with these. Risks and harms associated with research can be psychological, social, physical, legal, and economic in nature (National Institute of Health, 2008). However, in educational and practitioner research only the first two are generally potential threats. Psychological harm may include anxiety, regret, or emotional distress. Social harm means that the findings could negatively impact others' perceptions of the participants or the school, and jeopardise reputation. This is something that the researcher needs to be aware of in advance and try to minimize the potential threats from undue harm to the research participants and the institutions, i.e. school.

Many ethical issues in research are common for a variety of research approaches and initiatives. There are also questions that the practitioner researcher typically needs to think about. For instance (cf. Norton 2009):

- Distribution of benefit: If an intervention is believed to facilitate learning, is it ethical to refuse it from a control group?

- Power issues: There is always a power relation (relation of authority) between teacher and pupils. This means that pupils may feel obliged to participate in the research conducted by their teacher, or they may feel that they need to respond in a certain way to questions posed to them. Research participation must always be voluntary, but in practice it may be

difficult for a pupil to refuse to participate if the he or she feels that refusal will have social implications.

- Presenting data from small groups or special populations: Action research is often contextualized in one or a few schools and/or with specific age groups or classes. Even if the researcher takes great care in maintaining the anonymity of the research participants, covert breaches of confidentiality are still possibly. By publishing action research with one's own name it may be possible to connect the author to the school in which he or she may work as a teacher, and thus identification of the context and colleagues will be possible.

- Anonymity: Anonymity can be difficult to maintain when collecting data in a small school, a single institution, or in a specific small group. In reporting excerpts from interviews some information is generally provided about the research participants (e.g. 8th grade math teacher, female, 38 years…). Even if no names are provided, it may be possible from this kind of data to deductively identify the identity of a participant.

It is strongly advisable that the practitioner researcher consults literature on ethics in research with human participants. Lin Norton´s book *Action Research in Teaching and Learning. A practical guide to conducting pedagogical research in universities* addresses ethical issues in action research and provides a good starting point to any practitioner researcher.

Also Bruce Macfarlane's book *Researching with Integrity. The Ethics of Academic Enquiry*. 2009, London, Routledge) provides food for ethics thoughts.

Learning task: Ethics in action research

- Take a look at the above ethical issues. Do you recognize any of them as relevant in your action research?
- What other kind of ethical issues are you able to identify?
- What are the potential dangers or risks if ethics are breached? Could someone be harmed? How would you as a researcher need to act to avoid harming your research participants?

Evaluating action research

The action research thesis is evaluated on the same premises as other types of research, that is,

- Choice of research topic, and the relevance of the objectives for the practitioner's community
- Theoretical knowledge, knowledge of research in the topic, and the use of literature and relevant sources
- The relevance of the research objectives, and clarity and feasibility of the research questions
- The suitability of the data considering the objectives and research questions, and credibility of the data collection
- The suitability and credibility of data analysis and the techniques used
- The consistency and depth of analyses
- The consistency and clarity of the reporting of the findings, and the extent to which the research questions are answered
- The consistency of the conclusions with the findings
- Evaluation of both the research process and the findings
- Critical assessment of own work as researcher
- The balance between independence and the ability to seek and take advise
- The cohesion of the entire thesis, i.e. all parts "fitting together"
- The fine-tuning of the thesis, both linguistic and outer appearance.

In action research, it is necessary to look at the whole process, not only the findings. Another feature that adds an element to the evaluation of action research is the activity implementation or intervention, that is, how appropriate were these considering the objectives of the project, and how well were the activities or intervention implemented. Can the findings be used to reach the goals of the action research project?

Further, as action research is mainly concerned with improving practice, it should also be evaluated on the basis of its **meaningfulness**, i.e. do the findings open new views or create new understanding of (school) practice?

Literature tips

There are numerous books on action research initiatives as well as methodological guides that, many of which adopt a step by step approach to conducting action research. The following are some suggestions on action research guides that the practitioner researcher may find helpful:

- Altrichter, H., Feldman, A., Posch, P. & Somekh, B. (2008) 2nd Ed. Teachers Investigate their work. An introduction to action research across the professions. London: Routledge.
    - Very good; includes reflection, social implications, and theoretical arguments.

- Burnaford, G., Fischer, J. & Hobson, D. (2001) 2nd Ed. Teachers doing Research. The power of action through inquiry. London: Lawrence Erlbaum.
    - Includes practical cases and examples of action research.
- Kember, D. (2000). Action learning and action research. London: Kogan Page.
    - Reports a large-scale university-based action research project.
- McGill, I. & Beaty, L. (1995). Action Learning: a guide for professional, management and educational development. (2nd ed.) London: Kogan Page.
    - Detailed guidance on action and reflection + a number of examples from different fields.
- Norton, L.S. (2009). Action Research in Teaching and Learning. A practical guide to conducting pedagogical research in universities. London: Routledge.
    - An easy-access guide to action research as academic inquiry. The author adds many examples from own experience to illustrate the points raised. Includes a well-written introduction to ethical issues in action research.
- Stringer, E. (2008) 2nd Ed. Action Research in Education. Upper Saddle River, NJ: Pearson Merrill Prentice Hall.
    - Emphasis on methodological issues and qualitative research.

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